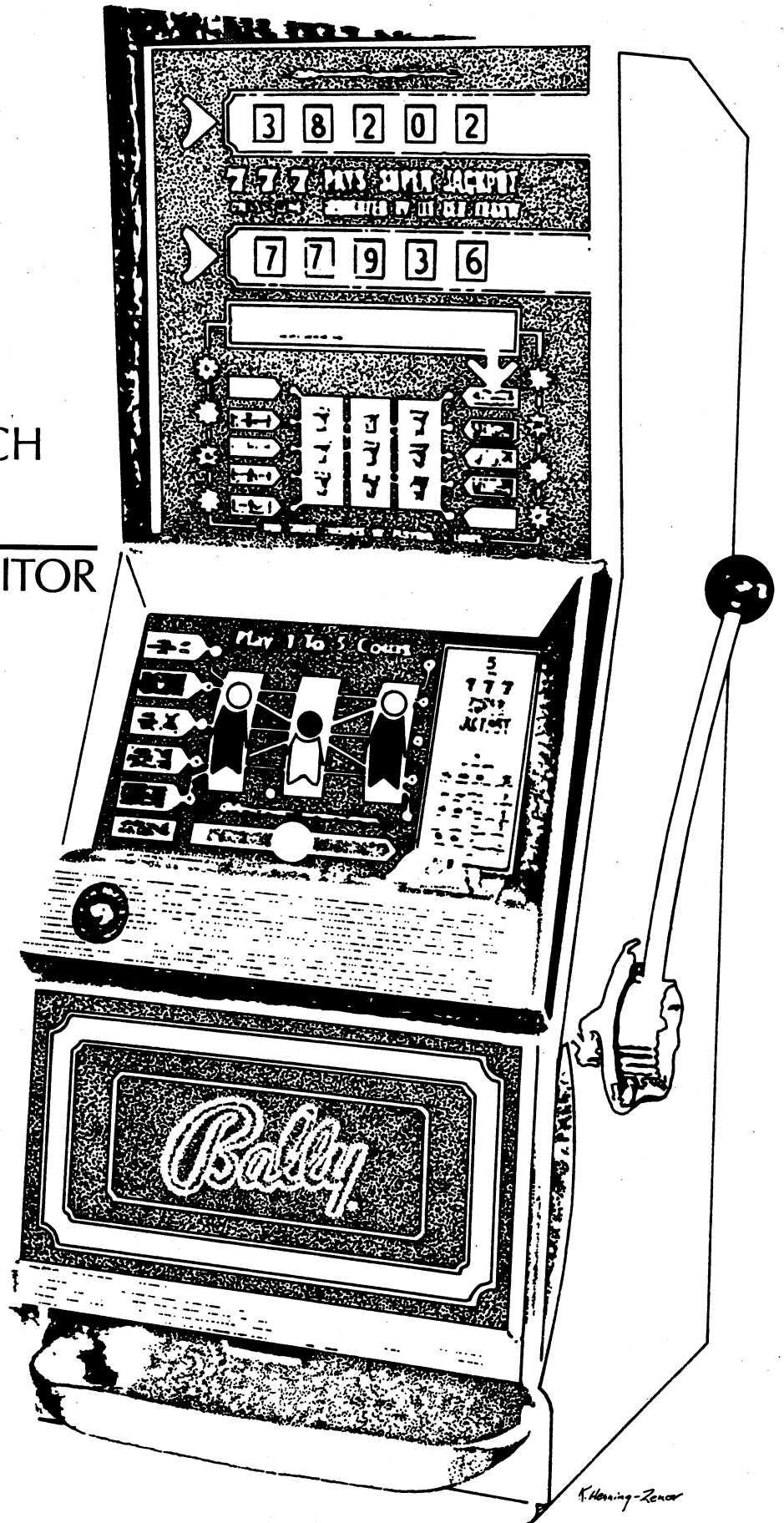


ADVANCES IN
CONSUMER RESEARCH
VOLUME XIII

RICHARD J. LUTZ · EDITOR



Hanning-Zaner

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International Standard Book Number: 0-915552-17-5

International Standard Serial Number: 0098-9258

Richard J. Lutz, Editor

Advances in Consumer Research, Volume XIII.
(Provo, UT: Association for Consumer Research, 1986).

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PREFACE

This volume contains papers that were presented at the sixteenth Annual Conference of the Association for Consumer Research, which was held October 17-20, 1985, at the MGM Grand Hotel in Las Vegas, Nevada. The conference program, reproduced elsewhere in this volume, consisted of 75 competitive papers and 45 Paper Fair presentations, which were selected through a competitive review process from a total of 153 competitive paper submissions. The Paper Fair presentations are published as brief Abstracts here, while the competitive papers are included in their entirety. In addition, 58 of the 128 special session presentations at the conference are published here. Since many special session presenters chose not to include their papers in the proceedings, the interested reader is encouraged to contact authors directly for further information pertinent to any paper listed on the program which does not appear in the Table of Contents. ACR has maintained this "optional publication" policy over the years as a means for encouraging participants to present their best work without precluding the possibility of publishing it in a professional or scientific journal.

Orchestrating a conference as large and as varied as an ACR Conference obviously entails the considerable efforts, coordination and cooperation of many people. I find myself in the position of having so many people to thank that I am not quite sure where to begin. And, I have this vague anxiety that once I've thanked everyone else who worked so hard to make the conference a success, the reader might be left wondering what exactly it was that I contributed to the effort! Nevertheless...

I would first like to thank Peter Wright, who, as President-Elect, both offered me the opportunity to serve in this role and then supported me unflinchingly in my vision for the conference. I also received incredible amounts of moral support, encouragement, and accumulated wisdom from Keith Hunt, our Executive Secretary. I would also like to acknowledge my Department Chairman, Alan Sawyer, for granting me not only the release time to take on this responsibility, but also the use of considerable Departmental resources.

Obviously, the conference would not exist without the contributions of the literally hundreds of scholars and researchers who contributed their work in the form of competitive papers and special session proposals. And, of course, the countless hours spent by the sixteen-member Program Committee and the 129 competitive paper reviewers, all of whom are acknowledged individually elsewhere in this volume, were very much necessary to make this a quality conference. Their efforts, though taken for granted, are most appreciated, and the dedication and thoroughness of both groups were truly remarkable.

My research assistant throughout the entire process, which ran roughly from February through October, 1985, was Douglas R. Hausknecht, who by now is a member of the Marketing faculty at the University of Akron. Most assuredly, a better assistant has never walked the face of the earth! Doug kept me and hundreds of papers, reviewers, authors, discussants, oversized sheets, and audiovisual requests organized; without him, I would have been a basket case. It is largely due to his efforts that the conference planning (and the printing of these proceedings) took place on a timely basis. And, he performed all these activities (and more too numerous to mention) in his characteristic good humor. As is undoubtedly obvious by now, Doug is the single person to whom I owe the biggest debt of gratitude. I may even sign off on his dissertation, now that he has time to write it!

I am also extremely appreciative of the outstanding job Debbie Scammon of the University of Utah did as Conference Arrangements Chair. Selectively perceiving her offer to "help out a little if you need it," I quickly thrust upon her full responsibility for conference registration, hotel interface and arrangements, site visits, menu selection, and cocktail parties - in short, everything important. She handled it all beautifully and essentially freed me up to worry about just program content. She has asked me to acknowledge the excellent work of her right-hand man, Jim McAlexander, who worked closely with her on the registration system. Also, a thank you goes to another student at Utah, Janeen Olson, who helped staff the Registration Desk at the conference.

Linda Loucks, the Marketing Department Administrative Assistant, was instrumental in budgeting, the procurement of emergency supplies, and the freeing up of secretarial support at crucial times in the process. Sylvia Palmer and Alicia Maxwell provided cheerful, timely and accurate typing of conference correspondence and proceedings modifications. All three of these ladies were invaluable to me in making this whole thing happen, and I promise to buy them all some more flowers.

Finally, I would be remiss if I didn't acknowledge the support and cooperation of my family, to whom running the conference basically translated into "Why isn't Daddy home?" So, to my wife Rachel and my son Matthew, all my love, and thanks for cutting me some slack. Dad's back!

To you, the reader, I hope you find much of interest in this volume, which I believe reflects the excitement and diversity of the emerging discipline of consumer research.

Richard J. Lutz, Editor
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Gainesville, FL 32611

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Program Structure

Six concurrent "tracks":

1. "Keynote" Special Sessions
2. Micro-Level Analysis of Consumer Behavior
3. Macro-Level Issues in Consumer Research
4. Effects of Marketing Variables on Consumer Behavior
5. New Methods and Measures
6. Choice Modeling/Social Influence Processes

Plus two "Paper Fair" sessions featuring a variety of consumer research topics.

Tuesday, October 17, 1985

EXECUTIVE BOARD MEETING

METRO 1
11 am - 4 pm

REGISTRATION

FOYER
4 pm - 9 pm

EARLY BIRD RECEPTION

METRO 5
6 pm - 8 pm

EARLY BIRD SPECIAL SESSION:

Everything You've Always Wanted to Know about How to Gamble: A Primer for the Uninitiated

METRO 6
7:30 pm - 8:30 pm

Chair: MICHAEL ROTHSCHILD, University of Wisconsin, Madison.

Panel: IVAN ROSS, University of Minnesota
ALLAN D. SHOCKER, Vanderbilt University

Wednesday, October 18, 1985

MORNING COFFEE

PROMENADE
8:00 am - 8:30 am

CONCURRENT SESSIONS

8:30 am - 10:00 am

1.1 Special Session: Whither ACR?

METRO 6

Co-Chairs: MORRIS B. HOLBROOK, Columbia University
ELIZABETH C. HIRSCHMAN, New York University

"Consumer Research is What Consumer Researchers Do"
PAUL F. ANDERSON, Harvard University

"What Should ACR Want to Be When It Grows Up?"
RUSSELL W. BELK, University of Utah

"Research as a Voyage of Discovery"
ALDEN G. CLAYTON, Marketing Science Institute
DIANE SCHMALENSEE, Marketing Science Institute

"Expanding the Thinkable: Consumer Research for Marketing Decisions"
GERALDINE FENNELL

"Marketing, Intellectual Creativity and Consumer Research"
ELIZABETH C. HIRSCHMAN, New York University

"Whither ACR? Some Pastoral Reflections on the Business-Research Continuum"
MORRIS B. HOLBROOK, Columbia University

"Rethinking the Domain of Consumer Behavior"
RICHARD J. LUTZ, University of Florida

"Inner Direction as a Social Character for Consumer Research"
MELANIE WALLENDORF, University of Arizona

"ACR: Interdisciplinarity, Creativity, Excitement, Discomfort, and Fun"
WILLIAM WELLS, Needham Harper Worldwide

1.2 Competitive Paper Session:

New Directions in Consumer Decision-Making Research

METRO 2

Chair: DIPANKAR CHAKRAVARTI, Duke University
Discussant: APRIL ATWOOD, University of Washington

"Some Evidence for Additional Types of Choice Simplification Strategies"
SURJIT CHHABRA, Indiana University
RICHARD W. OLSHAVSKY, Indiana University

"Related Theories of Complexity in Information Processing"
CAROLYN L. COSTLEY, University of North Carolina

"Positivity and Negativity Effects in Inferences About Products"
FRANK KARDES, Indiana University
WILLIAM M. STRAHLE, Indiana University

1.3 Special Session: The Effects of Alcoholic Beverage Advertising: Research Issues and Opportunities

METRO 3

Chair: EDWARD T. POPPER, Northeastern University

"The Effects of Alcoholic Beverage Advertising and Marketing Practices: The Current State of Affairs"
EDWARD T. POPPER, Northeastern University
Panel Discussion
ROBERT DENNISTON, NIAAA
GEORGE HACKER, CSPI
PHILIP HARDING, CBS-TV
DONALD KEENAN, Federal Trade Commission
RICHARD MIZERSKI, Florida State University

1.4 Competitive Paper Session: Situational Impact on Consumer Behavior

METRO 4

Chair: GABRIEL BIEHAL, University of Houston
Discussant: GARY BAMOSSY, Vrije Universiteit

"Toward a Methodology for Assessing Effects of In-Store Atmospherics"
MERYL PAULA GARDNER, New York University
GEORGE JOHN SIOMKOS, New York University

"Variations in Choice Strategies Across Decision Contexts: An Examination of Contingent Factors"
WAYNE D. HOYER, University of Texas-Austin

"The Person by Situation Interaction Myth: Implications for the Definition of Situations"
JOSEPH A. COTE, JR., Washington State University

1.5 Special Session: New Methods for Measuring Consumer Knowledge

METRO 1

Co-Chairs: JOSEPH W. ALBA & J. WESLEY HUTCHINSON, University of Florida
Discussant: JERRY C. OLSON, Pennsylvania State University

"Frequency Information: Its Encoding and Use as a Decision Heuristic"
JOSEPH W. ALBA, University of Florida

"Product Familiarity and the Strengths of Brand-Attribute Associations: A Signal Detection Theory Approach"
J. WESLEY HUTCHINSON, University of Florida
MICHAEL J. ZENOR, University of Florida

"The Measurement of Declarative and Procedural Knowledge"
PETER DACIN, University of Toronto
ANDREW A. MITCHELL, University of Toronto

1.6 Special Session: New Developments in Analyzing Complex Choice Problems

PALACE 6 & 7

Co-Chairs: RANDALL G. CHAPMAN, University of Alberta
JORDAN J. LOUVIERE, University of Alberta

"A Nonmetric Alternative to Traditional Model-Based Approaches to Conjoint Analysis"
PHILIPPE CATTIN, University of Connecticut

"Sequential vs. Simultaneous Estimation of Multistage Models of Perception, Preference and Choice"
RANDALL G. CHAPMAN, University of Alberta

"The Role of Choice Models in Competitive Analysis"
LEE G. COOPER, University of California, Los Angeles

"A Multistage Disaggregate Choice Model"
DENNIS H. GENSCHE, University of Wisconsin, Milwaukee

"Choice Set Configuration Effects on the Transferability of Probabilistic Choice Models"
ERIC JOHNSON, Massachusetts Institute of Technology
ROBERT MEYER, University of California, Los Angeles

"Applied Random Utility Modeling: The Options and Their Merits"
JOEL L. HOROWITZ, University of Iowa

"New Developments in Second Order Response Surface Design with Applications to Conjoint Judgment and Choice Problems"
JORDAN J. LOUVIERE, University of Alberta
DONALD A. ANDERSON, University of Wyoming

COFFEE BREAK

PROMENADE
10:00 am - 10:30 am

CONCURRENT SESSIONS

10:30 am - Noon

2.1 Special Session: Whither ACR?
(Session Continued)

METRO 6

2.2 Special Session: Perspectives on Experience and Decision Making

METRO 2

Chair: RICHARD ETTENSON, University of Maryland
Discussant: JAMES SHANTEAU, Kansas State University

"Experience vs. Expertise in Decision Making"

JACOB JACOBY, New York University
ALFRED KUSS, New York University
TRACY TROUTMAN, New York University
DAVID MAZURSKY, New York University

"Experience and Retail Buying: A Decision Making Analysis"

JANET WAGNER, University of Maryland
RICHARD ETTENSON, University of Maryland

"Experience as a Mediator in Recall and Use of Information in Consumer Decision Processes"

GARY J. GAETH, University of Iowa
CATHERINE COLE, University of Iowa

"A Categorizational Approach For Comparing Non-Comparable Alternatives"
JAMES R. BETTMAN, Duke University
MITA SUJAN, Pennsylvania State University

2.3 Special Session: Consumer Behavior and Energy Research

METRO 3

Chair: W. FRED VAN RAAIJ, Erasmus University Rotterdam
Discussant: THEO M.M. VERHALLEN, Tilburg University

"Energy Conservation Actions: Analysis of Predictors"

PATRICIA A. TRIPPLE, University of Nevada, Reno
CAROLE J. MAKELA, Colorado State University

"Determinants of Home Insulation Intentions"

W. FRED VAN RAAIJ, Erasmus University Rotterdam
THEO M.M. VERHALLEN, Tilburg University

"Marketing to Vulnerable Groups: Testing the Effects of Peers and Incentives On Elderly Response to Home Energy Audits"
R. BRUCE HUTTON, University of Denver
OLLI T. AHTOLA, University of Denver
DENNIS L. McNEILL, University of Denver

"Comparative Processes in Energy Conservation Feedback Effects"
THOMAS D. JENSEN, University of Arkansas

"A Longitudinal Study of Factors Affecting Household Energy Expenditures in Canada"
LOUISE A. HESLOP, University of Guelph

2.4 Competitive Paper Session: Retail Patronage Behavior

METRO 4

Chair: JUDITH L. ZAICHKOWSKY, Simon Fraser University
Discussant: GARY SULLIVAN, University of Texas, El Paso

"Perceived Correlates of Store Price Image: An Application of the Bootstrap"
B. KEMAL BUYUKKURT, Concordia University
MERAL BEMIRBAG BUYUKKURT, Concordia University

"Shopping Area Image: Its Factor Analytic Structure and Relationship with Shopping Trip and Expenditure Behavior"
CHOW HOU WEE, University of Singapore

"Relationships Between Affect, Patronage Frequency and Amount of Money Spent with a Comment on Affect Scaling Measurement"
LINDA L. GOLDEN, University of Texas, Austin
MARY R. ZIMMER, University of Texas, Austin

2.5 Competitive Paper Session:

Conceptualizing and Assessing Consumer Knowledge

METRO 1

Chair: VALERIE FOLKES, California State University, Fullerton
Discussant: MICHAEL D. JOHNSON, University of Michigan

"A Typology of Consumer Knowledge Content"
MERRIE BRUCKS, University of North Carolina

"Measuring Prior Knowledge"
CATHERINE COLE, University of Iowa
GARY J. GAETH, University of Iowa
SURENDRA N. SINGH, University of Kansas

"Subjective and Objective Measures of Product Knowledge Contrasted"
FRED SELNES, Norwegian Fund for Market and Distribution Research
KJELL GRONHAUG, Norwegian School of Economics and Business Administration

2.6 Special Session: New Developments in Analyzing Complex Choice Processes (Session Continued)

PALACE 6 & 7

LUNCHEON

METRO 5

Noon - 1:45 pm

Business Meeting

Chaired by: H. KEITH HUNT, Executive Secretary-Association for Consumer Research

Presidential Address

"Schemer Schema: Consumers' Intuitive Theories About Marketer Influence Tactics"
PETER WRIGHT, Stanford University

Concurrent Sessions

2:00 pm - 3:30 pm

3.1 Special Session: Perspectives on the Presidential Address

METRO 6

Chair: JAGDISH N. SHETH, University of Southern California
Participants: JAMES R. BETTMAN, Duke University
JERRY C. OLSON, Pennsylvania State University
GERALD ZALTMAN, University of Pittsburgh

3.2 Competitive Paper Session: Investigations of the Theory of Reasoned Action

METRO 2

Chair: MICHAEL J. RYAN, University of Michigan
Discussant: J. CRAIG ANDREWS, Marquette University

"Representing Attitude Structure: Issues and Evidence"

PAUL W. MINIARD, Ohio State University
THOMAS J. PAGE, JR., University of Wisconsin, Madison
APRIL ATWOOD, University of Washington
RANDALL ROSE, Ohio State University

"An Exploratory Investigation of Consumer Innovativeness and Interpersonal Influences"

WILLIAM O. BEARDEN, University of South Carolina
STEPHEN E. CALCICH, University of South Carolina
RICHARD G. NETEMEYER, University of South Carolina
JESSE E. TEEL, University of South Carolina

"The Self-Monitoring Concept: A Consumer Behavior Perspective"

JACQUES NANTEL, Ecole De Hautes Etudes Commerciales
WILLIAM STRAHLE, Indiana University

3.3 Competitive Paper Session: Consumer Perspectives on the Behavior of Markets

METRO 3

Chair: RONALD J. DORNOFF, University of Cincinnati
Discussant: ALAN R. ANDREASEN, University of California, Los Angeles

"The Concept of Consumer Market Efficiency: Toward Evaluating The Social Efficiency of Consumer Marketing"
JOHN F. GASKI, University of Notre Dame

"Defining and Evaluating Quality: The Consumer's View"
ELLEN DAY, University of Georgia
STEPHEN B. CASTLEBERRY, University of Georgia

"Marketing as an Agent of Social Change in Developing Countries: Some Public Policy Issues"
ELIZABETH C. HIRSCHMAN, New York University

3.4 Competitive Paper Session: Cognitive Processes in Advertising Response

METRO 4

Chair: JOHN R. ROSSITER, NSW Institute of Technology and the University of Pennsylvania
Discussant: CHRIS T. ALLEN, University of Cincinnati

"The Effects of Time Compressed Advertising on Brand Attitude Judgments"
DOUGLAS R. HAUSKNECHT, University of Akron
DANNY L. MOORE, Burke Marketing Services, Inc.

"Long-Term Memory for Emotional Advertising Messages"
MARIAN FRIESTAD, University of Wisconsin, Madison
ESTHER THORSON, University of Wisconsin, Madison

"The Generation Effect in Advertising Appeals"
DAVID J. MOORE, University of Oklahoma
RICHARD REARDON, University of Oklahoma
FRANCIS T. DURSO, University of Oklahoma

3.5 Special Session: Perils, Pitfalls, and Prescriptions for Research on Consumers' Scripts

METRO 1

Chair: RUTH ANN SMITH, Virginia Polytechnic Institute and State University
Discussant: DEBORAH ROEDDER JOHN, University of Wisconsin, Madison

"Four Script Studies: What Have We Learned?"
PAUL H. SCHURR, State University of New York at Albany

"Script Elicitation and Validation in Industrial Buying/Selling Settings"
THOMAS W. LEIGH, Pennsylvania State University
ARNO J. RETHANS, Pennsylvania State University

"Measuring Script Development: An Evaluation of Alternative Approaches"
RUTH ANN SMITH, Virginia Polytechnic Institute and State University
MICHAEL J. HOUSTON, University of Wisconsin, Madison

3.6 Special Session: Information Search: Models and Methods to Improve Choice Prediction

PALACE 6 & 7

Chair: MICHAEL C. HAGERTY, University of California, Berkeley

"Consumer's Prior Beliefs and Preferences as Determinants of Information Acquisition Priorities"
ITAMAR SIMONSON, Duke University
JOEL HUBER, Duke University
JOHN PAYNE, Duke University

"Consumer Search Among Stores and Brands"
BRIAN T. RATCHFORD, State University of New York, Buffalo

"Consumer Shopping Behavior, Information Flows, and Market Performance"
DAVID M. GREYER, California Institute of Technology
ALAN SCHWARTZ, California Institute of Technology
LOUIS WILDE, California Institute of Technology

"Improving Accuracy of Conjoint Analysis: Predicting What Information is Required"
MICHAEL R. HAGERTY, University of California, Berkeley

BREAK

PROMENADE

3:30 - 4:00 pm

CONCURRENT SESSIONS

4:00 - 5:30 pm

4.1 Special Session: The Transition to Post-Industrial Consumption

METRO 6

Chair: ALLADI VENKATESH, University of California, Irvine

"The Emergence of the Post-Industrial Person"
FRANCESCO NICOSIA, University of California, Berkeley

"The Emergence of the Prosumer"
PHILIP KOTLER, Northwestern University

"The Consumption of Culture and the Culture of Consumption"
JOHN SHERRY, Northwestern University

"Yuppies as Arbiters of the Emerging Consumption Style"
RUSSELL W. BELK, University of Utah

"Discontinuities in Consumption in the Post-Industrial Age"
NIK DHOLAKIA, Northwestern University and University of Rhode Island

4.2 Competitive Paper Session: Research on Memory and Categorization

METRO 2

Chair: JOHN G. LYNCH, JR., University of Florida
Discussant: JULIE EDELL, Duke University

"The Impact of Comparative Advertising on Perception Formation in New Product Introductions"

BETH A. WALKER, Pennsylvania State University

JOHN L. SWASY, Pennsylvania State University

ARNO J. RETHANS, Pennsylvania State University

"The Quintessential Snack Food: Measurement of Product Prototypes"

JAMES WARD, University of Minnesota
BARBARA LOKEN, University of Minnesota

"Retrieval Processes in Consumer Evaluative Judgment Making: The Role of Elaborative Processing, Context, and Retrieval Goals"

ALAIN d'ASTOUS, Universite de Sherbrooke

MARC DUBUC, Universite de Sherbrooke

4.3 Competitive Paper Session: Television Advertising and Consumer Miscomprehension

METRO 3

Chair: WILLIAM L. WILKIE, University of Florida
Discussant: KENNETH L. BERNHARDT, Georgia State University

"The Relationship of Miscomprehension to Deceptiveness in FTC Cases"

IVAN L. PRESTON, University of Wisconsin
JEF I. RICHARDS, University of Wisconsin

"Measuring Miscomprehension: A Comparison of Alternative Formats"

FLIECE R. GATES, University of Texas, Austin
WAYNE D. HOYER, University of Texas, Austin

"The Role of Knowledge in the Effects of Television Advertising on Children"

HENRIANNE SANFT, Carnegie-Mellon University

4.4 Competitive Paper Session: Visual and Emotional Advertising Effects

METRO 4

Chair: TERRY L. CHILDERS, University of Minnesota

Discussant: MICHAEL J. HOUSTON, University of Wisconsin, Madison

"If It Isn't A Duck Then Why Did It Quack? Competing Explanations For An Observed Effect of Illustrations in an Advertisement"

PETER R. DICKSON, Ohio State University
ROBERT E. BURNKRANT, Ohio State University

PAUL W. MINIARD, Ohio State University

"Visual Information Processing of Television Commercials: Cognitive Effects"

THOMAS D. JENSEN, University of Arkansas
LARRY W. ROTTMEYER, University of Arkansas

"Measuring Emotional Responses to Advertising"

RONALD P. HILL, American University
MICHAEL B. MAZIS, American University

4.5 Special Session: Confirmatory Multidimensional Scaling

METRO 1

Chair: LUTZ HILDEBRANDT, Technische Universitaet Berlin

"Modeling Distance Structures: Producing Useful Knowledge for Theory and Application"

DANIEL R. DENISON, University of Michigan

"Confirmatory Multidimensional Scaling in the Study of Consumer Behavior and Preference"

CLAES FORNELL, University of Michigan

"A Facet Theoretical Approach for Testing Measurement and Structural Theories: An Application of Confirmatory MDS"

LUTZ HILDEBRANDT, Technische Universitaet Berlin

"Graphic and Verbal Presentation of Stimuli: A Probabilistic MDS Analysis"

DAVID B. MACKAY, Indiana University
MARK ELLIS, Indiana University

4.6 Competitive Paper Session: Family Decision-Making

PALACE 6 & 7

Chair: NANCY THAL FRONTZAK, University of Colorado, Denver

Discussant: GEORGE E. BELCH, San Diego State University

"A Developmental Study of Family Financial Management Practices"

DONALD H. GRANBOIS, Indiana University
DENNIS L. ROSEN, Indiana University
FRANKLIN ACITO, Indiana University

"An Analysis of the Presence, Stability, and Antecedents of Husband and Wife Purchase Decision Making Influence Assessment Agreement & Disagreement"

ALVIN C. BURNS, Louisiana State University
JO ANNE HOPPER, Southeastern Louisiana University

"Television Advertising and Interpersonal Influences on Teenagers' Participation in Family Consumer Decisions"

GEORGE P. MOSCHIS, Georgia State University
LINDA G. MITCHELL, Georgia State University

4.7 Paper Fair Session I

Note: Paper numbers correspond to numbers on table placards.

METRO 5

F1. "The Rokeach Value Survey and Consumer Behavior Research: Theory, Method, and Research Guidelines"

ROYCE ANDERSON, Baruch College

DAVID BRINBERG, Baruch College

- F2. "Determinants of Product Value-Expressiveness: An Initial Test"
M. JOSEPH SIRGY, Virginia Polytechnic Institute and State University
J.S. JOHAR, California State University, San Bernardino
MICHAEL WOOD, Virginia Polytechnic Institute and State University
- F3. "Behavior and Functional Motives: Some Self-Perception Insights"
PAULA J. HAYNES, University of Tennessee-Chattanooga
- F4. "Effects of Recreation Usage Situation and Previous Recreation Participation on Setting Choice"
DAVID A. BOAG, University of Saskatchewan
- F5. "Situational Context and Buyer Preferences"
ERHARD K. VALENTIN, Weber State College
KENT L. GRANZIN, University of Utah
- F6. "Conditioning Emotional Benefits in Saturated Markets: Strategies and Empirical Results"
FRANZ JOSEF KONERT, University of Paderborn
- F7. "The Role of Emotional Advertising in Shaping the Consumption Experience: Actions and Reactions in Consumer Behavior"
MORRIS B. HOLBROOK, Columbia University
- F8. "An Investigation of the Relationship of Behavioral, as Compared to Experiential, Measures of Music Involvement with Consumer Market Responses"
RICHARD MIZERSKI, Florida State University
MARYA PUCELY, Florida State University
LORI BALDWIN, Florida State University
- F9. "Sexual Appeals in Advertising: The Determination of Recall"
P.J. O'CONNOR, Baruch College
AYLIN BAHAR, Baruch College
BOSCO GONG, Baruch College
ELYSE KANE, Baruch College

- F10. "Mental Imagery Vividness in Marketing Communication"
EVELYN GUTMAN, Boston University
- F11. "When Does Television Programming Affect Consumer Attitudes Towards an Advertising Product?: Explaining Context Effects Using the ELM"
DAVID W. SCHUMANN, University of Tennessee
- F12. "Surrealistic Advertising: A Social Adaptation Perspective"
PAMELA M. HOMER, University of Oregon
LYNN R. KAHLE, University of Oregon
- F13. "Discordance Within Concordance, Among Marine Recreational Fishermen"
JEFFREY JOHNSON, East Carolina University
DAVID GRIFFITH, East Carolina University
- F14. "Cultural Dreams, Cultural Nightmares: The Symbolic Dimensions of Nuclear Power"
JOHN W.G. LOWE, Planmetrics, Inc.
- F15. "Functionalism and Consumer Behavior Research"
CHARLES PICKETT, Mattel Corporation
GEORGE M. ZINKHAN, University of Houston
SCOT BURTON, University of Houston
- F16. "The Impact of Perceived Risk on Brand Preference"
MARK G. DUNN, University of Notre Dame
GERALD U. SKELLY, University of Mississippi
RUSSELL G. WAHLERS, University of Notre Dame
- F17. "The Relationships of Brand Loyalties to Cognitive Dissonance: Some New Questions to the Old Answer"
KATHY L. PETTIT, Washington State University
THOMAS A. JOHNSON, Washington State University
- F18. "Consumer Attitudes and Participation in a Voluntary Energy Conservation Program"
DUNCAN G. LABAY, University of New Hampshire
CYNTHIA J. FREY, Boston College

- F19. "The Effect of Structural Modification on Homeowner's Energy Conservation Behaviors"
JEANETTE A. BRANDT, Oregon State University
LARAE CHATELAIN, Utah State University
BECKY O. BECK
- F20. "The Development of the Boundaries of Geographic Subcultures"
JAMES W. GENTRY, Oklahoma State University
- F21. "Consumer Research for the Global Market: Segments and Themes"
LYNETTE S. UNGER, Miami University (Ohio)
TERESA J. DOMZAL, George Mason University
- F22. "Using Log Linear Models to Examine the Relationship Between Purchase Influencer and Influencee"
LAWRENCE F. FEICK, University of Pittsburgh
JO ANN NOVAK, University of Pittsburgh

Sessions End 5:30 pm

COCKTAIL PARTY

METRO 5

6:30 - 8:00 pm



Saturday, October 19, 1985

MORNING COFFEE

PROMENADE

8 am - 8:30 am

CONCURRENT SESSIONS

8:30 am - 10 am

- 5.1 Special Session:** A Revised Perspective on Diffusion Research

METRO 6

Co-Chairs: LINDA L. PRICE, and LAWRENCE F. FEICK, University of Pittsburgh

"Interdependencies Among Users of a New Technology"
EVERETT ROGERS, University of Southern California

"The Diffusion of High Technology Innovations"
THOMAS S. ROBERTSON, University of Pennsylvania
HUBERT GATIGNON, University of Pennsylvania

"The Product Enthusiast: Implications for Marketing Communications"
PETER BLOCH, Louisiana State University

"New Perspectives on Interpersonal Information Exchange"
LAWRENCE F. FEICK, University of Pittsburgh
LINDA L. PRICE, University of Pittsburgh

"Panel Discussion on Current and Future Diffusion Research"
Panelists:
JOEL B. COHEN, University of Florida
THOMAS S. ROBERTSON, University of Pennsylvania
EVERETT ROGERS, University of Southern California
GERALD ZALTMAN, University of Pittsburgh

"Concluding Remarks"
EVERETT ROGERS, University of Southern California

- 5.2 Competitive Paper Session:** Learning Theory and Consumer Behavior

METRO 2

Chair: RICHARD M. DURAND, Auburn University
Discussant: JOHN C. MOWEN, Oklahoma State University

"The Role of Radical Behaviorism in the Explanation of Consumer Choice"
GORDON ROBERT FOXALL, Cranfield School of Management

"The Opposite of Satiation: Motivational Priming as an Aftereffect of a Pleasurable Consumption Experience"
PETER J. DePAULO, University of Missouri, St. Louis

"Classical Conditioning Effects in Product/Character Pairings Presented to Children"
M. CAROLE MACKLIN, University of Cincinnati

- 5.3 Competitive Paper Session:** Sex and Consumer Behavior

METRO 3

Chair: MICHAEL BELCH, San Diego State University
Discussant: JOY WILLIAMS-JONES, NW Ayer, New York

"Sex-Linked Trait Indexes Among Baby-Boomers and Pre-Boomers: A Research Note"
BENNY BARAK, Baruch College
BARBARA STERN, Kean College

"Sex Roles and Consumer Perceptions of Promotions, Products, and Self: What Do We Know and Where Should We Be Headed?"
KATHLEEN DEBEVEC, University of Massachusetts, Amherst
EASWAR IYER, University of Massachusetts, Amherst

"Segmentation of Women's Market Based on Personal Values and Means-End Chain Model: A Framework for Advertising Strategy"
VED PRAKASH, Florida International University

- 5.4 Special Session:** The Impact of Television Program Context on Advertising Effectiveness

METRO 4

Chair: DONNA L. HOFFMAN, Columbia University

"Contingent Effects of Program Environment on Advertising Effectiveness"
DONNA L. HOFFMAN, Columbia University
RAJEEV BATRA, Columbia University

"Viewer Processing of Commercial Messages: Context and Involvement Preliminary Results"
C.W. PARK, University of Pittsburgh
GORDON W. McCLUNG, University of Pittsburgh
WILLIAM J. SAUER, University of Pittsburgh

"Over-Time Analyses of Viewer Involvement in Programming and Commercials"
ESTHER THORSON, University of Wisconsin, Madison
BYRON REEVES, University of Wisconsin, Madison

- 5.5 Special Session:** Photographic Stimuli, Data and Consumption Symbolism

METRO 1

Chair: SIDNEY J. LEVY, Northwestern University

"Emotions and Clothing Disposition"
MELANIE WALLENDORF, University of Arizona
ROBERT A. WESTBROOK, University of Arizona

"Consumers' Video Archives and Household Rituals"
DENNIS W. ROOK, University of Southern California

"Familiar Interlude: Autodriving in Consumer Analysis"
DEBORAH D. HEISLEY, Northwestern University
SIDNEY J. LEVY, Northwestern University

5.6 Special Session: Irrationality, Inconsistency, and Context Effects

PALACE 6 & 7

Chair: DONALD R. LEHMANN, Columbia University
Discussant: JOHN W. PAYNE, Duke University

"Situational Narratives vs. Simple Gambles: Is There a Differential Effect of Choice?"
JOEL HUBER, Duke University
CHRISTOPHER P. PUTO, University of Michigan

"Effects of the Cooperative Group Decision-Making Context on Preference Ratings"
KIM P. CORFMAN, Columbia University

"Certainty and Uncertainty in Risky Consumer Choice Contexts"
RASHI GLAZER, Columbia University
BARBARA KAHN, University of California, Los Angeles

COFFEE BREAK

PROMENADE

10:00 am - 10:30 am

CONCURRENT SESSIONS

10:30 am - Noon

6.1 Special Session: A Revised Perspective on Diffusion Research (Session Continued)

METRO 6

6.2 Special Session: Delayed Persuasive Effects of Advertising

METRO 2

Chair: ROBERT M. SCHINDLER, University of Chicago
Discussants: ROBERT M. SCHINDLER, University of Chicago
LINDA ALWITT, Leo Burnett Co.

"Expectations, Advertising, and Product Trial in Product Evaluation"
STEPHEN J. HOCH, University of Chicago
YOUNG WON HA, University of Chicago

"Persuasion as Directed Inference"
JOHN DEIGHTON, Dartmouth College

"The Effect of Delay on Advertisements Differing in Vividness"
JOLITA KISIELIUS, University of Illinois, Chicago

"Memory of Ads: A Schema-Based Model of Advertising Response"
JAMES HUNT, Temple University
JEROME B. KERNAN, University of Cincinnati
E.H. BONFIELD, Rider College

6.3 Special Session: Dialogues Across Methods and Meta-Theories: A Move Toward New Conceptualizations of Culture and Ethnicity

METRO 3

Chair: THOMAS C. O'GUINN, University of Illinois, Urbana-Champaign

"Materialism and Individual Determinism in U.S. and Japanese Print and Television Advertising"
RUSSELL W. BELK, University of Utah
WENDY J. BRYCE, University of Utah

"A Cultivist Perspective on the Investigation of Culture"
JOHN SHERRY, Northwestern University

"Effects of Stereotyping in Crosscultural Research: Are the Chinese Really Chinese?"
JAMES McCULLOUGH, Washington State University
CHIN TIONG TAN, National University of Singapore

"Acculturation: The Impact of Divergent Paths on Buyer Behavior"
THOMAS C. O'GUINN, University of Illinois, Urbana-Champaign
WEI-NA LEE, University of Illinois, Urbana-Champaign
RONALD J. FABER, University of Texas, Austin

6.4 Special Session: Perceptions and Knowledge of Price in the Supermarket

METRO 4

Chair: ALAN G. SAWYER, University of Florida

"Price Perceptions of Supermarket Shoppers at the Point of Purchase"
PETER R. DICKSON, Ohio State University
ALAN G. SAWYER, University of Florida

"The Accuracy of Price Knowledge: Issues in Research Methodology"
JERRY N. CONOVER, University of Northern Arizona

"The Influence of Price Awareness on Price Perceptions"
KENT B. MONROE, Virginia Polytechnic Institute and State University
PRAVAT K. CHOUDHURY, Howard University

6.5 Special Session: Innovative Analytical Methods

METRO 1

Chair: DAVID BRINBERG, Baruch College, CUNY

"An Idiographic Analysis of Consumer Behavior"
JAMES JACCARD, State University of New York, Albany
GREG WOOD, State University of New York, Albany

"Investigating Linear Structural Relations: Use and Misuse of LISREL"
WILLIAM R. DILLON, Baruch College, CUNY

"Meta-Analytical Techniques for the Quantitative Integration of Research Findings"
DAVID BRINBERG, Baruch College, CUNY
JAMES JACCARD, State University of New York, Albany

"Social Interaction Data: Procedural and Analytical Strategies"
DANNY L. MOORE, Burke Marketing Services, Inc.

6.6 Special Session: New Directions in Hierarchical Models of Consumer Choice

PALACE 6 & 7

Chair: RASHI GLAZER, Columbia University
Discussant: DONALD LEHMANN, Columbia University

"An Algorithmic Approach to the Induction of Hierarchical Choice Processes"
IMRAN CURRIM, University of California, Los Angeles
ROBERT MEYER, University of California, Los Angeles

"A Maximum Likelihood Disaggregate Model Utilizing Intervals Scaled Attributes in a Non-Tree Structure"
DENNIS GENSCHE, University of Wisconsin, Milwaukee

"An Experiment in External Constrained Choice"
BARBARA KAHN, University of California, Los Angeles
WILLIAM L. MOORE, University of Utah
RASHI GLAZER, Columbia University

"Phased Decision-Making at the Product Class Level"
C.W. PARK, University of Pittsburgh

LUNCHEON

METRO 5

Noon - 1:45 pm

Presentation of Ferber Awards
JAMES R. BETTMAN, Duke University

Presentation of Association for Consumer Research Fellows in Consumer Behavior Awards

JOSEPH W. NEWMAN, University of Arizona

Fellows' Addresses

"Consumer Research: Some Recollections and a Commentary"
HAROLD H. KASSARJIAN, University of California, Los Angeles

"Three Useful Ideas"
WILLIAM D. WELLS, Needham Harper Worldwide

CONCURRENT SESSIONS

2:00 pm - 3:30 pm

7.1 Special Session: Perspectives on ACR Fellows' Addresses

METRO 6

Chair: JOSEPH W. NEWMAN, University of Arizona
Participants: JOEL B. COHEN, University of Florida
SIDNEY J. LEVY, Northwestern University
JOHN G. MYERS, University of California, Berkeley
MICHAEL L. RAY, Stanford University

7.2 Competitive Paper Session: Affect and Cognition in Consumer Decision-Making

METRO 2

Chair: DEBORAH LEVY MARLINO, Massachusetts Institute of Technology
Discussant: DENA T. SALIAGAS, Georgia State University

"Effects of Affect on Judgment About Products"
GULIZ GER, University of Illinois, Chicago

"Affect and Cognition: A Closer Look at Two Competing Theories"
JAMES A. MUNCY, Texas Tech University

"Consumer Response to Marketing Stimuli: The Relationship between Affect, Cognition, and Behavior"
CAROL PLUZINSKI, University of Michigan
WILLIAM J. QUALLS, University of Michigan

7.3 Competitive Paper Session: Consumer Behavior in the Nonprofit Sector

METRO 3

Chair: J. MICHAEL MUNSON, University of Santa Clara
Discussant: MICHAEL B. MENASCO, University of California, Riverside

"A Model to Explain Charitable Donation/Health Care Consumer Behavior"
JERRY A. ROSENBLATT, McGill University
ALAIN J. CUSSON, University of Sherbrooke

"Understanding Donor Behavior: A Classification Paradigm"
JANE R.Z. SOJKA, Indiana University

"Toward a Theory of College Selection: A Model of College Search and Choice Behavior"
RANDALL G. CHAPMAN, University of Alberta

7.4 Special Session: New Approaches to Pricing and Sales Promotions for Packaged Goods

METRO 4

Chair: DIANE SCHMALENSEE, Marketing Science Institute
Discussant: LEIGH McALISTER, Massachusetts Institute of Technology

"The Relationship Between Price and Value"
CARL OBERMILLER, University of Washington

"Measuring Perceived Value for Packaged Goods"
VALARIE A. ZEITHAML, Texas A&M University

"The Long-Term Effects of Deal Retraction"
K. SRIDHAR MOORTHY, Yale University
RASHI GLAZER, Columbia University

"Factors Affecting Discount Depth and Duration"
JAMES LATTIN, Stanford University

7.5 Special Session: Applying Humanistic Methods To Consumer Research: Four Practical Examples

METRO 1

Chair: ELIZABETH C. HIRSCHMAN, New York University

"Wasps as Consumers: A Personal View"
ELIZABETH C. HIRSCHMAN, New York University

"I'm Hip: An Autobiographical Account of Some Musical Consumption Experiences"
MORRIS B. HOLBROOK, Columbia University

"Deep-Seated Materialism: The Case of Levi's Jeans"
MICHAEL R. SOLOMON, New York University

"Lifestyle Inference from Consumer Artifacts: Going Beyond What They Say"
MELANIE WALLENDORF, University of Arizona

7.6 Competitive Paper Session: Testing Formal Theories of Choice Behavior

PALACE 6 & 7

Chair: FLEMMING HANSEN, University of Copenhagen
Discussant: CHRISTOPHER P. PUTO, University of Michigan

"The Framing of the Insurance Purchase Decision"

JOSHUA L. WIENER, Oklahoma State University
JAMES W. GENTRY, Oklahoma State University
RONALD K. MILLER, Oklahoma State University

"Some Can, Some Can't and Some Don't Know How They Did It: A Direct Test of the Utility Maximization Hypothesis"
PETER R. DICKSON, Ohio State University
JOEL E. URBANY, University of South Carolina
PAUL W. MINIARD, Ohio State University

"A Conditional Logit Model of Household Attitudes, Mobility Expectations and the Probability of Homeownership: Studying the Influence of Value Systems on Consumption-Investment Decisions"
STEVEN D. SILVER, University of California, Davis

BREAK

PROMENADE

3:30 pm - 4:00 pm

CONCURRENT SESSIONS

4:00 pm - 5:30 pm

8.1 Special Session: Ferber Awards

METRO 6

Co-Chairs: JAMES R. BETTMAN, Duke University
HAROLD H. KASSARJIAN, University of California, Los Angeles

Award Winner

"The Framing of Buying Decisions"
CHRISTOPHER P. PUTO, University of Michigan

Honorable Mentions

"The Role of Attention in Mediating the Effect of Advertising on Attribute Importance"
SCOTT B. MACKENZIE, Indiana University

"The Ritual Dimension of Market Behavior"
DENNIS W. ROOK, University of Southern California

8.2 Special Session: Theoretical and Applied Perspectives in Understanding the Effect of Emotional Advertising

METRO 2

Co-Chairs: DAVID AAKER, University of California, Berkeley
ANDREW MITCHELL, University of Toronto
Discussant: WILLIAM WELLS, Needham Harper Worldwide

"Alternative Models of How 'Feeling' Advertisements May Work"
ANDREW MITCHELL, University of Toronto

"Affect in Advertising: Theory, Method and Application"
RAJEEV BATRA, Columbia University
MICHAEL RAY, Stanford University

"The Effect of Feelings Generated from Advertisements on Brand Response"
DAVID AAKER, University of California, Berkeley
DOUGLAS STAYMAN, University of Texas

8.3 Special Session: International Perspectives on Television Advertising and Children

METRO 3

Chair: THOMAS S. ROBERTSON, Wharton School, University of Pennsylvania
Discussant: W. FRED VAN RAAIJ, Erasmus University Rotterdam

"Children's Relationships Between Repetition and Effect"
THEO B.C. POIESZ, Tilburg University

"The 'Helplessness Syndrome' and Children's Media Behavior"
PETER VITOUCH, Institute Fur Psychologie Der Universitat Wien

"Parental Mediation of Television Advertising: A Cross-Cultural Study"
THOMAS S. ROBERTSON, University of Pennsylvania
SCOTT WARD, University of Pennsylvania
DONNA M. KLEES, University of Pennsylvania

8.4 Competitive Paper Session: Consumer Response to Price and Promotion

METRO 4

Chair: IVAN ROSS, University of Minnesota
Discussant: MARIAN C. BURKE, Duke University

"New Evidence Concerning Consumer Price Limits"
ANTHONY D. COX, Georgia State University

"The Effects of Sampling and Information on Brand Choice When Beliefs in Quality Differences are Ambiguous"
GEORGE BROOKER, University of Puget Sound
JOHN J. WHEATLEY, University of Washington
JOHN S.Y. CHIU, University of Washington

"An Examination of Consistency in Coupon Usage by Households across Product Classes"

KAPIL BAWA, New York University
ROBERT W. SHOEMAKER, New York University

8.5 Competitive Paper Session: New Measurement Technologies

METRO 1

Chair: ROHIT DESHPANDE, University of Texas-Austin
Discussant: MARTIN LAUTMAN, Arbor, Inc.

"Holistic Conjoint"

CAROLINE M. HENDERSON, Dartmouth University
DAVID J. REIBSTEIN, University of Pennsylvania

"Processing Complexity in Magnitude Versus Category Scaling"

BRUNO NEIBECKER, University of the Saarland

"Q-Tips: Using Qualitative and Quantitative Techniques in Tandem to Assess Reliability of Manipulations"

DON R. RAHTZ, College of William and Mary
DAVID L. MOORE, College of William and Mary

8.6 Competitive Paper Session: Social Influence in Consumer Behavior

PALACE 6 & 7

Chair: ARCH G. WOODSIDE, Tulane University
Discussant: HARISH SUJAN, Pennsylvania State University

"Self-Monitoring and Product Conspicuousness on Reference Group Influence"

DAVID BRINBERG, Baruch College, CUNY
LINDA PLIMPTON, Ohio State University

"People Who Use People: The Other Side of Opinion Leadership"

LAWRENCE F. FEICK, University of Pittsburgh
LINDA L. PRICE, University of Pittsburgh
ROBIN A. HIGIE, University of Pittsburgh

"Source Credibility: On the Independent Effects of Trust and Expertise When Attractiveness is Held Constant"

JOSHUA L. WIENER, Oklahoma State University
JOHN C. MOWEN, Oklahoma State University

8.7 Paper Fair Session II

Note: Paper numbers correspond to numbers on table placards.

METRO 5

S1. "Health-Related Aspects of Consumer Products: A New Determinant Attribute in Consumer Decision-Making"

JOEL RUDD, University of Arizona
GEORGE B. SPROLES, University of Arizona

S2. "Nutritional Evaluation and Safety of Various Food Items"

CHARLES WEBER, University of Arizona

S3. "Dermatological and Toxicological Problems Associated With Clothing and Household Textiles"

KATHRYN HATCH, University of Arizona

S4. "Designing Products for the Disabled: The Case of Clothing"

NAOMI REICH, University of Arizona

S5. "Barrier-Free Housing, Interiors and Furnishings: Problems Experienced by the Elderly and Disabled"

ROGER KRAMER, University of Arizona

S6. "Substance Use and Abuse in Special Populations: The Case of Alcohol and the Senior Citizen"

VICTOR CHRISTOPHERSON, University of Arizona

S7. "Clothing-Related Risk Perceptions of Disabled People"

PAULA BOUNDS-O'BANNON, K-Mart Incorporated
BETTY FEATHER, University of Missouri-Columbia
JOHN W. VANN, University of Missouri-Columbia

S8. "Applying Disengagement Theory from Social Gerontology to Predict and Explain Segments Within the Senior Market"

WILLIAM A. WEEKS, Washington State University

S9. "Consumer Involvement Related to Apparel Purchase Behavior"

ANNE-LOUISE VREEMAN, University of Wisconsin, Stevens Point
MICHELLE A. MORGANOSKY, University of Illinois

S10. "Retail Patronage Behavior: An Empirical Analysis of Purchasing Behavior in Alternative Areas"

MAIJA ROKMAN, University of Tampere

S11. "Understanding Investment Fraud: In Search of the Pot of Gold at the End of the Rainbow"

JAMES H. McALEXANDER, University of Utah
DEBRA L. SCAMMON, University of Utah

S12. "Factors Affecting the Development of Consumer and Non-Consumer Scripts in Children: Mindlessness, Temporality, Societal Influence, and Virginity"

AUDREY GUSKEY FEDEROUCH, University of Pittsburgh

S13. "Modeling Multiattribute Group Choice Behavior"

SUNIL GUPTA, Columbia University
DUANGTIP TANTIWONG, Fairleigh Dickinson University

S14. "Modeling the Process of Attribute Belief Formation"

GARY ERICKSON, University of Washington
CARL OBERMILLER, University of Washington

S15. "A Threshold-Based Disaggregate Noncompensatory Choice Model: Concepts and Issues"

DENNIS H. GENSCH, University of Wisconsin-Milwaukee
JOSEPH A. SVETKA, Cleveland State University
RAJSHEKHAR G. JAVALGI, University of Wisconsin-Milwaukee

Sunday, October 20, 1985

S16. "Amplification of the Bipolar Scale Response: Why Unipolar Scales Should Be Used"
ROBERT GILMORE, New York University

S17. "Physical Fitness: An Investigation of Consumer Involvement"
KENT L. GRANZIN, University of Utah
JANEEN E. OLSEN, University of Utah

S18. "Approach to Life Scale"
RICHARD HESLIN, Purdue University
BLAIR JOHNSON, Purdue University

S19. "The Effects of Comparative Advertising on the Evaluation of Information"
P.J. O'CONNOR, Baruch College
JOAN ROSENBERG, Baruch College
IRA BLOOM, Baruch College
LORRAINE ABRUZZO, Baruch College

S20. "A State Variables Reformulation of the Howard and Sheth Model"
PAMELA HOMER, University of Oregon

S21. "Social Adaptation Theory in Consumer Behavior"
LYNN R. KAHLE, University of Oregon
PAMELA M. HOMER, University of Oregon
SHARON E. BEATTY, University of Oregon

S22. "Interspousal Interactive Role Estimations Across Family Decision Making Stages"
OSWALD MASCARENHAS, University of Detroit
RAM KESAVAN, University of Detroit

S23. "The Effect of Color vs. Black and White Advertising Formats on Affective Ratings and Perceptions of Product Quality"
WAYNE D. HOYER, University of Texas
ROBERT L. LEONE, University of Texas
CATHY J. COBB, University of Illinois

Sessions End 5:30 pm

COCKTAIL PARTY

METRO 5

6:30 pm - 8:00 pm

MORNING COFFEE

PROMENADE

8 am - 8:30 am

CONCURRENT SESSIONS

8:30 am - 10:00 am

9.1 **Special Session:** The Use of Alternative Measures of Memory to Understand Advertising Effects

METRO 6

Co-Chairs: ANN BEATTIE, Columbia University
ANDREW MITCHELL, University of Toronto

"Effects of Advertising Repetition and Information Content on Brand Attitude Structure"
RAJEEV BATRA, Columbia University

"Advertising Effects on the Attitude-Behavior Relationship"
IDA BERGER, University of Toronto
ANDREW MITCHELL, University of Toronto

"Brand Name Familiarity and Advertising: Effects on the Evoked Set and Brand Evaluations"
WILLIAM E. BAKER, University of Florida
J. WESLEY HUTCHINSON, University of Florida
DANNY L. MOORE, Burke Marketing Services, Inc.
PRAKASH NEDUNGADI, University of Toronto

"A Model of Consumer Memory and Judgment"
THOM SRULL, University of Illinois, Urbana-Champaign

"Effect of Advertising Memory Cues on Brand Evaluations"
KEVIN LANE KELLER, University of California, Berkeley

"Acquisition of Product Information: Tangibility Effects on Attitude Components"
ANN BEATTIE, Columbia University

9.2 **Special Session:** Changing Views of Children's Consumer Information Processing

METRO 2

Chair: DEBORAH ROEDDER JOHN, University of Wisconsin, Madison
Discussant: NOEL CAPON, Columbia University

"Understanding Young Consumers: Cognitive Abilities and Task Conditions"
DEBORAH ROEDDER JOHN, University of Wisconsin, Madison

"The Impact of Task Conditions on Young Children's Performance"
M. CAROLE MACKLIN, University of Cincinnati

"Factors Affecting Children's Cognitive Responses to Television Advertising"
MERRIE BRUCKS, University of North Carolina
MARVIN E. GOLDBERG, McGill University
GARY M. ARMSTRONG, University of North Carolina

"Reasoning about Value: Why Children Understand Social Scarcity Before They Understand Scarcity in the Abstract"
TRUDY KEHRET-WARD, University of California, Berkeley

9.3 **Competitive Paper Session:** Consumer Satisfaction in the Health Care Domain

METRO 3

Chair: MARY GILLY, University of California, Irvine
Discussant: DAVID KRUEGEL, San Jose State University

"Satisfaction and Consumer Services"
DONNA J. HILL, Indiana University

"The Determinants of Satisfaction for a High Involvement Product: Three Rival Hypotheses and their Implications in the Health Care Context"
MARY BETH BARBER, University of Pittsburgh
MEERA VENKATRAMAN, University of Pittsburgh

"Research on Patient Satisfaction: Potential Directions"
RUTH B. SMITH, University of Maryland
PAUL N. BLOOM, University of North Carolina

9.4 Competitive Paper Session: The Role of Symbolism in Consumer Behavior

METRO 4

Chair: C.W. PARK, University of Pittsburgh
Discussant: MERYL PAULA GARDNER, New York University

"The Creation of Product Symbolism"
ELIZABETH C. HIRSCHMAN, New York University

"How Consumer Sub-Cultures Code Reality: A Look at Some Code Types"
JEFFREY F. DURGEE, Rensselaer Polytechnic Institute

"A Framework of Psychological Meaning of Products"
ROBERTO FRIEDMAN, University of Georgia
V. PARKER LESSIG, University of Kansas

9.5 Competitive Paper Session: New Concepts and Methods in Consumer Research

METRO 1

Chair: ANGELINA VILLARREAL-CAMACHO, San Diego State University
Discussant: P.J. O'CONNOR, City University of New York

"Methodological Limitations of the Hedonic Consumption Paradigm and a Possible Alternative: A Subjectivist Approach"
LAUREL ANDERSON HUDSON, Virginia Polytechnic Institute and State University
JEFF B. MURRAY, Virginia Polytechnic Institute and State University

"The Micawber Connection"
WILLIAM D. WELLS, Needham Harper Worldwide
THOMAS C. O'GUINN, University of Illinois
MARTIN I. HORN, Needham Harper Worldwide

"Information Utilization: A Validation Study"
PETER C. WILTON, University of California-Berkeley

9.6 Competitive Paper Session: Research on Consumer Socialization

PALACE 6 & 7

Chair: PETER REINGEN, Arizona State University
Discussant: SUSAN SPIGGLE, University of Connecticut

"Parental Diffusion Roles and Effects of Nutrition Education on Parents and Children"

SANFORD GROSSBART, University of Nebraska, Lincoln
LAWRENCE CROSBY, Arizona State University
LAURIE SMITH, University of Nebraska, Lincoln

"Family Communication Influences on the Development of Consumer Behavior: Some Additional Findings"

GEORGE P. MOSCHIS, Georgia State University
ANDJALI E. PRAHASTO, Georgia State University
LINDA G. MITCHELL, Georgia State University

"Family Decision Making in Leisure-Time Activities: An Exploratory Investigation of the Impact of Locus of Control and Parental Type on Perceived Child Influence"
WILLIAM K. DARLEY, Indiana University
JEEN SU LIM, University of Toledo

COFFEE BREAK

PROMENADE

10:00 am - 10:30 am

CONCURRENT SESSIONS

10:30 am - Noon

10.1 Special Session: The Use of Alternative Measures of Memory to Understand Advertising Effects (Session continued)

METRO 6

10.2 Special Session: The Multiple Roles of Music in Advertising

METRO 2

Chair: RICHARD F. YALCH, University of Washington
Discussant: JAMES CARLSEN, University of Washington

"Chasing the Wundt Curve: An Adventure in Consumer Esthetics"

PUNAM ANAND, New York University
MORRIS B. HOLBROOK, Columbia University

"The Complete Angler: Luring the Listener with Barbed and Barbless Hooks"
CARL OBERMILLER, University of Washington
APRIL ATWOOD, University of Washington

"Memory in a Jingle Jungle: Music as a Mnemonic Device in Advertising"
RICHARD F. YALCH, University of Washington
REBECCA ELMORE-YALCH, Market Decision Associates

10.3 Special Session: Debatable Issues in Consumer Satisfaction and Complaining Behavior

METRO 3

Co-Chairs: RALPH L. DAY, Western Michigan University
H. KEITH HUNT, Brigham Young University

"A Post-Dissatisfaction View of Complaining Behavior"
RALPH L. DAY, Western Michigan University

"Satisfaction as a Process: Origins and Dimensions"
FRANCESCO M. NICOSIA, University of California, Berkeley
PETER C. WILTON, University of California, Berkeley

"An Extended Perspective on Post-Purchase Phenomena: Is Satisfaction a Red Herring?"
RICHARD L. OLIVER, University of Pennsylvania

"Towards a Model of Consumer Redress Behavior"
JAMES D. FORBES, University of British Columbia
DAVID K. TSE, University of British Columbia

10.4 Competitive Paper Session: Consumer Response to New Products

METRO 4

Chair: PHILIP HENDRIX, Emory University
Discussant: WAYNE D. HOYER, University of Texas, Austin

"A Conjoint Model for Analyzing New Product Positions in a Differentiated Market with Price Competition"
JORDAN J. LOUVIERE, University of Alberta

"Consumer Reactions to Stylistic Extension of a Product-Line: The Theoretical Relevance of Two 'Anchoring' Theories"
KATHY L. PETTIT, Washington State University

"Perceived Risk as a Mediator in Repetition-Affect Relationships"
THEO B.C. POIESZ, Tilburg University

10.5 Competitive Paper Session: Measurement of Consumer Lifestyle Dimensions

METRO 1

Chair: WINSTON MAHATOO, McMaster University
Discussant: THOMAS J. PAGE, JR., University of Wisconsin, Madison

"Measure Validation in Consumer Research: A Confirmatory Factor Analysis of the Voluntary Simplicity Lifestyle Scale"
DEBORAH L. COWLES, Arizona State University
LAWRENCE A. CROSBY, Arizona State University

"The Congruence of Alternative OSL Measures with Consumer Exploratory Behavior Tendencies"
RUSSELL G. WAHLERS, University of Notre Dame
MARK G. DUNN, University of Notre Dame
MICHAEL J. ETZEL, University of Notre Dame

"Toward a Construct of Convenience in Consumer Research"
LAURA YALE, University of California, Irvine
ALLADI VENKATESH, University of California, Irvine

10.6 Competitive Paper Session: Research on the Consumer Adoption Process

PALACE 6 & 7

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Discussant: MICHAEL D. REILLY, Montana State University

"A Re-Examination of Communication Channel Usage by Adopter Categories"
LINDA L. PRICE, University of Pittsburgh
LAWRENCE F. FEICK, University of Pittsburgh
DANIEL C. SMITH, University of Pittsburgh

"Correlates of Search Patterns for an Innovation"
JAMES W. HARVEY, George Mason University

"Communicating Innovations: Convincing Computer Phobics to Adopt Innovative Techniques"
THOMAS HILL, University of Tulsa
NANCY D. SMITH, University of Tulsa
MILLIARD F. MANN, University of Tulsa

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PRESIDENTIAL ADDRESS
SCHEMER SCHEMA: CONSUMERS' INTUITIVE THEORIES
ABOUT MARKETERS' INFLUENCE TACTICS

Peter Wright, Stanford University

I'd like to use this occasion to wonder aloud about a topic that I've been wondering privately about for some time. It's something I think many people would take for granted that we, as students of consumer psychology, obviously must know about; something that I too think we obviously should know about; but something we don't know much about. It's a theme each of the following incidents brings to mind:

On the second day of class, a student in my introductory advertising course states her strong view that a particular TV ad is highly effective because it's funny and because a celebrity, Bill Cosby, is in it.

I'm sitting in a tavern at Half Moon Bay on the Northern California coast. Two grizzled commercial fishermen sit nearby. I overhear them eagerly agreeing that subliminal messages are the key to successful advertising. One of them concludes that he could increase the amount of salmon he sells direct to locals off his boat if he could figure a way to paint a subliminal image into his "Fresh Fish" sign.

A sweet neophyte real estate agent who I know marvels aloud about all the tortured plotting and strategizing that house sellers and buyers engage in, about all the times she hears people reason "now if we do this, here's what they'll do because they're thinking that...". And, from repeatedly interacting with buyers, sellers, and other sales agents herself, I hear her begin to piece together her own intuitive hypotheses about how to nurture and influence people's bargaining and decision making.

Stew Bither and I are about to run an experiment to see if and when distraction increases an ad's persuasive impact. We nervously joke to each other that subjects will probably blurt out, midway through the ad, "Aha! The old 'Distraction Hypothesis'!"

A PhD student from the Economics department (of all places) comes to me and says the takeoff point for his dissertation is the assumption that consumers sometimes interpret a retailer's "Grand Opening Sale" as an intended signal to them about his cost structure and probable future competitive strategies. He asks what we know about the prevalence of that particular type of inference by consumers. I reply, "It sounds plausible and intriguing. But we know nothing, really. So, you're safe."

I pass out course evaluation questionnaires and say, nervously, "You know, some researchers have used the end-of-course Nielsen ratings as a setting for studying how attitudes can be changed. If I was to be really Machiavellian, here's what I'd do to increase the ratings you give. I would". Afterwards, several students say, "Gee, what you described doing is just what our Finance Professor did when we did his course ratings." I reply, "Oh really. How clever."

Finally, I'm asked to comment about recent research on "attitudes-toward-the ad." So I begin pondering how respondents produce answers to questions like "was that ad convincing?" or "was that a good or bad ad?". It occurs to me that they may interpret "good" in this context to mean "good at doing what ads are designed to do." And that to answer either question, they may well rely on personal theories they harbor about what makes ads persuasive. They're responding as critics, not as audience members.

Isn't it very plausible that people have intuitive theories about the tactics that are used in the game of marketplace selling-and-buying? They surely must have personal insights

that are pertinent for realizing "Aha! Somebody's scheming to sell me something! Somebody's trying to mind-screw me!", and for interpreting and evaluating and dealing with whatever influence tactics are being used. I'll call such an intuitive theory about marketers' influence tactics a "schemer schema." We don't know much about consumers' "schemer schema," about whether they're simplistic or complex, correct or incorrect, how often they're activated, or how easily they're modified. It's not something we've chosen to study directly. I'd like to speculate a little about that, and about why it'd be interesting to know more.

Why Haven't We Studied "Schemer Schema"?

Looking back, there are several reasons why consumer researchers haven't focused directly on people's intuitive theories about marketers' influence tactics. "Basic" behavioral scientists in general haven't studied this topic. Social psychologists, for example, have for decades studied the persuasion and education process. But they've almost always framed the research question as "what works," that is, what actually causes a change in people's preferences. Not what do the targets or the purveyors of influence attempts in everyday life believe about the social influence process --- about what tactics people are likely to try; about what tactics work, and when and why; and about how then to adjust one's own response process accordingly. The "what works" viewpoint is implicitly normative in its goals. It positions researchers to make recommendations about maximally effective intervention tactics to aspiring interventionists. If even "basic" behavioral scientists have taken this perspective, it's natural that consumer researchers would have done so too. Further, the person whose behavior is typically studied is the target of an influence attempt, not someone designing their own influence attempt. The act of designing an influence strategy requires use of an intuitive "schemer schema." Had we been studying that act we'd have naturally recognized that the same schema that guides the person when they're the "schemer" may come into play when they're a target (a "schemee"?). So certain historic preoccupations have distracted us from the concept that intuitive schemer schema are both likely to exist and likely to shape how people play either side of the marketplace game.

But isn't the playing of the marketplace game the phenomenon that is logically central to our field, and to no other? It seems we'd have naturally been drawn to a gaming and countergaming view of that key happening. To a bargaining and negotiation view. To the view that our unique focus should be on what unfolds in the minds of two players matching wits in a game where both realize full well that "somebody's trying to sell somebody something". And that each party's assumptions about "the player on the other side" are important to understand if we want to make sense of what occurs.

I think we never embrace that view in part because we've been hungry to make our young field legitimate. To do this, in the late 1960's and 1970's many influential researchers felt compelled to say, by their words and their choice of research topics, "Virtually all aspects of human psychology are relevant to someone's behavior as a consumer, so our domain of inquiry can be as broad and basic as any behavioral scientist's." I agree with that idea, of course. But its caused us to ignore that specific aspect of behavior --- the marketplace gamesplaying --- that is the unique centerpiece of our field. To just study how consumers interpret and cope with marketer's tactics seemed too "applied," too "parochial." So we spread our

small ranks thin trying to contribute in understanding the basics of human choice processes and memory processes, and I think we've helped. But in ignoring the nitty-gritty buyer-and-seller give-and-take process, I think we're missing an opportunity. An opportunity to really understand "our" unique phenomenon, a phenomenon that turns out not to be "merely" how buyers and sellers subjectively analyze each other but one that's a pervasive general phenomenon --- how aspiring interventionists or change agents and their targets analyze each other in any venue.

I'd hate to see us miss this opportunity. There are signs that people in other fields are starting to dabble with the question of "schemer schema." Psychologists like Robert Cialdini and David Kipnis and organizational theorists like Stuart Schmidt are doing some work on intuition about persuasion. At Stanford I'm surrounded by microeconomists active in the "information economics" area, like Bob Wilson and Dave Kreps and John Roberts, who are making all sorts of interesting assumptions about first-order and second-order signalling between sellers and buyers, and working out some implications. The major explanatory theories on the playing of marketplace influence and signalling games should, in my opinion, come from researchers who define themselves as consumer researchers. If it ultimately turns out that understanding the intuitive gamesplaying of sellers and buyers per se was important in building general theories of behavior, explanatory or normative, we should be the ones who did it. If it turns out that studying schemer schema was a blind alley, that people just don't have such things or don't use them as guides to action, we should be the ones to draw that conclusion.

The Schemer Schema As A "Control" Schema

In doing research on psychological processes, we don't typically seek to identify the contents of any particular schema or knowledge structure in people's minds. We don't go around cataloguing the contents of people's schema about, say, "motorcycles" or "fast food restaurants" or "gambling." The content of those particular schema is of concern only to people narrowly interested in knowing what people believe about motorcycles or gambling for some practical reason. As behavioral scientists, it's the processes related to schema, not their contents, about which we theorize. We're more comfortable asking, "By what psychological process is any schema formed, activated, used, and modified?" Why then should we depart from this rule, and actually theorize about and study the contents of people schema about other people's social influence strategies? Because that's just what I'm suggesting we do.

I think there is a good rationale for this. A "schemer schema", as I envision it, operates as what we might call a "control" schema. I don't mean that it deals with how people control other people. A "control" schema is one that, when activated, guides a person's subsequent response process. In particular, it guides their situational adjustments in response processes. So, for example, when someone encounters a sales message or promotional or pricing move related to "motorcycles," the response strategy they select is contingent on what their working hypotheses about selling or marketing tactics are like. To be sure, their schema about "motorcycles" per se is activated. But the control schema --- "what I believe about likely persuasion and promotion strategies" --- is first activated, and that guides the situation-specific process of response. In my example, the person's "motorcycle schema" supplies the input to the ultimate response process, and isn't something we'd bother theorizing about or studying. But the "background" schema that shapes the response process is different. To really understand the process of situational responses to marketers' influence attempts, it seems essential to attack the contents of the "background" control schemas directly in our theorizing and research.

The role of a control schema can be clarified by noting an analogous control schema in the context of "contingent decision making". For over a decade many researchers on behavioral choice processes have recognized that people

seem to adjust choice strategies to suit the situation. That is, people seem to "choose a choice strategy", to "decide how to decide." If so, so the theorizing goes, there's probably a control schema at work, which contains people's personal ideas about what outcomes various approaches to choosing may produce. This hasn't usually been discussed in schema terms, but those ideas constitute what we might call a person's "choice strategy schema." Somehow, it comes into play when people adjust choice strategies. It guides the very choice process that we want so badly to understand. And therefore it's essential that we formally theorize about and get insights on the contents of people's intuitive assumptions about choice strategies. Even though it's one step removed from the focal process, and even though it's hard to study, many researchers have concluded we must study "choice strategy schema" as directly as we can. This realization is a recent one. I'm proposing only that a parallel logic points to the existence of "schemer schema," and to the possible benefits from studying their contents directly.

The Process by Which Schemer Schema Change and The Ways In Which They Change Are Both of Concern

In studying schemer schema, we will surely retain our basic interest in how such schema develop, how they're activated and used, and how they change. There's no obvious reason why the basic processes at work here will be different than those at work for any other type of schema. I'll return to this point in a moment.

However, it's alarming to realize that prevailing intuitive theories about persuasion or marketing tactics can change over time. It implies that the control mechanism underlying people's response strategies can change fundamentally. For example, what if people in general came to strongly believe, somehow, that the appearance of any imagery-evoking stimulus in a sales message signaled an attempt at mind control, and became very sophisticated at recognizing such stimuli --- vivid concrete language, stories, imagery requests, whatever. The relationships we had thought we'd documented between such stimuli and persuasive impact could well change, because the "targets" have uniformly changed their working control schemas. What if everything we as scientists learn about influence processes at a point in time were to be immediately transmitted to and understood by the general public. Kenneth Gergen posed this issue in an article called "Social Psychology as History". It's always bothered me. If targets and marketers were on perfectly equal grounds --- if both harbored the same working assumptions about influence processes --- the gamesplaying processes on both sides could change fundamentally. Or at least, enough so predictions we make from our theories are no longer accurate because we'd developed them from experiments on "uneducated" target subjects.

This implies another reason why it is prudent to document the contents of the schemer schema that prevail among the subjects we're studying now. And to study how response processes change when critical ideas in those schema are changed via education. If it turns out that changes in this control schema do cause changes in what we'd thought were dependable stimulus-response relationships, we'll have to keep up to date about prevailing schemer schema to make successful predictions about persuasive impact. That's what Gergen meant; we'll become behavioral historians.

Tentative Hypotheses About Schemer Schema

I'd like to switch gears now and speculate a little about the way schemer schema develop and get used. As with other schema, the firsthand learning process must be fragile. People need a chance to observe firsthand that a particular message or promotion or pricing tactic causes a change in their own or someone else's personal preferences. That's a difficult inference to make. Awareness that changes in preference have occurred in one's own mind or in someone else's is probably quite limited. Discerning what aspect of an influence attempt caused such a change is probably difficult. We might then expect prevailing schemer schema

based on personal inference to be simple and somewhat inaccurate.

Socially-supplied wisdom is readily available and may be influential. There's no shortage of popular books about "how I got so-and-so elected president" or "how I made a billion dollars in personal selling" or "how the mass media engage in wonderfully awesome mind-control." We teach a sizable fraction of all college students courses in "how to think effectively about marketing and advertising tactics." Some of them must succeed in integrating our teachings into their personal schemer schema. Has any of us, after teaching students about persuasion for 20 or 30 classes, ever tested whether they've become more insightful or complex in analyzing what they see marketers tossing at them as a target? Of course, compared to normative correct principles which we don't fully understand, what the books say and what we say in class is sometimes inaccurate.

The fact that people wear both hats --- aspiring advocate and target --- seems important and raises interesting issues. Practice in systematically thinking about how to influence other people, followed by careful attention to whether or not your tactic seemed to work, may greatly influence the development of a semi-sophisticated schemer schema. I've found that as long as someone envisions consumers solely as lifelong targets, they express doubt that consumers really harbor or use schemer schema. But if I define the consumer as someone who often spends time devising tactics to influence others, by occupation (say, a small businessman or executive or politician or educator or lawyer or...) or from self-interest or whatever, it seems a lot more plausible. Indeed, we might expect that people who study and dwell on practicing influence have fundamentally different schemer schemas than less Machiavellian people.

But, is there difficulty in the transfer? Does a schemer schema developed from the "marketer's" vantage point automatically function as a useful schema when you become a target? Probably not. The shift of perspective may defeat the transfer to some degree. Questions about the contents of the same person's "marketer" and "target" schema and the way these two correspond or differ seem very intriguing.

I'd think that people must have difficulty activating their schemer schema in some situations where they face an advertising or promotional or pricing maneuver. Think back to my "motorcycle" example. To respond to a message about a motorcycle, I must in theory activate both my "schemer schema" and my "motorcycle" schema and still decode the message and produce responses. So, response opportunity looms large. Activating a schemer schema may become highly automatized. Or, sometimes I may just ignore any situational analysis from my schemer schema and take an incoming message as if there's no gaming at work. That is, my default assumption when my schemer schema fails me is "no scheming." Other times, my schemer schema may suggest scheming but I haven't an opportunity to respond at all beyond a vague "ignore it" or "accept it." So there'd probably be some simplistic heuristics.

If I were an enthusiastic fan of self attribution theories, I'd speculate that people sometimes use a tortured "backwards" reasoning process. It would run like this: "that ploy has ingredients that make it effective, according to my schemer schema. Since my assumption tells me it's convincing, I must feel convinced. So, I give in...I'll hold the advocated attitude about that product." Maybe this isn't all that tortured, in situations where people have no true attitude to begin with.

Can I be more exact about the sorts of ideas we'd find in a well-developed schemer schema? This shouldn't be too surprising. There'd be a "message appeals" subschema --- intuitive ideas about the effects of or reasons for presence of anxiety-arousing material or humor or case histories in a seller's message. A "message format" subschema, that includes insights about the way sequencings

or visual displays of evidence affect judgments. A "framing" subschema --- this I find very intriguing --- for interpreting whether an explicit framing of a judgment is potentially biasing, and if so, whether it was intentional or coincidental. As part of this there might be a "secrecy" subschema, for judging why what's left out of a message was left out. Budget, time, or space constraints? Hiding something? Taking for granted that I'll already know about that? Of course, there'd be a "communicator" subschema --- why is this person describing those characteristics of herself? Why was she chosen to deliver this message to me? A "pricing/promotion" subschema: Why is this product being offered at this reduced price? Pride in what I'll discover about it? Dumping it because its going off the market? A signal of a low cost structure? An intent to survive by driving rivals from the market? A "bargaining" subschema: To interpret future offers based on current offers. In essence, a well-developed schemer schema could include all sorts of ideas relevant in interpreting and adjusting to the other player's tactics. And it would include some simple heuristics.

We've often theorized informally about some of these beliefs, treating them as mediators rather than as a key dependent variable. If we were to study such schema directly, we'd more often make them the primary dependent variables. For example, we'd pose and test theories about the way secrecy assessments are made, or the way people judge if a framing strategy is being attempted, or the way communicator credibility is judged.

Summary

What I've tried to do is excite interest in a topic we've neglected, which seems important and intriguing and uniquely a "consumer behavior" topic. What I know about influence processes tells me that what I've said won't send everybody scurrying out to study schemer schema.

Unless, of course, I've been devilishly clever in presenting myself and my viewpoint. Did I say anything at the outset to disarm you or heighten my credibility? Did I attempt humor? Or to arouse moderate anxiety about missed opportunities? Why did I discuss certain issues and leave others out? Was that a framing ploy on my part? Or a lack of time or imagination? Why did I just now disparage my probable success in piquing your interest? To invite you to counterargue? Did you sense that a purposeful attempt to mind-screw you was underway? No? Do you think you'd be consciously aware of your schemer schema in action, if indeed it has been?

Like many other "veteran" researchers, I feel the field of consumer behavior needs a shot of excitement. A challenging and intriguing and novel and seemingly pertinent research question. Maybe studying schemer schema is an activity whose time has come. A decade from now, we'll know.

PRESENTATION OF THE ACR FELLOW IN CONSUMER BEHAVIOR AWARD

Joseph W. Newman, University of Arizona

I have a very happy task today. I have been asked to speak for the Association in presenting its Fellow in Consumer Behavior award. This is especially pleasant for me because the awards go to two individuals I have known, respected and enjoyed for a good many years -- as I know many of you have.

Before saying more about the recipients, let me briefly remind you that the Fellow award is the Association's highest honor. It recognizes individuals who, in their careers, have had a major impact on consumer behavior scholarship.

The selection process began two years ago with the Awards Committee. The members were the then three immediate past presidents of the Association: Jerry Olson, Ken Bernhardt and Jerry Zaltman. I was named by the then president, Jadhish Sheth, to chair the committee.

Nominations were solicited from the membership but attention was not limited to suggestions from that source. The committee easily reached complete agreement. Our recommendations later were unanimously endorsed by the Board of Directors.

Prior to today, five Fellow awards have been made -- to John Howard and James Engle in 1980 and to Sidney J. Levy, Geroge Katona and Robert Ferber in 1982. Today we welcome William D. Wells and Harold H. Kassarijian into that elite circle.

In my remarks, I shall be brief -- too brief, really, to do justice to the recipients. But I must allow time for them to carry out their speaking assignments which will follow the presentations.

Bill and Hal have much in common, so I can start by talking about both of them at once. Both are psychologists who ventured into marketing. They did so at a time when such behavior was regarded as radical at best by psychologists and marketers alike. Fortunately, these skeptical views thawed over time to allow Bill and Hal to survive and, later, prosper. They became leaders in the study of consumer behavior and the promulgation of behavioral concepts and knowledge.

Both have held important positions in the American Marketing Association and the American Psychological Association. Both were elected Fellows of the American Psychological Association in 1972.

Both have been key figures in the formation and growth of the Association for Consumer Research and both have served as its president.

Both have ably performed in a number of roles -- as researcher, writer, editor, speaker, consultant and stimulating professional colleague.

Both are serious scholars but neither takes himself too seriously. While their styles differ, both are known for a keen sense of humor. And for the helpfulness and respect that has characterized their many interchanges with others.

I have decided to talk about Bill first because of his seniority. While he looks young, the fact is that he got his doctorate earlier than did Hal.

William D. Wells

Bill Wells is a man for whom one career was not enough. He has lived two -- one in academics and one in business.

He received his Ph.D. in Psychology from Stanford University in 1954. He then joined the Psychology Faculty at Rutgers University where he taught for 12 years. During that time, he learned marketing as a key consultant to Benton and Bowles, Inc., one of the first advertising agencies to develop a prominent interdisciplinary research group. In that role, Bill developed new research techniques, helped put together one of the first computer simulations of a consumer product market, and began his pioneering research on consumer life styles.

From 1966 to 1974, he was Professor of Psychology and Marketing at the University of Chicago. Concurrently, he continued working in the business world, serving Leo Burnett Company, Market Facts, the Federal Trade Commission and others. In 1974, he joined the organization now known as Needham, Harper Worldwide where he now is Executive Vice President and Director of Marketing Services.

Bill has been on the policy board for the Journal of Consumer Research and currently is on its Editorial Board. He also is on the Editorial Board for the Journal of Marketing and is a former member of the Editorial Board of the Journal of Marketing Research.

Many of you know Bill best for his writings. He has authored more than 30 articles in psychological and marketing journals; 10 chapters in various books; and more than 40 research papers presented at professional conferences. A number of his works are considered landmarks in the field and have been widely cited and reprinted.

In the 1950's, Bill was one of the first persons to study and write about product images.

In the 1960's, his publications showed his keen interest in improving research methodology. They included these titles:

- "The Influence of Yeasaying Response Style"
- "Measuring Readiness to Buy"
- "Hidden Errors in Survey Data"
- "Computer Simulation of Consumer Behavior"
- "Recognition, Recall and Rating Scales"
- "Communicating with Children"
- "Direct Observation of Purchasing Behavior"

Prominent among his articles in the late 1960's and the 1970's were the following:

- "The Life Cycle Concept in Marketing Research"
- "Patterns of Consumer Behavior"
- "Activities, Interests and Opinions"
- "Psychographics: A Critical Review"
- "The Modern Feminine Life Style"

In 1975, Bill addressed the effects of a major medium in his monograph on Television and Aggression. A year later, his book, Life Style and Psychographics, advanced thought and methodology on market segmentation. In 1977, he co-authored a consumer behavior textbook.

Bill has contributed much to understanding of many important topics. In so doing, he has shown unusual creativity, rigorous concern with reliability and validity of data, depth of thought and superb skills as a communicator.

Bill, if you will come up here, I will give you a plaque. It is inscribed as follows:

The Association for Consumer Research presents its Fellow in Consumer Behavior award to William D. Wells for his pioneering research, writing and teaching in consumer behavior.

Harold H. Kassirjian

When Hal Kassirjian earned his Ph.D. in 1960, he found that universities were not looking for social psychologists. So he took a job with a marketing research firm. A little later, he sought a faculty position, this time in marketing rather than psychology. UCLA hired Hal who became a lone psychologist in a department of economists. Over time, things changed. Hal led development of the department into the position of preeminence it now enjoys.

Along the way, he chaired 18 dissertation committees for doctoral students, many of whom are now well known members of ACR.

Hal discovered very early that he liked to see his name in print. He confesses that he still does. He also likes to speak. Those likings, along with intellectual curiosity, have led to more than 50 published articles, chapters in books, books, and research papers. He also has presented more than 100 unpublished papers at professional conferences and university colloquia.

Contrary to what you might expect, Hal's early publications were not based on his dissertation, but on his wife's. She had written on Riesman's theory of Inner and Outer Direction. She and Hal collaborated on several papers on that subject.

I shall mention the titles of a few of Hal's articles because they have been particularly widely cited and reprinted. The titles:

"Riesman Revisited," an article which helped stimulate research on the relationship of personality to consumer behavior.

"Personality and Consumer Behavior," an article written six years later to put what Hal regarded to be a timely end to research in that stream.

"Social Character and Differential Preference for Mass Communication"

"Cognitive Dissonance and Consumer Behavior," which received Honorable Mention in the 1966 McKinsey Awards

"The Negro and American Advertising"

"Content Analysis in Consumer Behavior"

The last two articles helped stimulate research on minorities and the role of women as portrayed in mass media.

Hal addressed a number of other topics: social values and consumer behavior; voting behavior; federal regulation of advertising, consumer behavior theory; low involvement; the integration of behavioral science into marketing; and the teaching of consumer behavior. He has written on survey research, projective methods, opinion measurement, and market segmentation techniques.

In the 1960's, a few universities started to offer courses in consumer behavior. Textual material was scarce, so Hal, with Tom Robertson, put together a book of readings entitled Perspectives in Consumer Behavior. It has continued to be widely respected and used in its subsequent editions. Later Hal, with Peter Bennett, co-authored a consumer behavior text.

As you can see, Hal has ranged widely within consumer behavior. In so doing, he acquired a perspective valuable in his editorial work. He has served on the Editorial Boards of the Journal of Consumer Research, Journal of Marketing, California Management Review, and Journal of Consumer Affairs. In 1982, he became Co-Editor of the Journal of Consumer Research. He is well known for the care he takes in writing constructive comments to authors. And for his skill in composing rejection letters which leave the recipients feeling as badly for the editor as for themselves.

No comment on Hal would be complete without recognizing his role as a perceptive, articulate spokesman for our profes-

sion. He has made it difficult for us to become either complacent or presumptuous. For example, take his presidential address in 1977 when our field was preoccupied with elaborate consumer decision models. He reminded us that, after all, the world is full of insignificant consumer decisions and that for them we probably do not need a grand theory of behavior. He has shown great sensitivity and appreciation in recognizing contributions of others as he did so eloquently in presenting the first Fellow in Consumer Behavior awards in 1980 and in his eulogy for Robert Ferber in 1982. He can express so well feelings we share. In a real sense, he has represented the conscience of the field of consumer behavior and of the Association.

Hal, will you come forward. The inscription on your plaque reads:

The Association for Consumer Research presents its Fellow in Consumer Behavior award to Harold H. Kassirjian for his scholarly contributions to consumer behavior as researcher, teacher and editor.

Harold H. Kassarian, UCLA

It seems that people who get an award often claim it is a humbling experience. Today, I understand why -- at a very personal level -- for upon accepting the title "fellow" awarded by my peers, it does humble one. Those fellows who came before Bill Wells and me, and those who will follow in years to come, may well be the only individuals who really know the feeling of honor that I am trying to express. To have been selected for this award is indeed an emotional experience. I consider this award to be the apex of my career.

But, alas, there is also a down side, for one must stand up here and address this audience. I am sure that those who have stood here before me -- the three living Fellow Award recipients and past ACR presidents, will agree -- it is a frightening experience. Nine hundred inquiring eyes await some significant comments. One is asked to be brilliant and creative, on demand. I assure you, it has led to some anxious moments over these past few weeks. The saving grace has been that my co-recipient may very well be brilliant and perhaps attention will be focused on him rather than on me.

In spite of, or perhaps because of that terror, this event has given me the opportunity to think and wonder about consumer research and the field of consumer behavior. We often hear that the field has matured and the excitement of nurturing the fragile coalition that we are, is no longer thrilling. There is nothing new that captures our excitement; that we are a field of fads; and that researchers are either like butterflies that flit from flower to flower, tasting but not drinking deeply; or statistically rigid methodologists who devise rigorous experiments with little understanding of validity. Is it really measuring what it purports to measure? Consumer behavior, we have been told again and again, has become boring.

It is true that we are maturing and perhaps we have become a bit boring. As a field matures, that is to be expected. Let me amplify that point by looking at the research life cycle (Kassarjian, 1979).

The Research Process

The first researchers to emerge with an idea, we can stereotype as innovators. Bright, sharp, the innovator may be exceptionally creative or he may be a creative borrower, but he or she is the first to come up with the idea or the first to do a study. The quality of that early work may not be the most sophisticated, but it is innovative. Festinger on dissonance or Bem on self-perception are examples from a sister discipline. Consumer behavior example abound and should be simple for this audience to generate: Levy's work on social class, Kuehn's work on linear learning models, Hupfer and Dave Gardner on low involvement, Haines and Bettman on information processing, the early contributions on personality, dissonance, attribution theory, multi-attribute attitude models and on and on.

Better quality research, advanced technology, sophisticated statistics and complex experimental designs are left to others. Merely the original, innovative, and creative thinking comes from the innovator. Without him, there is little that is exciting or new, and without him, there is no place for methodologists, statisticians, and experimental design specialists to ply their trade.

Following the innovator, comes the middle majority. Some of these are mainliners; alert to the literature and knowledgeable as to what is publishable. Their time has

come when a topic has become a fad. Nothing very innovative or particularly brilliant emerges. Rather, their important contribution is much like that of a mason that lays bricks, one on top of another, and not the creation of the architectural design.

Co-existing with the mainliner is the technician. Highly trained, mathematically sophisticated, this person is the technical expert. He or she is capable of advancing the field rapidly as new variables, more attributes, inter-relationships, and mass data processing skills are introduced. It is the data and its crunchability that excites this scholar. The emphasis is on method and he or she is not necessarily interested in the substantive content. Most of all, this individual is simply not concerned with external validity. His high-quality work is published in the best journals. His major contribution may be in development of sophisticated methodologies, but much more likely, it is in the rapid development of a concept and its hasty burial. For once, all the multi-variables are intercorrelated and controlled, interest in the topic drops.

The mainliners and the technicians follow the innovators to a new topic and the remaining work is left to the laggards. Perhaps the least interesting time in the research life cycle occurs after the innovators have left for greener pastures and the followers are near finished extracting from the second and third crushing of the grapes. Mainstream consumer research with its cognitive approach is in just that stage. The innovators have already left and moved on to new topics and the mainliners and technicians are finishing their work.

The Counter-Cognitive Revolution

However, if one takes a slightly broader view, the changes that are upon us can make this field as exciting today as it has ever been. And this time, the changes that we are seeing are more dramatic than, say, the shift from multi-attribute attitude models to information processing; for the innovators on this round are far more revolutionary. We are not just changing gears but rather are headed toward a new highway. But, let me back-up a moment.

On the surface, what seems to be in the doldrums is the revolutionary spirit, for consumer behavior had phenomenal growth, ferment, and excitement during the cognitive revolution in the social sciences. Having been freed from demographics, simple behaviorism, and psychoanalytic approaches in the early 1960's, the cognitive revolution was under way. From its early beginnings in cognitive dissonance to attribution theory, from attitude research and cognitive response to the complexity of memory factors in information processing, the cognitive revolution was upon us and we were part of it.

Now, I ask you to consider the 1985 ACR program. We have one session with attitudes in the title and almost a dozen sessions on information processing -- such topics as consumer knowledge, decisionmaking, information search, and memory. But, these are not in the majority anymore. Even more telling are the topics that have reappeared, those that had not been around for more than a decade. For today, we have sessions on emotional advertising, mood, emotional response, feeling, affect, learning and conditioned response, humanistic thinking, and even rituals. I count nearly a dozen such sessions and estimate perhaps three to four dozen such pieces.

Clearly, the innovators are again encroaching upon us. But this time, it is not just another new topic creatively borrowed from a sister field, for we are in the midst of a counter-cognitive revolution. And if nothing else, revolutions are exciting times. Our dependence on

¹With appreciation to Kent Nakamoto.

cognitive psychology is being seriously challenged. The cognitive model is giving way to a more exciting and more holistic approach on one hand and to a simpler conditioned learning paradigm on the other. After some two decades, we are swinging back.

But, it is not only us in consumer behavior who have a counter-cognitive revolution on our hands. Pribram (1985) has recently written, "Cognitive Psychology itself is beginning to feel its age. The vitality which characterized the revolution is ebbing. More and more experimentalists are concerned with refinements and, to outsiders, sometimes with trivia. There are suggestions of 'burn-out' -- that the revolution has come to an end, that activity will come to a standstill when it is realized that, after all, the radical behaviorists are right: language is too ambiguous to serve as the core of a science."

However, as an aside, it appears to me that the swings in our field are not like those of a pendulum -- we are not going back and forth -- but, rather, it is more like a spiral that narrows on top. With each swing or revolution, we seem to incorporate the best of that cycle and move to a higher level of understanding. Perhaps, once at the apex, we will have achieved a true appreciation of how and why the consumer behaves as he or she does. How high up that spiral are we? I suspect it really isn't very high and what we write about today will seem utter naive a decade from now on ACR's silver anniversary.

Although counter-revolutionaries have always been in our midst -- the motivation researchers, the humanists, those interested in physiological determinants -- we paid them little mind, for their work was not dubbed as "scientific" -- that is, it was not part of the prevailing research culture. The shock troops for the present counter-revolution were to come not only from the Freudians and the Pavlovians, but even more from those working in arousal and activation, and the low involvement researchers and theorists. It was these scholars who emphasized that much of consumer behavior involves trivial matters, stereotypic decisions, and psychobiological reactions -- behavior that does not require much in the way of cognitive processes. After all, how much cognitive effort goes into the purchase of a tube of toothpaste, or even a refrigerator? As Kroeber-Riel (1979) has pointed out, there are psychological and biological limits on the person's deliberate and conscious control of his behavior.

Mindlessness

Deliberative, mindful, inferential, and multi-attribute evaluations are simply not all that prevalent in the marketplace. In part, that is what the counter-cognitive revolution is all about. As Langer, Blank, and Chanowitz point out (1978, but also see Folkes, in press), much of present day theory takes for granted that people think, "with the underlying assumption that people attend to their world and derive behavioral strategies based on current incoming information. The question raised here is not whether these formulations are correct, nor is it whether people are capable of thoughtful action. Instead, we question how often people outside of the laboratory are actually mindful of the variables that are relevant for the subject and for the experimenter in the laboratory, and by implication, then how adequate our theories really are.

Langer then argues, that which is commonly assumed to be mindful, may be, in fact, rather automatic. That is, much of behavior, and certainly the massive blocks of behavior we as consumer researchers are interested in, can best be described as mindless. "Mindless in the sense that attention is not paid precisely to those substantive elements that are relevant for the successful resolution of the situation."

Rather, perhaps because of earlier learning, emotional state, or simple non-involvement and disinterest; behavior is stereotypically reenacted. This, then, is not a thinking, reasoning problemsolving individual capable of transforming, storing, and evaluating sensory inputs for every pound of coffee acquired or even the purchase of a refrigerator. Mindlessness, indeed, is a superior description of most consumer activity. And, I would venture that most of our data, particularly those collected outside the laboratory, would be quite consistent with the belief of the mindless consumer.

So that I am not misunderstood, by no means do I purport that the consumer is stupid, a mindless robot controlled by advertisers, package designers, motivation researchers, or nefarious un-nice people. Nor do I wish to claim that he or she is completely controlled by the adrenal cortex or the production of epinephrene or nor-epinephrene. Rather, I claim the consumer is quite shrewd and does not clutter his mind with the often irrelevant and even more often nonsensical information that impinges on him for every silly or significant purchase.

Once that individual is brought into the laboratory, read precise instructions under pretested conditions, little wonder he or she may become self-conscious. As Langer concludes, "This self-consciousness may be thought provoking and habit inhibiting." Thus, too often, "we are left with the situation where we are studying the responses of thinking subjects and then generalizing too successfully non-thinking people."

Perhaps, it is just such thinking that has excited both proponents and opponents of the importance or silliness of the Belk odyssey -- next summer -- a group of researchers who intend to spend the summer observing, recording, and videotaping, not in the laboratory, but in the field, the behavior of consumers -- at a wedding, a county fair, a swap-meet, a Beverly Hills jeweler, or a midwestern feed store.

Integration and the Middle Ground

And yet, most of those in the forefront of the counter-cognitive revolution would surely not purport to say that complete mindlessness is the appropriate description of the consumer. Those who are studying affect and mood, emotion, condition response, and holistic rather than piece-meal cognitive processing surely are not entirely dealing with mindlessness. By no means do I wish to obliterate the thoughtful thinking consumer for some purchases and under some conditions. I do not wish to deny that, at times past, perhaps, thoughtful information processing did occur. But, also, as Joel Cohen (1982) has pointed out in a delightful ACR paper, so too has the consumer learned schemas, categorization, stereotypes, and nonanalytic concept identification.

Rather, I wish to observe that research on the concept of a conscious mindful information processor has seen its day and even its most doctrinaire proponents are beginning to consider affect, and those other attributes of the counter-revolutionaries. However, it seems to me that there are potholes on our newly refurbished highway. Our recent attempts to take human responses, such as emotion, affect, and even conditioned response and squeeze them into our cherished models of cognitive processing and models of memory are probably counter-productive.

Many highly regarded researchers have tried to incorporate emotions with cognitions by claiming that affect is an interactive node in the memory model or an additional box in the ubiquitous flowchart. But, there are also others who view affective states more or less as independent of cognition -- a physiological reaction rather than a cognitive one. Further, it is clear to me that affect is so much more powerful that it completely dominates

rational processing. Unfortunately, I am not persuaded that most of us are equipped to study emotions or that they can be measured by paper-and-pencil questionnaires or by laboratory manipulations.

The revolution in the 1960s led to the flurry of excitement in our field once it was freed from its bonds to earlier modes of thinking. So too, the counter-revolution is upon us, having been freed to its bonds to cognitive psychology. What is wrong with the current paradigm in cognitive psychology, as Pribram (1985) has pointed out, is that it is based solely on the analogy with the serial processing computer and Von Neuman architecture. Serial Programming is excellent for symbol manipulation, but fails to provide access to the richness of texture involved in the totality of consumer behavior.

Interestingly, from its earliest days, the Association for Consumer Research has been promulgating the concept that consumer research is interdisciplinary. It never has been successful in reaching that goal, but it may very well be that within the counter-revolution, some of those interdisciplinary ideals may come to fruition. It will not be called interdisciplinary; but, rather, I expect, we will see it in the integration of the thinking of the old guard with the thinking of the counter-revolutionaries. If I remember correctly, that is really what we meant when we said interdisciplinary at the time this organization was formed. What we really wanted to do was to integrate the thinking of economists and psychologists and sociologists into a new field that would be called consumer behavior. It is now coming to pass. For, as I mentioned, I don't believe that the swing back is analagous to the movement of a pendulum, but rather having been freed from the cognitive bonds, we are ready to move up the spiral.

The work that is occurring, for example, on mood and affect has incorporated within it much of what it is we have learned during our cognitive days. Obviously, the work on attitudes, memory, and choice heuristics are not to be repudiated, but, rather, integrated into the new work that is emerging. The seeds of integration have already been planted by Bettman (1982) and Cohen (1982) in ACR papers presented in St. Louis. Very recently, I received a working paper by Debraix and Vanden Abeele (1985) along those same lines.

No, these are not boring times. For there is room, not only for the cognitive types, but also the humanists, the physiological researchers and even those that get excited by the Skinner Box and Pavlov's dog; not to mention situational and social determinants. Although ACR has always promulgated that this field was open to all, I am not persuaded that it has always been true.

Obviously, there is nothing particularly new in these comments other than to emphasize how very subtly the counter-cognitive-revolution has appeared on the scene and has overtaken much of our thinking. The encroachment started perhaps half a decade ago, and today, it is in full swing. Indeed, these are exciting times for both participant and nonparticipant observers.

The Muddling-Through Consumer

I would guess that we are approaching a middle ground that is more realistic and less pristine. The next turn in the spiral will bring us not to a mindful or a mindless consumer, not to a thoughtful or thoughtless decisionmaker, or one driven by hormones, rather than frontal lobe activity, but rather to a relatively different conceptualization: the individual that muddles through (Lindblom, 1959; Park, 1982). Decisions are made, purchases are consummated, children are sent to school, and bills are paid; all in due course, as the consumer gets on with the business of living.

The muddling-through consumer: one that flows with his emotions and learned responses, and processes information, but only when absolutely necessary; a cognitive miser, well protected by selective perception and selective attention, a satisficer, rather than a maximizer, one who invokes prior experience when it is essential and one who does not clutter his mind with variables we researchers today consider relevant. I expect to see the integration of mindlessness with deliberativeness, along with greater recognition of the ability of the consumer, perhaps automatically, to prioritize what is and what is not important in the business of living. As consumer researchers, we are wonderfully equipped with a subject matter that is indeed relevant and subjects, who as consumers, are indeed expert in the Art and Science of Muddling Through.

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THREE USEFUL IDEAS

William D. Wells, Needham Harper Worldwide, Inc.

ACR was founded to promote exchange of ideas among government, industry and academia. The premise was that each of these entities has something to learn from each of the others, and that creative solutions to complex problems are most likely to occur at the border.

Over the years academia has provided most of ACR's agenda. For many good reasons, professors have organized most of ACR's symposia and submitted most of the competitive papers. Industry or government participants have usually been discussants or listeners.

In this sense the tripartite deal has been pretty one-sided. Academicians have done most of the work and the other two partners have reaped more than their small share of the benefits.

In the spirit of redressing the balance just a little, this talk will send three ideas from industry to academia. All three of these ideas have influenced my thinking about consumer behavior.

They have changed both research designs and action recommendations. And since we all have interests in common, I have reason to hope that they will prove both interesting and useful.

The first idea comes from efforts to understand advertising. The basic notion is that only part of an advertisement's effect occurs at the time of exposure. Another part -- and sometimes a very important part -- occurs later, when the consumer comes into contact with the product.

As many of you have demonstrated in your own research, the consumer's immediate reaction to an advertisement is most likely to be cognitive and rational. The advertisement makes claims about the product, and the consumer believes these claims or counterargues. Of course the process is never quite that simple, but that's a reasonable first approximation.

But that's not the end of the story. Something else happens later, and that something may be more important than what happens right away.

What happens later is that the advertisement and the product interact, and that interaction transforms the consumer's experience.

Transforming interactions occur because environments are complex, ambiguous, and open to multiple interpretations. Visiting a department store or a supermarket, taking an airplane trip, renting a car, going to a movie, preparing and serving dinner, visiting Las Vegas -- are all complex episodes, replete with multiple stimuli to be singled out or ignored and forgotten. Even comparatively simple events like ordering a beer or smoking a cigarette are subject to multiple interpretations, depending on the symbolism of the product and the meaning of the situation.

Advertising helps consumers interpret these experiences. It suggests what should be noticed. It provides cues and clues to help consumers understand and appreciate their feelings. And in this way it can change the nature of the response.

This way of thinking about advertising is not all that radical. More than thirty years ago, Solomon Asch found that he could change the way students evaluate a lecture by manipulating the lecturer's prior "reputation." And studies of prejudice have repeatedly shown that racial stereotypes, for instance, can have a powerful effect on interpretation of behavior.

Part of the information consumers use to interpret their experience is explicit, overt and cognitive. Advertisements make claims about products, and if these claims are halfway believed, they influence what the consumer thinks he is doing.

This part of the information is relatively easy to measure. It shows up on standard copy tests which focus on overt changes in cognitive structure.

But the other part of the information is much more subtle. It is encoded in casting, lighting, accents, dialogue, music, body language -- all the instruments of drama.

This part of the information is extremely difficult to measure. Our standard copy tests are insensitive to it, and indeed the consumer himself may not know how or where this information was acquired.

"I do not like thee, Dr. Fell.
Reason why I cannot tell.
But this I know, and know full well:
I do not like thee, Dr. Fell."

When the consumer comes into contact with the product, he uses both the overt, explicit information and the subtle cues to help him understand and interpret what is happening. And, as with the versifier who doesn't like Dr. Fell, the latent information may be decisive.

So here we have two separate problems. First, an important part of the information in advertisements is missed by current research procedures. And, in some cases at least, that missed information may carry the day. Second, advertisements have a delayed effect: they transform the consumer's experience with the product. Some of this delayed effect may come from easily measurable cognitive changes, but a very important part of it may come from subtle cues that are not noticed or remembered. In either case, the delayed effect itself cannot be measured at the time of exposure.

But of these problems present formidable research challenges. The first challenge is to develop research techniques that are sensitive to the subtle cues that influence later product perception. The second challenge is to develop research procedures to assess what happens when the residue from the advertisement encounters purchase or consumption. These research tasks are undeniably difficult. But the reward for mastering them would be a major gain in sophistication.

The second of three ideas addresses the question: must an advertisement be disliked to be effective? The idea is simply this: most products can be classified into three broad categories -- "approach" products, "avoidance" products, and products which we might call "utilitarian."

Approach products are products that most consumers approach spontaneously -- products like good food, new cars, new homes, entertainment and travel.

Avoidance products are products that most consumers would not purchase if the product did not forestall some even more unpleasant consequence. Most cleaning materials fall into this category, along with deodorants, mouthwashes, insurance, medical and dental treatment.

Utilitarian products are in between "approach" and "avoidance." Office supplies would be a familiar example.

The proposition is that advertising for approach products will be liked if it is effective. Approach products have so much intrinsic positive affect, that if consumers don't like the advertising, someone has botched the communication.

On the other hand, avoidance products are intrinsically negative. If a lot of people get warm and fuzzy about an advertisement for an avoidance product, it is prudent to consider the possibility that a lot of people have simply missed the point of the communication.

I don't mean to recommend that advertisers of avoidance products should strive to be hideous. I do mean to suggest that the relationship between affect and effect for avoidance products may well be zero or even somewhat negative.

What about utilitarian products? With the right kind of advertising and enough of it, an advertiser can change a utilitarian product into an approach product. McDonald's provides an obvious example. In principle, McDonald's is pretty utilitarian. But years of advertising have transformed consumers' experience. McDonald's advertising has provided an inventory clues that help consumers notice, interpret and appreciate the positive aspects of a visit to McDonald's, and help them ignore some of the negatives.

So the answer to the question, "must an advertisement be disliked to be effective?" is, "it depends upon the product being advertised." For approach products, the relationship between affect and effect is likely to be positive. For avoidance products, the relationship may be zero or even negative. And for utilitarian products, the relationship may be determined by the history of the advertising.

This answer has broader research implications. If the relationship between affect and effect varies by product type, then other relationships may vary by product type as well.

Right now, standard procedure in academic research is to generalize findings from one product to all products. Researchers who would never dream of conducting a study with N=1 respondents routinely conduct advertising research with N=1 products. It's basically a sampling problem. It may be just as dangerous to generalize from N=1 products as it is to generalize from N=1 persons.

The third idea has to do with Relevance. Don't tune out. This won't be another diatribe about the ivory tower. In this case Relevance has a very specific meaning, and to get at that meaning we need a little background.

Researchers have often wondered what consumers can tell them about advertising. To find out, they have employed adjective check lists and rating scales, open-end questions and depth interviews.

All this work has shown that consumers can say whether they like an ad or not, and are perfectly willing to do so. Thus "attitude toward the ad" has become an important research variable.

This work has also shown that consumers can tell us something else: They can tell us whether the ad says anything about the product that is relevant to their interests.

Without going into a lot of background detail, let me show you a ten-item rating scale that asks about the advertisement's relevance:

R Scale

1. The commercial made me think about buying the brand that was advertised.
2. The ad didn't have anything to do with me or my needs. (-)
3. The commercial made me want the brand that was advertised.
4. During the commercial I thought how the product might be useful for me.
5. The message in the commercial was important to me.
6. The commercial did not show me anything that would make me want to use their product. (-)
7. I have a more favorable view of the brand after seeing this commercial.
8. The commercial showed me the product has certain advantages.
9. It was meaningful for me.
10. It was worth remembering.

These ten items ask the respondent in slightly different ways whether the advertisement speaks to their interests. When an ad scores high on this scale, respondents are saying, "Yeah, that ad makes me want to buy the product." And when an ad scores low on the scale, respondents are saying, "No, it doesn't."

What are we to make of such answers? As research psychologists, we all know that we can't trust subjects to examine and report on their own motives. But as real people we often ask our friends to do just that, and we often behave as though we more than halfway believed the answers.

"Do you want a cup of coffee?"
"How about going to a movie?"
"Why did you do that!"
"How strongly do you feel about her?"

So the third idea is the R Scale -- R for Relevance. I think we should take Relevance seriously and see what it can tell us.

The R Scale has a lot going for it. It is internally consistent and reasonably reliable. It discriminates sharply among ads in ways that are intuitively appealing. And most important of all, the variable it represents has popped up in study after study -- across investigators, across methods and across media. A variable that pesky deserves some serious evaluation.

So three ideas are hereby returned from industry to academia:

1. Some advertisements literally transform the consumption experience. This effect is not captured by current advertising research methods.
2. Relationships between affect and effect--and probably other relationships as well--vary sharply by product. It is as important to sample products as it is to sample people.
3. Relevance, as defined by the R Scale, is an important variable. It is well worth serious attention.

Each of these ideas has the potential to change advertising research, maybe even for the better. If that should happen, it would confirm the premise on which ACR was founded--that different disciplines have something useful to say to each other, and that creative solutions to complex problems are likely to be found at the border.

SOME EVIDENCE FOR ADDITIONAL TYPES OF CHOICE STRATEGIES

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Abstract

Consumer researchers now recognize that brand choices are made in a variety of ways. Recently, it has been suggested that the repertoire of consumer choice strategies is even broader in scope and involves the use of surrogates, recommendations and imitation in addition to those choice rules uncovered so far. This paper presents the results of a laboratory study that investigated brand choice strategies (using protocol analysis) for a variety of products; considerable support for the occurrence of these additional choice strategies was found.

Introduction

Consumer researchers grappling with the complexities of consumer choice processes have increasingly come to recognize that choices are made in a much more varied fashion than heretofore theorized (Bettman 1979; Kassarian 1978; Krugman 1965; Olshavsky and Granbois 1979; Payne 1982; Zajonc and Markus 1982). It is now generally accepted that choice occurs by a variety of rules other than the "linear additive" rule made popular by the research efforts of Fishbein (1967), Fishbein and Ajzen (1972), Ajzen and Fishbein (1977); Wilkie and Pessemier (1973). (Although some theorists maintain that all of these rules can be subsumed by an appropriately specified expectancy-value model.)

Specifically, researchers have uncovered choice rules such as "affect referral" (Wright 1975), in which the evaluation process is wholistic and based on preferences retrieved from memory. In addition to the classic linear additive rule, certain other compensatory rules such as the "additive difference" and "attribute dominance" have been identified (Tversky 1969). Certain noncompensatory choice rules (e.g., "conjunctive," "disjunctive," and "lexicographic") have also been identified (Bettman 1979). Further, there is evidence that consumers use "phased" rules in certain situations; here, two or more rules are applied in sequence (e.g., lexicographic first, followed by linear additive) (Wright 1974; Wright and Barbour 1977; Russ 1971).

Recently, Olshavsky (1985a; 1985b) has proposed an integrated information processing theory of choice that incorporates an even greater range of choice strategies. Olshavsky suggests that in addition to the rules just described, consumers simplify choice by using certain cues (such as price, country of origin, or store) as an index to the quality of a brand.

While a considerable amount of research has been done on the price-quality relationship (with price alone or with price in combination with other cues) nearly all of this research is atheoretical and separate from the mainstream of research on choice (Olson 1977; Rao 1984). Olshavsky (1985a) classifies the use of surrogates as another type of choice strategy and thereby integrates the stream of research on price-quality within a single, systematic information processing theory of choice. Olshavsky refers to all of the choice strategies described so far as "own based."

Olshavsky also proposes that consumers can "decide not to decide." That is, a consumer can "subcontract" a choice

to another person or organization (Olshavsky and Rosen 1985). He calls these types of choice strategies "other based." Two major types of other based choice strategies exist -- "following a recommendation" and "imitation."

Again, while there has been a considerable amount of research done on the effects of interpersonal influences (e.g., opinion leadership, word of mouth) and while various theorists have recognized these influences, these theorists treat interpersonal influences primarily as another source of "attribute-value" type information (e.g., the color of the shirt is blue). Information of this type received from sources such as friends is then assumed to be processed in some "own based" fashion (e.g., Bettman 1979; Engel and Blackwell 1982). Olshavsky acknowledges this type of influence, as well as normative influences (Bearden and Etzel 1982), but proposes that in addition, in some cases, the friend or organization actually does the decision making and the consumer simply accepts that friend's or organization's choice in the form of a recommendation (but, of course, recommendations are not accepted in all cases and not without some qualification of the referrer's expertise). Similarly, imitation of others may involve acceptance of brands used by others, with or without the acquisition of attribute-value type information from those being imitated. Indeed, for various reasons (such as losing face), a consumer may studiously avoid acquiring attribute-value information from those being imitated.

Olshavsky further proposes that surrogate based and other based choice strategies can be and frequently are combined with one or more of the choice strategies already identified. A "hybrid" strategy is one that combines an own based strategy with an other based strategy; e.g., a consumer may engage in some form of own based evaluation, but this evaluation process may be limited to only those alternatives recommended by one or more referrers. Other forms of combined strategies are possible, e.g., combining two or more own based strategies (as in a phased strategy) or combining two or more other based strategies (as in following a recommendation and imitating the brand purchases of others). Table 1 summarizes the various choice strategies proposed by Olshavsky.

Considerable evidence can be and has been cited by Olshavsky (1985a) for the occurrence of both surrogate based and other based choice strategies, but nearly all of this evidence is indirect. Few of the studies cited in support of this broadened taxonomy of choice were explicitly concerned with the identification of choice strategies or combinations of these strategies per se. Thus there exists a need for exploratory research on consumer choice processes to test the validity of Olshavsky's proposed taxonomy. The present paper reports the results of a laboratory study designed to enable the observation of one or more of all of the choice strategies described above in a variety of brand choice situations involving several disparate products.

If evidence is found for the existence of these additional strategies, then this result can be taken as support for Olshavsky's broadened theory of choice. This theory should help us to integrate at least three important streams of research related to choice strategies: 1) traditional research on decision making, 2) the price - quality literature, and 3) the literature pertaining to interpersonal influences. Some specific research directions that are implied by this theory are described in the discussion section.

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TABLE 1
CHOICE STRATEGY TAXONOMY PROPOSED BY OLSHAVSKY²

Choice Strategy	Description
Own Based	
Decision Making (DM)	Refers to choice behaviors in which a consumer personally establishes or changes a preference for an alternative from among two or more alternatives on the basis of one or more evaluative criteria. For example, linear additive rule or conjunctive rule. ³
Surrogate Based	
	Refers to choice behaviors wherein a consumer forms an overall evaluation of each alternative on the basis of one or more cues which serve as an index or surrogate of the overall evaluation. For example, price as an index of quality.
Other Based	
	Refers to choice behaviors in which a consumer "subcontracts" the choice to others. Examples include following a recommendation and imitation. DM may be involved in the selection of the referrer or individual to be imitated.
Hybrid	
	Refers to choice behaviors wherein a consumer combines own based and other based strategies. An example is using a conjunctive rule to evaluate only recommended alternatives.
Other Combination Strategies	
	Refers to those choice behaviors wherein a consumer uses two or more own based strategies (e.g., a phased strategy) or two or more other based strategies (e.g., recommendation and imitation).

Method

Subjects

Ten students participated in this study. All were volunteers. Sample size was purposely small because of the large amount of time involved in protocol collection and analysis; this is consistent with prior research utilizing this approach (Payne, Braunstein, and Carroll 1978).

Products

Products were selected that, on theoretical grounds and on the basis of past research, were judged likely to increase the likelihood of occurrence of a wide range of choice strategies. Specifically, the importance of "number of alternatives" in determining choice strategy has been demonstrated empirically and has been given a theoretical explanation in terms of short term memory constraints (Bettman 1979; Lussier and Olshavsky 1979; Newell and Simon 1972; Payne 1976). Recently, for instance Malhotra (1982) has shown that the probability of correct choice decreased significantly as the number of alternatives was increased from five to ten or more. The "amount of infor-

² Affect referral is purposely omitted from this Table because it is classified by Olshavsky as an instance of "non-choice."

³ See Bettman (1979, pp. 179-185) for a detailed description of the various decision making strategies.

mation" about alternatives (Cox 1972; Jacoby, Speller and Kohn 1974a; 1974b; Lee 1971; Russo 1974; Summers 1974; Malhotra 1982), the "format" of information (Bettman and Kakker 1976; Russo, Krieser and Mijashita 1975; van Raij 1977), and the "complexity" of the product (Olshavsky 1979) were also taken into account in the selection of products to be included in this study.

Table 2 presents the ten products selected; for each, the number of brands presented and the number of attributes about which information was explicitly presented is also indicated.

TABLE 2
THE NUMBER OF BRANDS AND NUMBER OF ATTRIBUTES FOR EACH OF TEN PRODUCTS

Product	Number of Brands ⁴	Number of Attributes
Gold Chain	5	3
Watch (for self)	12	3 - 5
Watch (as a gift)	12	3 - 5
Fine China	10	2 - 5
Hairdryer	6	2 - 6
Portable Cassette Player	5	10 - 12
Color T.V.	5	7 - 10
Tennis Balls	4	3
Tennis Racquet	5	3 - 5
Bicycle	2	8

Procedure

The instrument used in this study was the 1983-1984 General Merchandise Catalog from Service Merchandise. This catalog was used because it features national brands (permitting the occurrence of affect referral) and is more realistic than the information display boards, matrix displays and 5" X 7" cards used by researchers in the past (e.g., Payne 1976; Lussier and Olshavsky 1979). (The recent rapid growth in direct marketing and especially the increase in catalog sales is another consideration that increases the realism of these materials.)

The subjects were interviewed one at a time for about one hour each. The order of presentation of the ten brand choice tasks was counterbalanced across subjects. Each subject was handed a copy of the 1983-84 Service Merchandise catalog. The experimenter then asked the subject to go to the relevant pages and to make a choice of a single brand in that category and to use whichever choice method s/he normally would use.

Data Collection

The data collection technique utilized was the simultaneous "think aloud" verbal protocols. The collection of verbal protocols is conceptually a straightforward method of obtaining data. The subject is asked to give continuous verbal reports while performing the task in question. The advantages and disadvantages of protocol analysis have been discussed in detail elsewhere and will not be repeated here (see e.g., Bettman 1979; Ericsson and Simon 1980; Newell and Simon 1972; Nisbett and Wilson 1977; Payne, Braunstein, and Carroll 1978).

Data Analysis

The recorded protocols were first transcribed and then they were broken up into short phrases, each phrase corresponding to an assessment of what constitutes a single task assertion or reference by the subject (Newell and Simon 1972).

⁴ Not counting alternatives within each brand.

The two authors classified the strategies utilized by each subject for each brand choice task based upon the classification of choice strategies proposed by Olshavsky (1985a; 1985b;). Specifically, each protocol was coded as affect referral, own-based (including decision making and surrogate based), other based (including following a recommendation and imitation), or some combination of these rules. While coding, the entire protocol for each brand choice situation was read carefully and attention was paid to the overall context of the protocol. This procedure avoids distortions in the picture of processing that finally emerges (Bettman and Park 1980; Biehal and Chakravarti 1982). No attempt was made to classify the own based, decision making rules into the specific rules involved (i.e., linear additive, additive difference, conjunctive, etc.) since this was not essential to the purpose of this study.

Results

Initial agreement between the two coders was 85%. After discussing those cases involving disagreement, agreement was increased to 92%. The principle source of these disagreements raises a basic issue that is taken up in the discussion section.

Table 3 summarizes the frequency of occurrence of the various choice strategies employed by these ten subjects across the ten products.

TABLE 3
FREQUENCY OF CHOICE STRATEGIES

Choice Strategy	Frequency
Affect Referral	9
Own-Based:	
Decision Making	47
Surrogate-Based	15
Other-Based	5
Hybrid (own-based and other-based)	5
Other ("affect referral" and own-based)	10
No Choice Strategy Identified (inadequate protocols)	1
Disagreement (between coders)	8

Affect Referral

In 9% of the cases, the subjects used affect referral to make their choice. In affect referral, as typically defined, a subject simply elicits from memory a previously formed overall evaluation for one or more of the alternatives and selects that alternative with the highest overall evaluation (Bettman 1979, p. 179; Wright 1976). Typical of the protocols classified as affect referral in this study was the protocol for a watch for Subject 10:

"probably would like an Elgin watch because I have an Elgin now"

And, again, for choosing a hairdryer, Subject 10 stated: "page 248, number 2, the Chairol ... I guess the reason I say that is because I have a Chairol hot burners and they are fine"

Own Based Strategies

In a majority (62%) of the brand choice situations, some type of own based choice strategy was employed. These

strategies were further sub-classified as either decision making or surrogate based.

Decision Making

Subjects frequently (47%) employed some type of decision making rule. Most of the decision making strategies previously described were observed to occur either alone (e.g., conjunctive or lexicographic) or in combination with others (e.g., lexicographic followed by conjunctive). No attempt was made however to classify these protocols at this level of detail.

Surrogate Based Strategies

In 15% of the cases, subjects employed a surrogate based strategy. Cues such as price and store were used as indices of quality and the choice was ostensibly made on that basis. For example, the protocol for bicycles for Subject 3 included these important utterances related to price as a surrogate of quality:

"the 'Carrera' is a 10 speed also..."

"that is real cheap ... its only \$87."

"that tells me, the \$87, that that bike is not going to last me too long for that kind of price."

"I guess what I am doing here is ... inferring quality based on price, which might not be correct but for that low of a cost I have to believe that bike is not going to give me long life."

Other Based Strategies

In 5% of the cases, the subjects used an other based choice strategy. Whenever choice was based on recommendation or imitation, it was classified as an other based strategy. (This type of strategy was observed even though no recommendations or information about the behavior of others with respect to these brands was provided; this aspect of the study will be discussed further in the discussion section). For example, the protocol for Subject 7 for hair-dryers reproduced in part below indicates that this subject is using an imitation strategy:

"... although I do have a friend who has #2 here, Clairol Son of a Gun and they are happy with this."

"and since there is not too much difference in these, I would choose #2."

"because I know a friend that has one of those ... #2."

Use of recommendation in choice was demonstrated by Subject 2 in choosing a tennis racquet:

"I know very little about tennis racquets--I would probably consult someone about buying one."

Hybrid Strategies

In another 5% of the cases, subjects were found to engage in a strategy involving both own based and other based strategies in some combination. For instance, Subject 5 seems to be using such a hybrid strategy (i.e., surrogate and recommendation) in choosing a tennis racquet as revealed in the following excerpts:

"Well, I think with these, #13 and #14...I think at this point, they might just be a little too cheaply priced"

"and you start to wonder that you are probably not getting a quality racquet"

"...so I think I would consult some of my friends who play tennis more than I do and I would probably have them come to the store with me and to look at these and see what they think about it."

Combined Strategies

A surprisingly large percentage of choices (10%) involved a choice strategy that combined affect referral with an own based strategy. (This assumes that affect referral does not preclude the possibility of having more than one strongly preferred alternative. This issue is discussed below.) As an example, the complete protocol for Subject 1 for tennis racquet is reproduced in Table 4.

TABLE 4

COMPLETE PROTOCOL FOR SUBJECT #1 FOR TENNIS RACQUETS

- A97: OK, I'd probably first decide if I wanted wood or graphite or aluminum
- A98: I've always used wood so I probably would go with the wood.
- A99: I don't like the oversize...like the Prince.
- A100: I guess the Wilson is too...yeah...oversize.
- A101: Those oversize ones...I don't like those.
- A102: I'd...the graphite ones, I'd look at them and see what the prices are.
- A103: They aren't that much more expensive.
- A104: I haven't really used them before.
- A105: So...because it is not something I can return... I'd probably go ahead and get a wood (racquet).
- A106: I would look for a name I know, Wilson, Head, probably one of those.
- A107: I have never heard of Donnay or whatever.
- A108: Bancroft I have heard of but I think I'd go with the Wilson.
- A109: That is what I've always used.
- A110: And after looking at different prices...let's see ...not that many wood ones.
- A111: I think that probably in this category I'd go for the higher priced Wilson.
- A112: It is not that much...well it is \$20 more but I think it is a better quality racquet.
- A113: The #12, Wilson Advantage wood racquet for \$39.96 over the other Wilson which is \$19.97 for the Connor's Pro.
- A114: I'd probably go with the Wilson #12 just because I'd be looking for wood.
- A115: The price doesn't really matter that much to me... it is pretty reasonable.
- A116: I think it is a quality racquet.

Intra-Subject, Intra-Product Regularities

Even though the sample size was small, some intra-subject and intro-product regularities were apparent. For instance, Subject 10 used an affect referral strategy in 6 out of the 10 choice situations. Subject 5 used a hybrid strategy in 3 out of the 10 brand choice environments.

Juxtaposing subjects' choice rules with the types of products, it was also evident that for color T.V. and cassette player, subjects were using combination strategies almost as often as decision making (e.g., linear compensatory, lexicographic, etc.) strategies. Typically a recommendation) or a combination strategy (involving affect referral with an own based choice rule) was being used for these two product categories.

Discussion

As expected, based on prior research and theory, subjects in this study were observed to use a variety of compensatory and noncompensatory decision making strategies alone or in some phased combination. Also, several instances of affect referral (in the strong sense of a single preferred alternative) were observed. Of greater interest however for the stated purposes of this study was the observation of choice strategies involving surrogates, recommendation, and imitation. We interpret these results as lending initial support to Olshavsky's position that

theories of choice must be broadened to encompass these additional types of choice strategies.

In several instances, subjects were observed to use affect referral in combination with other choice strategies. Other researchers have reported observing phased strategies to simplify choice (e.g., Bettman 1979, p. 184). However, in all of those situations two or more decision making strategies (usually a noncompensatory strategy is followed by a compensatory strategy) were utilized. This result raises an important conceptual issue concerning Wright's (1976) definition of affect referral; clearly, a consumer can have a very strong preference for a single alternative or strong preferences for more than one. In the latter case some additional type of choice strategy must be brought to bear unless the consumer elects to buy more than one brand. (This option was not permitted in this study.) Similarly, subjects may not have a strong preference for any brand yet they may have "positive feelings" for two or more brands that are used to quickly narrow down the number of options.

Another issue for future research that arose from the disagreements (8%) between the two coders concerned the interpretation of the meaning of "reputation of the manufacturer." In some instances, it was clear from the context that reputation was used as a surrogate for quality; yet in other instances, the use of the term reputation seemed to be closer to "recommendation" (i.e., my friends recommend it). Here too, as with affect referral, in future research much greater attention must be paid to the definition of terms.

This study is obviously limited due to the small sample size, the particular subset of products investigated, the subjective nature of the protocol analysis technique, and the fact that our procedure did not provide subjects with recommendations or knowledge of how others behaved toward these brands (a limitation which makes our results on the occurrence of other based strategies even stronger).

In spite of the stated limitations, we believe that these results can be interpreted as providing strong, although preliminary evidence for the occurrence of the types of additional choice strategies postulated by Olshavsky. It is our hope that these results will encourage other researchers to now study the contingencies proposed by Olshavsky (1985a) between these strategies and consumer and task environment factors.

Space does not permit a detailed description of Olshavsky's theory and the contingencies proposed therein (see Olshavsky 1985a for details.) Briefly though, Olshavsky postulates (as does Bettman (1979)) that the selection of a specific choice strategy or combination of these strategies is contingent upon the characteristics of the consumer (e.g., beliefs, information processing constraints, skills, knowledge) and the characteristics of the task environment (e.g., the number of alternatives present, the amount and quality of information available, and the nature of the products/services involved). For instance, it can be hypothesized that consumers will be more likely to adopt a surrogate based strategy involving price if the consumer believes that price is an index of quality (Cox 1962; Olson and Jacoby 1972). And consumers are more likely to adopt a recommendation strategy when the marketplace provides very little or very low quality information about the product or service involved, as with physicians or life insurance (Formisano, Olshavsky and Tapp 1982).

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RELATED THEORIES OF COMPLEXITY IN INFORMATION PROCESSING¹

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Abstract

In recent years the information processing perspective has been integrated into Piaget's concept of stages of cognitive development to explain age differences in children's responses to advertising. The types of processing purported to be associated with the different stages of cognitive development bear remarkable resemblance to the kinds of processing associated with levels of involvement as set forth by Greenwald and Leavitt (1984). These two frameworks seem to be reflecting the same underlying concept, that processing of information progresses through hierarchical levels of complexity. This paper examines the similarities between these frameworks and notes some unique aspects of each which suggest interesting avenues for future research. Research exploring the relationship between knowledge and involvement, for instance, could provide some useful insights into information processing by both children and adults.

Introduction

As researchers examined the issue of advertising directed at children, they relied increasingly on Piaget's concept of stages of cognitive development to explain age differences in children's responses, (Blatt, Spencer, & Ward 1971; Rubin 1974; Wackman & Wartella 1977; Ward 1972; Ward, Wackman, & Wartella 1977). While in more recent years, children's responses have been discussed from an information processing perspective, stages of cognitive development have continued to be relied upon to explain differences, (Wackman & Ward 1975; Roedder 1981a; Roedder 1981b). The types of processing purported to be associated with the different stages of cognitive development bear remarkable resemblance to the kinds of processing associated with levels of involvement as set forth by Greenwald and Leavitt (1984). Although dealing with very different time frames, these two frameworks seem to be reflecting the same underlying concept, that processing of information progresses through hierarchical levels of complexity. This paper examines the similarities between these frameworks and discusses the notion of complexity of processing.

Complexity of Processing

The hierarchy of processing complexity is recognized in both the involvement literature (Greenwald & Leavitt 1984) and in the developmental literature (Kail 1984). "Complexity" is used here as it is defined in the New Webster's Dictionary to mean "intricacy." In each discipline the first level in the hierarchy is one of "no processing." It is a state of monitoring one's environment. When a stimulus captures attention (for reasons of novelty or importance) or when the infant's experience with monitoring has prepared it for more extensive processing, level two is entered and active processing begins. In this second level, the individual selectively attends to some perceptual aspect of the message. Attention may be focused, for example, on the physical appearance of the source while tuning out the content of the message. Comprehension of the message occurs in level three when the meaning and structure of the words or stimulus are processed. The greatest complexity of processing is reached when self relevant elaboration

takes place. At this level the individual adds to the message and reformulates it in terms of personal relevance.

The concept of progressively complex levels of processing has been developed independently with respect to involvement and regarding cognitive development. An individual examination of each of these areas follows, along with highlights of the similarities and differences between them.

Levels of Involvement

Greenwald and Leavitt (1984) identify four levels of involvement relevant to the concepts of attention and levels of processing. These levels are characterized by increasingly abstract and complex processing of message content. Messages processed at greater levels of complexity are associated with greater durability of memory. The concept of attention is a key one in their framework, also, and they note its limited nature. Some processing is sufficiently complex to demand allocation of capacity to the extent that other processing may be neglected.

Preattention

The preattention level of involvement acts as a sensory buffer and uses little attentional capacity. At this level, an individual is in a state of monitoring the environment for stimuli which stand out against the background. Such stimuli attract attention and orient the individual toward them. For instance, when one is in a room full of people at a party and hears one's name mentioned in a nearby conversation, one suddenly "tunes in" and likely turns or looks to see who is speaking. With regard to advertising, an individual may be paying "no" attention to the ads on the radio or television until one mentions something of interest. This orienting response amounts to the elicitation of focal attention.

Focal Attention

Focal attention is characterized by the selective centering of attention on one message source and its sensory content. Perceptual information may be encoded categorically, but not elaborated. This level is representative of Krugman's conception of low involvement (1965). The receiver doesn't think very much about it at the time. The impact of a persuasive communication processed at this level is outlined by Ray (1973). Awareness and affective value can increase through repeated exposure and focal processing. Behavior is likely to change next (after recognition of the product in the store) followed by attitude change.

Comprehension

Message-based persuasion is possible when processing is done at the comprehension level. At this level of involvement, semantic processing is taking place in which analysis of speech, the words and structure of the communication, results in a conceptual understanding of the message. This allows for persuasion based on the content of the message. In terms of the hierarchies developed by Ray (1973), comprehension implies the standard learning hierarchy under which belief change and affect change precede behavior change.

Elaboration

Elaborative processing is characteristic of what is traditionally called high involvement. The greatest amount of processing capacity is allocated to the situation.

¹Sincere thanks are extended to Merrie Brucks and David Plumlee of the University of North Carolina for their reviews of earlier drafts of this paper. Thanks also to the anonymous ACR reviewers for their insightful comments.

In this condition, processing goes beyond simple analysis of the message. Elaboration entails abstract thinking and associations between the message and information stored in one's memory. These associations are the "bridging experiences" identified by Krugman (1965). The results of these connections may elicit counter arguments if a discrepancy is found, support arguments if commonalities are found, or source derogation responses if the source is felt to be biased (Wright 1973). These cognitive responses and the comparisons from which they were generated are assimilated, become part of the message as it is stored in memory. To the extent that these self generated additions to the communication agree with the original message, persuasion may occur as intended. However, to the extent that these cognitions disagree with the original message, persuasion might actually be in the opposite direction. Thus, the message stored can have a meaning considerably different from that intended.

According to Greenwald and Leavitt (1984) the progression of processing through the levels of involvement is sequential. For a message to be analyzed at an upper level of involvement, it must have already been analyzed at all lower levels. In a similar vein, as we grow, we cannot skip a stage of cognitive development.

Stages of Cognitive Development

It has been noted in research on memory development that as children grow older, they progress through levels of increasing processing complexity (Kail 1984). They seem to develop the ability to process information in a more complex manner. Two explanations have been proposed to account for this increased ability. Either processing capacity is increased with age (Pascual-Leone 1970, 1978) or efficiency of processing due to practice allows them to process more (Kail 1984). Under the second hypothesis, children improve their cognitive skills with practice. This increased efficiency makes capacity available for greater complexity of processing. Efficiency may also be associated with greater complexity of cognitive structure making more thorough associations easier. Greater complexity may be achieved in the addition of relationships accomplished through repeated processing, i.e. practice. Increases in children's processing complexity are associated with the stages of cognitive development as defined by Piaget (Piaget & Inhelder 1969).

Although Piaget's theory has been strongly criticized, it is useful in a descriptive sense. It provides a sort of description of information processing in the developmental context. The similarity of this description to involvement theory deserves attention. Following is a brief description of Piaget's theory.

Sensorimotor

During the sensorimotor stage of cognitive development (ages 0-2) children familiarize themselves with the world. Through motor and sensory experiences and observation of behavior patterns, children begin to assess causality and become aware of the distinction between self and world. This is the stage during which the environment is monitored and attention is not yet focused. Responses are physiological as they tend also to be in the preattention level of involvement.

Preoperational

The preoperational stage of cognitive development (ages 2-7) is characterized by selective attention (centration) and sensory processing of dominant stimuli (perceptual boundedness). Regarding centration, Piaget found that children in this stage perceive the world in accordance with their own point of view, rather than with respect to actual relationships. Attention is bound to information which is directly observable and focused on the most visually dominant attribute. Because the child is considered incapable of reasoning

beyond the physical, perceptual information is encoded but not elaborated.

In accordance with this perceptual processing, children in this stage seem to discriminate commercials perceptually rather than conceptually (Blatt, Spencer, & Ward 1971). They are able to distinguish the commercial from the program because of the visual break in the action and change of image. However, they exhibit some confusion in conceptualizing the difference between the product and the commercial itself. Due to this emphasis on sensory aspects of stimuli, recognition responses may be expected to be more prevalent than recall or cognitive elaboration.

Concrete Operational

In the concrete operations stage of cognitive development, the development of conceptual organization allows a child to think in categorical terms and to understand a complete message. Because this more complex processing capability means that a complete message can now be stored in memory, better recall of commercials is expected. Categorization accounts for the findings that children at this age are aware of the functional differences between programs and advertisements as well as the selling intention of commercials (Blatt, Spencer, & Ward 1971; Robertson & Rossiter 1974).

The description of this stage implies that elaboration does not occur. If this is true, then even though they understand the intent to sell, semantic processing of the message with no cognitive elaboration may lead children to accept the message at face value. The absence of elaborative processing would indicate that a message would be stored in a more-or-less unaltered form. Message-based persuasion would thus be a possible outcome. Enlightenment on this issue may come from future investigations.

Formal Operational

It is only in the formal operational stage of cognitive development that children are considered able to think abstractly, make self relevant comparisons, take the role of the other person, and understand the gestalt. More importantly, the ability to make self relevant comparisons, to extend incoming information by relating it to existing knowledge, is realized at this stage. This indicates, of course, that elaborative cognitive responses are possible as defenses against persuasion.

That children progress through stages was observed in the early work dealing with advertising directed at children. In these descriptive studies, it was observed that children's reactions to ads differed across ages. For instance, Ward and Wackman (1973) found that the attention of children who were more perceptually bound (younger) was influenced more by the perceptual characteristics of commercials. Likewise, the attention of children less perceptually bound (older) was more influenced by the content of the communication.

In terms of the evolution of processing complexity, as attentional capacity is available to process more complexly (the comprehension level of processing is reached), the content of the message has more effect. This is comparable to what the levels of involvement notion predicts for adults. Researchers also found that older children were more likely to base their attitudes toward specific commercials on message characteristics rather than on attitudes toward the product. This also reflects the progress from focused processing to the more complex semantic processing.

In marketing, Roedder (1981a) has integrated some of these findings and descriptions regard differences in children's information processing. She offers an alternative approach to Piaget by emphasizing the influence of knowledge factors on these differences. She identified three groups of processors, based on age,

which differ in processing efficiency. The more efficient processors were able to learn the main information content of a message while those less efficient learned incidental material, but not the "whole." Although Roedder offers a knowledge related alternative to Piaget, she does not look at involvement theory. This remains for investigation.

Similarities

Each of the streams, cognitive development and involvement, has conceptualized a framework of four levels that is characterized by the notion of increasing complexity of mental processing. Each has outlined the kinds of processing and the kinds of responses typical of each level. In each orientation, the first level is one of "no processing" during which the environment is monitored and responses are physiological. The next stage is that of focused processing. Attention is centered on some dominant aspect of the stimuli. Recognition, a relatively low complexity response, is associated with this simple processing.

Semantic processing, the third stage, is a more complex mental activity. Processing the words and context of a message lead to comprehension. Acquisition of this ability to conceptualize the whole is observed in children around age seven or eight. Since processing is more complex, individuals are expected to be able to recall the message. In both orientations, the fourth and highest level identified is characterized by elaboration of incoming information. Connections made to knowledge in memory can elicit counter arguments, support arguments, and source derogation responses and thus reformulate the message for storage in memory.

Top-Down and Bottom-Up Processing.

Greenwald and Leavitt (1984) identify the direction of processing as a control for manipulating the level of involvement in an experimental situation. In bottom-up processing information is analyzed at ever-increasing levels of complexity, each level proceeding from the results of the previous level (Norman 1976). This is data driven. A complementary system is conceptually driven or top-down. Conceptualizations and expectations of the input influence the output at successively lower levels (Glass and Holyoak 1986). Although progression through the stages of involvement or of cognitive development is sequential, the procedure for information processing at any stage is both from the top down and from the bottom up. In cognitive development theory, the complementary processes of accommodation and assimilation are believed to describe the process of adaptation to new information (Flavell 1985). The relationship is much the same as the relationship of top-down and bottom-up processing to the processing of new stimuli.

Accommodation is like bottom-up processing in that it is data driven. One accommodates or adjusts one's cognitive structure to the data as it is presented. On the other hand, one has certain expectations and uses existing structure to interpret incoming information. Like top-down processing, assimilation plies incoming information to fit into existing structures.

Accommodation and assimilation are felt to be indissociable from each other (Flavell 1985). In like manner, top-down and bottom-up processing rely on each other. Both conceptualizations are considered to be simultaneous (or at least rapidly iterative). However, at any given level of processing, one direction seems weighted more heavily than the other. For instance, the monitoring stage principally utilizes a bottom-up approach. Concepts and expectations have not been activated. At the other extreme, in the elaboration stage, top-down processing is weighted more heavily. Expectations due to context and prior knowledge are the driving forces in processing. Input is modified to fit these expectations and thus elaboration occurs. Processing complexity, then, seems to be characterized by this

dichotomous process of adaptation.

In conclusion, the similarities between the two frameworks are many. However, it is the findings unique to each field which may serve to benefit the other. These offer suggestions for avenues of future research which will be discussed in the following section.

Suggestions for Future Research

Suggestions for Research with Children

The involvement framework suggests differences in the process of "persuasion" depending on the highest level of processing complexity utilized to process persuasive communications. For example, the results of processing at low levels may first lead to behavior change and later to changes in attitudes and beliefs. On the other hand, message-based processing, at the level of comprehension, may result in a change in beliefs and attitudes followed by behavior change. This suggests that younger children may form attitudes after behavior and that older children may first change their attitudes and beliefs in response to persuasive communication. This is an example of a subject for future research in the children's information processing area which is suggested by work done related to involvement.

The comparison of levels of cognitive development and levels of involvement may seem to imply that young children cannot be highly involved in a message. When involvement is defined in terms of the kind of processing evidenced (Batra and Ray 1983; Krugman 1965) this would appear to be so. However, this suggestion would be disputed by most parents who take "involvement" to mean emotional excitement.

If involvement is interpreted as an emotional or motivational state which leads to different levels of processing (Mitchell 1981), then involvement is a necessary, but not a sufficient condition for complex processing. Elaboration demands knowledge. Petty, Cacioppo and Schumann (1983) note that in their Elaboration Likelihood Model, motivation is but one element. The ability to process information is also an important variable. Ability can indicate both procedural knowledge, as investigated by Roedder (1981a) and declarative knowledge (Brucks, Armstrong, and Goldberg 1985; Costley 1985; Sanft 1986).

Involvement, therefore, can lead to different processing results depending on the levels of these two kinds of knowledge. A deficiency in declarative knowledge may moderate the effects of involvement because the cognitive structure against which a message is interpreted doesn't have many links and thus associations are not made. Absence of the capability for higher levels of abstract thought (procedural knowledge deficiency) may also hinder the influence of involvement. The less complex cognitive structure of younger children may mean that a great variety of information is not likely to be accessed and that any analysis requires much of the available capacity, thus inhibiting the activation of other analyses. It may be that when children scrutinize messages in a high involvement state and no counter arguments result, it is merely because the limited complexity of their cognitive structures presented them with no discrepancies. Alternatively, the procedures for retrieving that information may not be fully developed. Investigation of the developmental factors mediating the effects of involvement might prove interesting.

Suggestions for Involvement Research

The results of work by cognitive researchers point strongly to the importance of knowledge in the processing of information. An intriguing experiment by Chi (1978) found that children knowledgeable of a subject (in this case, chess) performed better on a recall task than did novice adults. In terms of complexity of process-

ing, those with knowledge of the subject were able to comprehend and to elaborate on the information presented, while those just as highly involved but ignorant in the subject lacked the ability to process as complexly. Thus, knowledge and involvement may interact in inducing elaborative processing. Both must be considered in making predictions.

Both frameworks imply differences in storage of information resulting from different levels of processing. This suggests that retrieval of information will differ depending on how it was processed. Greenwald and Leavitt (1985) employ this notion in their discussion of levels of representation, levels of involvement, and advertising impact. From simple to complex, the levels of representation are features, categories, propositions, and conceptual interpretations. They say that if the audience involvement level is low, such that an ad elicits only focal attention, the impact of the message will be in terms of category representations. Repeated exposure to the ad should result in representations at higher levels.

In contrast, time series research on children has found retrieval of information to be dependent on mental development at the time of retrieval rather than at the time of storage (Piaget and Inhelder 1973). These results suggest for involvement theory that involvement at the time of retrieval may be the key to the level of representation retrieved. The level of processing complexity operative at the time of retrieval may reorganize what is stored in memory. Research along these lines can help determine if this phenomenon also functions with respect to involvement in the context of advertising or if this denotes an important difference between the two contexts.

Conclusion

The research streams in marketing and in developmental psychology have independently arrived at very similar organizations for the complexity of information processing. Each, however, offers some unique aspects which can benefit the other. The notion of differing hierarchies of effects depending on the complexity of processing of a persuasive message could prove useful in research on children. The interaction between knowledge and involvement in impacting information processing is an interesting avenue for exploration suggested by the analogy between levels of involvement and stages of cognitive development. With respect to information processing, this paper has pointed out the many similarities between involvement theory and cognitive development theory. In addition, it has identified some unique findings from each discipline and made suggestions for future research based on these.

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POSITIVITY AND NEGATIVITY EFFECTS IN INFERENCES ABOUT PRODUCTS

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Abstract

A pilot experiment was conducted to examine the effects of initial judgments and perceived technicality on inference processes. Respondents received technical information about a product. After reading this information, they answered leading questions designed to induce either a positive or a negative initial judgment of the product. The results suggest that initial judgments affect inference processes in conditions of moderate perceived technicality, but not under conditions of either low or high perceived technicality. Moreover, both positivity and negativity effects were observed. The conditions under which positivity effects are likely and the conditions under which negativity effects are likely are discussed.

Introduction

Recently a number of prominent consumer researchers have called for more research in the area of inference processes (Bettman 1979, Huber and McCann 1982, Loken 1981, Lynch and Srull 1982, Meyer 1981, Olson 1978). Unfortunately, it is not clear how one should study inference processes and as a consequence, little research has been conducted on this important topic. One notable exception, however, is a study conducted by Huber and McCann (1982). The present experiment was designed to extend Huber and McCann's (1982) findings.

The Negativity Effect

Huber and McCann (1982) conducted an experiment in which product price (\$1.50, 1.75, 2.00, 2.25, or 2.50) and product taste (better than 10, 30, 50, 70, or 90% of the competitors' products) information was varied. Either price, taste, or price and taste information was omitted systematically and respondents were either prompted or not prompted to draw inferences about the omitted information. The results revealed that both prompted and unprompted inferences influenced respondents' judgments of the product. Moreover, respondents did not substitute missing information about an attribute with the mean value of that attribute. Rather, respondents assumed that missing information about a particular attribute meant that this attribute had a below-neutral value. This was called the negativity effect.

Similar results were found in a study conducted by Meyer (1981). In this study, respondents received information pertaining to three attributes of hypothetical pizza restaurants: pizza quality, decor and music, and price. Attribute information was omitted systematically. The results indicate that a below-neutral value was assigned to an attribute for which respondents had no information. This value was integrated with the values of attributes for which information was provided to form an overall evaluation.

Under what conditions are positive inferential beliefs formed and under what conditions are negative inferential beliefs formed? To answer this question, one must consider the factors that may influence the inference process. The present experiment examines two such factors, initial judgments and perceived technicality.

The Role of Initial Judgments in the Inference Process

One factor which may influence the inference process is an individual's initial judgment or "first impression" of a product. Early judgments of a stimulus influence subsequent judgments of the stimulus and early judgments may even affect judgments of attributes for which no

information was made available (Carlston 1980, Lingle and Ostrom 1981). To test this notion experimentally, one could manipulate respondents' initial judgments of a target product by using a methodology that was developed by Carlston (1980). Carlston reasoned that when an individual is asked to judge a stimulus, the individual does not search memory for all of the information he or she has stored about the stimulus. Rather, only a small subset of one's stored knowledge is retrieved. The particular subset that is selected often depends upon the wording of the question one is attempting to answer. If the question pertains to a positive characteristic of the stimulus, the individual may form a positive initial judgment. If the question pertains to a negative characteristic, the individual may form a negative initial judgment.

If an initial judgment is processed deeply (see Craik and Lockhart 1972, and Greenwald and Leavitt 1984), the initial judgment may drive subsequent judgments and inferences. That is, deeply processed positive initial judgments may lead to positive inferences, whereas deeply processed negative initial judgments may lead to negative inferences. This has been called the initial judgment effect (Wyer, Srull, and Gordon 1984).

The present experiment was designed to determine the conditions under which the initial judgment effect is likely to occur spontaneously. Previous research has shown that the initial judgment effect occurs when respondents are asked to form an impression of a stimulus (Carlston 1980, Wyer et al. 1984). However, whether or not respondents will form an impression and exhibit the initial judgment effect in the absence of instructions to form an impression of a stimulus is unclear. We reasoned that spontaneous inference processes may depend upon levels of perceived technicality.

The Role of Perceived Technicality in the Inference Process

The characteristics of consumers may affect the depth of processing of new information about a product. For example, recent research has shown that consumers who are low in prior knowledge and experience, with respect to a particular product domain, are unlikely to process new information about that product class very deeply (Bettman and Park 1980, Johnson and Russo 1984). This is because they lack the prior knowledge and experience that is necessary for processing new information about the product class. As a consequence, they are forced to rely on what little information they have available in memory when asked to judge an instance of the product class.

Consumers who are high in prior knowledge and experience, on the other hand, possess the prior knowledge and experience that is necessary for processing new information. However, they may be unmotivated to process much new information because they may feel that they do not need to (Bettman and Park 1980, Johnson and Russo 1984). Instead they may simply rely on the large store of information they have available in memory when asked to judge a product.

Consumers who possess a moderate amount of prior knowledge and experience have the ability to process new information and they may be motivated to process new information deeply. This is because they have enough prior knowledge and experience to process new information effectively, but they do not have so much prior knowledge and experience that they feel that they can afford to rely solely on information available in memory when asked to judge a product (Bettman and Park 1980, Johnson and Russo 1984).

To elaborate, if a product description is perceived as high in technicality, an individual may consider the information provided in the description as confusing and, perhaps, overwhelming. As a result, the individual may be unwilling and/or unable to spend the time and energy required to make sense of this information. Consequently, the individual may fail to process this information deeply.

If a product description is judged to be not very technical, an individual may be very knowledgeable and as a consequence, he may be unmotivated to exert a great deal of energy in order to understand the description. Searching memory for information is faster and easier than deeply processing new information provided externally.

If a product description is perceived as moderately technical, however, an individual may consider the information provided in the description to be interesting and comprehensible. In this case the individual may be willing and able to process new information deeply. Thus, information may be processed more deeply in conditions of moderate perceived technicality than in conditions of either low or high perceived technicality.

The Present Study

In the present study, all respondents were exposed to identical information about a product. This information consisted of favorable information about one attribute and unfavorable information about another. After reading this information, respondents answered questions about either the positive attribute or the negative attribute. These questions were used to manipulate respondents' initial judgments. One week later, respondents rated the attributes which were mentioned in the original product description and they also judged an attribute which was never mentioned in this description. It was predicted that respondents' inferences about this unmentioned attribute would be congruent with their initial judgments only when the product information was processed deeply (i.e., in moderately technical conditions).

Method

Overview

Forty-four male and female undergraduate students were randomly assigned to one of two initial judgment conditions (positive or negative). Hence, there were 22 respondents per condition. Further, respondents were divided into one of three perceived technicality conditions (low, moderate, high) on the basis of their ratings of the technicality of the product description. The primary dependent measure was respondents' inferences about an attribute which was not mentioned in the product description.

The Product Description

All respondents read the same information about an ostensibly new stereo system which we referred to as the T85 stereo system. Two attributes of the product were described, the turntable and the loudspeakers. The information pertaining to the turntable had positive implications and the information pertaining to the loudspeakers had negative implications. Respondents were told, simply, to read the product description. They were told that they would be asked to rate the description for clarity so that it could be administered to another group of respondents. Respondents did not expect to judge the target product, nor did they expect to rate the product's attributes in a second session. After they read the product description, the description was collected and a questionnaire was administered.

The Initial Judgment Manipulation

Respondents in the positive initial judgment condition rated the favorability of the performance of the turntable and one component of the turntable, the tonearm.

Respondents in the negative initial judgment condition rated the performance of the loudspeakers and one component of the loudspeakers, the tweeter. All items were rated on seven-point semantic differential scales.

The Perceived Technicality Measure

Respondents were divided into three groups (low, moderate, and high perceived technicality) on the basis of their ratings of the technicality of the product description. A seven-point semantic differential scale with endpoints labelled "Not very technical" and "Very technical" was used.

Session Two

One week later, a second set of questionnaires were administered. Respondents' global judgments (e.g., summed ratings of respondents' overall impression of and liking for the target product), inferences (e.g., ratings of the favorability of the receiver's performance), and purchase intentions were measured on seven-point semantic differential scales.

Results

Manipulation Check

A 2 (Positive or negative initial judgment) x 3 (Low, moderate, or high perceived technicality) fixed effect between-groups analysis of variance was performed on respondents' initial judgment ratings to determine whether or not the leading questions were effective in manipulating respondents' initial judgments. Equal weights were used to handle unequal cell sizes (Kenny 1985). The analysis yielded a significant main effect for initial judgment condition, $F(1, 38) = 36.75, p < .001$, and no other effects (all F 's < 1). As Table 1 indicates, initial judgments were more positive in positive initial judgment conditions than in negative initial judgment conditions. Thus, the initial judgment manipulation was clearly effective.

TABLE 1

INITIAL JUDGMENTS AS A FUNCTION OF THE JUDGMENT CONDITION AND PERCEIVED TECHNICALITY

	Perceived Technicality		
	Low	Moderate	High
Positive Judgment	10.00 (4)	10.40 (10)	11.88 (8)
Negative Judgment	5.60 (5)	6.50 (12)	6.20 (5)

Note: Cell means are scored on a scale ranging from "2" (Not very favorable) to "14" (Very favorable). Numbers in parentheses indicate the number of respondents per cell.

Inferences About the Performance of an Unmentioned Attribute

A 2 x 3 analysis of variance was performed on respondents' judgments of the performance of the stereo system's receiver. Postexperimental interviews revealed that respondents failed to realize that information about the receiver was not provided in the product description. Nevertheless, respondents' judgments of the receiver varied as a function of initial judgment and perceived technicality. A significant main effect for perceived technicality was found, $F(2, 38) = 5.96, p < .01$. Respondents who perceived the product as moderately technical or highly technical formed more positive inferences than respondents who perceived the product as not technical. The main effect for initial judgment was not significant ($F = 1.30$), but the initial judgment x

perceived technicality interaction was marginally significant, $F(2, 38) = 3.11, p < .06$.

As predicted, initial judgments did not influence respondents' inferences in low ($F = 2.07, ns$) or in high ($F < 1$) perceived technicality conditions. In moderate perceived technicality conditions, however, initial judgments exerted a powerful influence on respondents' inferences, $F(1, 21) = 8.42, p < .01$.

As Table 2 indicates, initial judgments had no effect on inferences in low or high perceived technicality conditions. In moderate perceived technicality conditions (see the middle column in Table 2), inferences were more favorable in positive than in negative initial judgment conditions. Hence, when initial judgments are processed deeply, subsequent inferences are formed which are evaluatively congruent with the initial judgments.

TABLE 2

INFERENCES ABOUT THE PERFORMANCE OF AN UNMENTIONED ATTRIBUTE AS A FUNCTION OF INITIAL JUDGMENT AND PERCEIVED TECHNICALITY

	Perceived Technicality		
	Low	Moderate	High
Positive Judgment	2.00	5.00	4.38
Negative Judgment	3.20	3.75	4.20

Note: Cell means are scored on a scale ranging from "1" (Not very favorable) to "7" (Very favorable).

Ancillary Analyses

A 2 x 3 analysis of variance was performed on respondents' global judgments of the target product. This analysis yielded a significant initial judgment x perceived technicality interaction, $F(2, 38) = 5.76, p < .01$. The initial judgment effect tended to occur only in conditions of moderate perceived technicality.

Respondents' inferences were correlated with their initial judgments, $r = .27, p < .04$. Hence, initial judgments can be used to predict inferences. Moreover, respondents' inferences about one previously unmentioned attribute of the target product tended to correlate with purchase intentions, $r = .24, p < .06$. This correlation is surprisingly high, given that this is a correlation involving only one inference and respondents may have formed many inferences. However, global judgments were the single best predictor of purchase intentions, $r = .44, p < .01$.

Discussion

The results of the present experiment indicate that inference processes are not characterized solely by negativity effects. When initial judgments are processed deeply, positive initial judgments lead to positive inferences and negative initial judgments lead to negative inferences.

It is important to note that respondents were not told to form an impression of the target product while reading the product description. Further, respondents did not expect to judge the product or its attributes. Moreover, respondents did not expect to participate in a second session conducted one week after the first session. Nevertheless, respondents were able to express initial judgments and in some cases, these initial judgments affected respondents' inferences one week later. These inferences pertained to an attribute that was not mentioned in the product description. Therefore, it is clear that the product description could not have directly influenced respondents' judgments of this attribute. Any effect of the product description

on these judgments must have been mediated, at least partially, by initial judgments.

The present study raises some interesting issues for future research. Technicality was measured in the present study. Future work in which technicality is manipulated is needed. Moreover, a study in which instructions are manipulated (e.g., impression versus recall set) and in which appropriate control conditions are included could be useful in delimiting the initial judgment phenomenon.

Just as it is the case that seemingly trivial factors (e.g., subtle changes in a decision situation) can have a large impact on judgment and choice (see Payne 1982), so too it is the case that seemingly trivial factors (e.g., subtle changes in the wording of a question) can affect inference processes. In our view, similar processes may be involved in inference, judgment, and choice. The field of consumer behavior could profit greatly from an integration of these issues and future research should be directed toward such an integration.

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TOWARD A METHODOLOGY FOR ASSESSING
EFFECTS OF IN-STORE ATMOSPHERICS

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Abstract

This paper aims to facilitate the development of methodological approaches to investigate the influence of atmospherics on consumer perceptions of physical sensations. An empirical study is used to investigate two critical issues:

- (1) the feasibility of creating effective manipulations of store image in a lab through verbal descriptions, and
- (2) the effects of method type (third person versus role playing) on consumers' product perceptions.

The findings provide initial support for the feasibility of simulating store atmospherics with written descriptions. They suggest that such descriptions systematically affect consumer perceptions of physical sensations. The findings also imply that assessments of the effects of atmospherics are not biased by the use of role playing or third party methodologies. Suggestions for future research are provided.

Introduction

Pragmatic and intellectual challenges motivate researchers to examine the effects of marketing variables on consumer behavior. On a pragmatic level, understanding such effects facilitates the development of effective marketing strategies. On an intellectual level, insights into the effects of marketing variables on consumer behavior enhance our knowledge of human behavior in general.

Research indicates that non-product factors influence consumer perceptions of physical stimuli. Shimp and Yokum (1982) manipulated formulation and advertising content for fictional soft-drinks in order to create expectations and disconfirmation of these expectations. They found that taste ratings and repeat-purchase behavior were negatively related to disconfirmation but positively associated with the favorability of subjects' reactions to the advertisement. Huber, Holbrook and Schiffman (1982) manipulated formulation and taste conditions for a fictional citrus drink to investigate the impact of situational factors on sensory impressions. Taste condition was manipulated by having subjects exercise or not preceding taste tests. Findings indicate that exercise, a non-product factor, affected sensory perceptions.

One non-product factor of particular interest to marketers is atmospherics. Research in social psychology indicates that ambient settings strongly influence perceptual processes. For example, H.W. Smith (1978) studied the effects of social setting on perceptions of feeling "high" among experienced marijuana users. All subjects were given placebos and told that the pills had a 50/50 chance of being THC, the active component of marijuana. Subjects given the pills in a group setting reported feelings of "being high" and acted in ways which were associated with drug experiences, while subjects given the pills in solitude neither reported such feelings nor performed such behaviors. These findings suggest that the social and cultural aspects of drug consumption in group settings influence users' perceptions of their physical sensations.

In a marketing context, Kotler (1974) has suggested that store atmosphere may affect product perception and so, be considered one of the most significant features of a product. Obermiller and Bitner (1984) have suggested that the importance of atmospherics in brand evaluation may vary by product type and level of involvement. Donovan and

Rossiter (1982) suggest that retail store selection studies emphasize cognitive influences (e.g., price, location, quality of merchandise), and neglect the influence of store atmosphere. They suggest that emotional responses induced by in-store environments are primary determinants of the extent to which individuals spend money beyond their original expectations. Gardner (1985a) has suggested ways in which point-of-purchase settings may affect consumer mood states, which in turn may affect in-store beliefs and evaluations.

Methodological Issues

Given the importance of understanding the effects of atmospherics on consumer perception of physical sensations, it is surprising that greater emphasis has not been placed on the development of research approaches to study such influences. This paper aims to facilitate the development of this important area by examining two critical issues:

- (1) the feasibility of creating effective manipulations of store image in a lab through verbal descriptions, and
- (2) the effects of method type (third person versus role playing) on consumers' product perceptions.

Verbal Descriptions

Several approaches can be used to study the effects of atmospherics on physical sensations. One general typology of methods involves field and lab experiments. In field experiments, although the realism of the phenomenon being studied is apparent, there are two related problems: First, cover stories for random assignment of subjects to atmospherics conditions may be obtuse or transparent, resulting in confusion or demand characteristics, respectively. Second, if random assignment of subjects to conditions is not achieved, selection bias will result (Campbell and Stanley 1963). In lab experiments, random assignment of subjects to conditions is relatively easy, but the creation of store atmosphere is often difficult and expensive. Researchers can attempt to simulate atmosphere through verbal descriptions of in-store characteristics. It is not at all clear, however, that verbal descriptions of atmosphere can be powerful enough to systematically affect consumer perceptions of physical sensations. One goal of this study is to evaluate the feasibility of simulating in-store atmosphere with verbal descriptions. Specifically, we ask: Can verbal descriptions systematically affect consumer perceptions of physical sensations? If the answer is affirmative - i.e., if verbal descriptions can systematically affect perceptions - future research could be used to refine the descriptions and compare their effects to those obtained under field conditions.

Method Type

Approaches to research the effects of atmospherics on consumer behavior may involve projective techniques with subtle but important differences in semantics. The term "role playing" will be used to refer to techniques which require subjects to imagine themselves in hypothetical situations and to respond accordingly. The term "third person" method will be used to refer to techniques which require subjects to respond as they believe others would in hypothetical situations.

In some ways, role playing and third person methods are related to personal and societal judgments. The term "personal judgments" is used to refer to judgments about

oneself, and the term "societal judgments" is used to refer to judgments about other people (Tyler and Cook 1984). The impersonal impact hypothesis (Tyler 1980, Comstock 1982, Howkins and Pingree 1982) has been developed to examine personal and societal level judgments about social phenomena. Tyler and Cook (1984) have examined this hypothesis using a wide variety of natural and social hazards. Their findings indicate that individuals separate personal from more general views of the world, and that societal, but not personal judgments, are affected by media events.

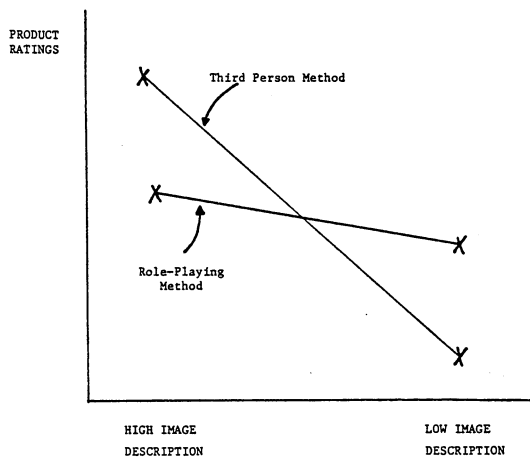
This might suggest that third person methods may be more sensitive to the effects of situational factors than role playing methods. Note, however, that the social psychology paradigm used to investigate the impersonal impact hypothesis may not be fully relevant to experiments involving atmospherics. One reason why social psychologists may have found that media has a greater influence on societal level judgments than on personal level judgments may be due to the fact that societal judgments involve direct inferences from the information presented in the media. For example, verbal reports of social risks, such as those used by Tyler and Cook, depict "others" in a host of situations. Note that personal judgments are only indirectly related to the opinions or experiences of "others" appearing in media stories. In contrast, marketers interested in the effects of atmospherics may be able to create involving settings or scenarios for use with either third person or role playing methodologies. We ask: Do role playing and third person methodologies systematically bias the findings of studies of the effects of atmospherics?

Research Approach

This paper presents an empirical study of the effects of written descriptions and method type on consumers' product perceptions. If written descriptions of store atmospherics can simulate field conditions, product ratings will be more favorable for subjects exposed to descriptions of high image stores than for those exposed to descriptions of low image stores. Such ratings are expected to reflect features of stores associated with the descriptions.

If method type affects consumers' product perceptions as postulated by the impersonal impact hypothesis, written descriptions and method type would interact to affect product ratings. As depicted in Figure 1, ratings would be most favorable for subjects exposed to a high image description and assessed by a third person method and least favorable for subjects exposed to a low image description and assessed by a third person method.

FIGURE 1



First, the experiment will be described, and findings presented. Then, implications for the development of methodologies to investigate atmospherics will be discussed.

Method

Subjects

Eighty subjects participated in the study. All were full time employees of a major corporation in New York City. Subjects varied in occupation, race, and age (18 to 65 years) and participated voluntarily, with neither coercion nor financial compensation.

Independent Variables

Verbal Descriptions

In order to examine whether or not verbal descriptions of atmospherics can be powerful enough to systematically affect consumer perceptions of physical sensations, two descriptions were used. One involved a low image store described as follows:

"...The lighting is very bright and harsh...the aisles are narrow and the counters and racks crowded and messy...the floors are white -- dirty, dingy white -- asbestos tile...there is no soothing background music...the mannequins are disheveled and wearing daddy clothes which do not fit...the sales persons are sloppily dressed, nasty and uncooperative, as are the customers...the dressing rooms consist of one big, smelly room with a couple of mirrors and no privacy...generally there is a feeling of scuzziness all around you."

The other description involved a high image store, described as follows:

"...The lighting is indirect and subtle...the aisles are wide and the counters and racks neat and uncrowded...the floor is covered with plush, bright carpeting...there is soothing mood music playing in background...mannequins are attractive and very fashionably attired...the sales persons are sophisticated, friendly and cooperative, as are the customers...generally, there is a feeling of elegance all around you."

Method Type

To examine the effects of role playing and third person methodologies, two sets of instructions were used. Role playing instructions asked subjects to imagine being in a high/low image department store. Third person method instructions involved telling subjects that "other" subjects were asked to imagine themselves in a high/low image store, and asking subjects to project the responses of those "others".

Experimental Design

A 2 X 2 full-factorial experimental design was used. As discussed in the dependent variables section, the two levels of Verbal Description were high and low image and the two levels of Method Type were role playing and projection. Equal numbers of males and females were assigned to each of the four experimental conditions, but otherwise, subjects were randomly assigned to treatments.

Product Selection

To examine perceptions of physical sensations, we chose to focus on assessments of the scent of a fragrance. Although consumers claim to base fragrance purchases on their evaluations of products' scent, marketers spend a large proportion of their advertising budgets associating non-product features with their brands. According to Pearl Nipon, who with her husband, has fashioned the floral/Oriental fragrance Albert Nipon, "fragrance conjures up images, memories and dreams" (Vogue, 1983). Frangiopani was selected for use in this study, because pretests indicated that it did not generate a consistent or strong set of beliefs or associations. In addition, the scent was not recognized and did not evoke strong affective reactions. It was presented as a "new" fragrance with no brand information provided.

Procedure

Subjects participated individually in what they were told was a test of a new fragrance sold in a local store. Each subject was asked to read one of the method type instructions and one of the verbal descriptions. (For instructions and descriptions, see Independent Variables section). After reading the appropriate scenario, each subject was instructed to write the name of the store which the scenario brought to mind and the number of times s/he had shopped in that store in the past six months. Subjects in the high image store (verbal description) condition were asked to describe the one thing they liked most about the store they mentioned. Those in the low image store (verbal description) condition were asked to describe the one thing they disliked most about the store they mentioned. These exercises served to embed the "store surroundings" in the subject's mind. All subjects were instructed to recall all of the things around them in the store. They were then asked to sniff the fragrance and to complete a questionnaire containing the dependent variables.

Dependent Measures

Fragrance advertisements were examined to generate a pool of potential items for inclusion in the questionnaire. Informal interviews were used to select from this pool those phrases used by consumers to describe their perceptions of a scent. The items selected were: likeable, sophisticated, youthful, sexy, sporty, exotic, modern, and traditional.

Two types of measures were assessed. Subjects were asked to rate the experimental scent using bipolar semantic differential scales (coded 1 to 7) for each item. For example, subjects were asked to rate the experimental scent on a 7-point scale anchored by traditional/not traditional. In addition, subjects were asked to evaluate each item to reflect their feelings about perfumes in general, using scales (coded -3 to +3) with endpoints labeled bad/good. For example, subjects were asked how good or bad they felt it was for a perfume to be traditional. To examine the favorability of ratings, evaluative beliefs were formed by multiplying each rating by its evaluation. Thus, one's evaluative belief for "traditional" reflects both one's rating of the experimental scent on that characteristic and one's evaluation (good/bad) of traditional perfumes in general.

Results

Analysis of variance was used to investigate the effects of verbal descriptions and method. First, the findings for evaluations will be discussed, then the findings for ratings, and finally, the findings for evaluative beliefs (ratings x evaluations).

TABLE 1
Means Of Evaluations

	HIGH IMAGE THIRD PERSON	LOW IMAGE THIRD PERSON	HIGH IMAGE ROLE-PLAYING	LOW IMAGE ROLE-PLAYING
Likeable	2.50	1.55	1.85	1.60
Sophisticated	2.00	1.61	1.75	1.40
Youthful	1.15	0.50	0.40	0.70
Sexy	1.45	1.72	2.10	1.15
Sporty	0.80	0.78	0.30	0.15
Exotic	0.65	1.11	1.15	0.75
Modern	1.05	1.06	0.70	0.50
Traditional	0.40	0.00	0.30	0.05

Cell means for evaluations of each characteristic for perfumes in general are reported in Table 1. Note that

all entries are non-negative, indicating in all conditions all features are on average, evaluated neutrally or favorably. Individual evaluations for each characteristic ranged from -3 to +3. Examination of cell means reveals the following pattern of responses across factors: With respect to verbal description, evaluations are more favorable for high image for 7 of the 8 characteristics and equal for 1. This pattern was not postulated a priori and will be discussed in the Discussion section. Analysis of variance results indicate that the main effect for verbal description for likeable/unlikeable approaches significance ($p < 0.056$). With respect to method type, evaluations are more favorable for third person conditions for 5 of the 8 characteristics, and more favorable for role playing conditions for 3 factors. Analysis of variance results indicate that neither the main effects for method type, nor the verbal description x method type interaction approach conventional levels of statistical significance (i.e., all p's > 0.10).

TABLE 2
Means Of Ratings

	HIGH IMAGE THIRD PERSON	LOW IMAGE THIRD PERSON	HIGH IMAGE ROLE-PLAYING	LOW IMAGE ROLE-PLAYING
Likeable	2.90	2.55	3.60	2.60
Sophisticated	3.35	2.10	3.75	2.25
Youthful	3.15	1.95	2.85	3.20
Sexy	2.95	1.95	3.10	1.80
Sporty	2.70	2.05	2.05	2.35
Exotic	2.55	2.15	2.90	2.40
Modern	3.20	1.90	3.05	2.50
Traditional	4.30	3.68	3.35	3.45

Cell names of ratings of the experimental scent appear in Table 2. Individual ratings for each characteristic ranged from 1 to 7. Inspection of cell means revealed that for all 8 characteristics, assessments were more favorable for subjects in the high image store (verbal description) condition than for those in the low image store (verbal description) condition. Analysis of variance findings indicate that the main effect for verbal descriptions is statistically significant for three of the variables (sophisticated: $p < 0.001$; sexy; $p < 0.002$; modern; $p < 0.018$) and approaches significance for a fourth (likeable: $p < 0.103$). Inspection of the means with respect to method type, indicates that ratings are more favorable for third person conditions for 2 of the 8 characteristics, equal for 1 and more favorable for role playing conditions for 3. Analysis of variance does not indicate any significant main effects for method type or for the method type x verbal description interaction - i.e., all p's > 0.10 .

TABLE 3
Means Of Evaluative Beliefs

(Evaluative Belief = Rating X Evaluation)

	HIGH IMAGE THIRD PERSON	LOW IMAGE THIRD PERSON	HIGH IMAGE ROLE-PLAYING	LOW IMAGE ROLE-PLAYING
Likeable	7.30	3.75	6.95	5.45
Sophisticated	7.70	3.50	7.00	-3.40
Youthful	3.30	0.89	0.60	2.90
Sexy	5.60	3.94	6.20	1.60
Sporty	3.35	1.88	0.40	1.35
Exotic	1.90	2.83	4.10	1.70
Modern	3.95	1.67	2.60	1.35
Traditional	1.25	-1.53	1.30	0.60

Cell means for evaluative beliefs appear in Table 3. Recall that evaluative beliefs were created by multiplying each rating by its evaluation. Inspection of means reveals that evaluative beliefs are more favorable for subjects exposed to the high image description than for those exposed to the low image description for 7 of 8 characteristics. For the characteristic, "youthful", evaluative beliefs were approximately equal for subjects in the two conditions. Analysis of variance results indicate that the main effect for verbal description is significant for two characteristics (sophisticated: $p < 0.004$; sexy: $p < 0.014$ and approaches significance for two more (likeable: $p < 0.067$; modern: $p < 0.103$). With respect to method type, evaluative beliefs are more favorable for subjects in third person conditions for 5 of the 8 characteristics and more favorable for subjects in role playing conditions in 3. Analysis of variance results indicate no significant main effects for method type, and one interaction which approaches significance (youthful: $p < 0.092$). Examination of means for "youthfulness" do not support the impersonal impact hypothesis - i.e., they do not correspond to Figure 1.

Discussion

Summary

Ratings, evaluations and evaluative beliefs were examined in order to investigate the effects of verbal description and method type on consumer perceptions. Findings indicate:

- (1) Evaluations are more favorable for subjects exposed to verbal descriptions of high image stores than for those exposed to descriptions of low image stores, for 7 of the 8 characteristics. This difference approaches conventional levels of statistical significance for only 1 of the characteristics (traditional).
- (2) Ratings are more favorable for subjects exposed to verbal descriptions of high image stores than for those exposed to descriptions of low image stores for 7 of the 8 characteristics. This difference reaches conventional levels of statistical significance for 3 characteristics (sophisticated, sexy and modern), and approaches conventional levels of significance for 1 characteristic (likeable).
- (3) Evaluative beliefs are more favorable for subjects exposed to verbal descriptions of high image stores than for those exposed to descriptions of low image stores for 7 of the 8 characteristics. This difference reaches conventional levels of statistical significance for 2 characteristics (sophisticated and sexy), and approaches conventional levels of significance for 2 characteristics (likeable and modern). In addition, the written description X method type interaction approaches statistical significance for 1 of the 8 characteristics (youthfulness).

Verbal Descriptions

The findings provide initial support for the feasibility of simulating high and low image store atmospherics with written descriptions. They suggest that such descriptions systematically affect consumer perceptions of physical sensations.

Ratings and evaluative beliefs were generally more favorable for subjects exposed to descriptions of high image stores than for those exposed to descriptions of low image stores. The level of significance associated with each product characteristic may indicate the association of that characteristic with the features of stores associated with the descriptions. For example, Bloomingdale's the store most often associated with the high image description, follows policies which emphasize:

- " - discovering the hottest young designers and letting their imaginations run wild

- turning the marketing of clothing, find and home furnishings into an art
- searching the globe to uncover - and invent - new trends
- creating sophisticated boutiques to rival the finest galleries
- using sophisticated promotions." (Stevens 1979).

These strategies may lead to a store image which is sophisticated, sexy and modern, the characteristics with relatively high levels of significance. Although some of the effects of verbal descriptions may be attributable to demand characteristics, the relationship of significance levels to features of the stores elicited by subjects suggests that responses were mediated by relevant internally generated cues.

Second, evaluations of attributes were generally more favorable for subjects exposed to descriptions of high image stores than for those exposed to descriptions of low image stores. Although this finding was not postulated a priori and only approached conventional levels of statistical significance, it suggests that subjects were responding to the verbal descriptions and provides direction for future research. One postulate may be that verbal descriptions affect consumer mood states which, in turn, affect evaluations (Clark and Isen, 1982; Gardner, 1985b).

Method Type

The findings fail to indicate an effect due to method type. The main effect did not approach conventional levels of statistical significance for any variable for any characteristic. The method type X verbal description interaction approached significance for only one of the 24 analyses of variance, well within the number expected by chance. These results suggest that, contrary to the impersonal impact hypothesis, assessments of the effects of atmospherics may not be biased by the use of role playing or third party methodologies. It appears that the verbal descriptions were equally involving, vivid, and informative under the two method type conditions.

Implications

The findings reported provide suggestions for future research involving the effects of atmospherics on consumer product perceptions. They indicate that method type may be relatively unimportant and that either third person or role playing methodologies may be used. Future research is needed to examine the effects of method type in studies of topics and products which are sensitive, personal or "embarrassing." Further investigations are also needed to explore the effects of method type on different types of beliefs and on consumers with various levels of product class knowledge.

The findings reported also suggest that verbal descriptions can be developed which systematically influence perceptions. Additional research is needed to compare the effects of verbal descriptions with those of their real-world counterparts and to examine the effects of verbal descriptions which vary along a continuum from extremely negative to extremely positive.

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VARIATIONS IN CHOICE STRATEGIES ACROSS DECISION CONTEXTS:
AN EXAMINATION OF CONTINGENT FACTORS

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Abstract

Consumer decision strategies were examined across 12 different product categories. Results indicated that choice strategies vary significantly across decision contexts. An attempt was then made to examine how certain contingent factors (e.g., amount of advertising, number of brands available, perceived similarity of brands) were able to account for this variation. Implications of findings are then discussed.

Introduction

Recent work in human information processing has clearly recognized the fact that individuals are highly responsive to the situation or task at hand (Newell and Simon 1972; Belk 1975; Bettman 1979; Simon 1981; Payne 1982). That is, an individual may react quite differently depending on the contingencies surrounding the situation. For example, a consumer may be price-conscious in a product category where major price variations exist, but be brand loyal in another where there are few such differences. Thus, major questions which may be posed are: To what extent and why do consumers employ different decision strategies in different situations? Put another way, in order to develop a more complete theory of consumer decision making, the effects due not only to the individual, but also to the task and the task X individual difference interaction must be considered (Punj and Stewart 1983).

In response to this realization, a number of studies have begun to examine contingent effects upon decision making behavior (Payne 1982; Punj and Stewart 1983). Punj and Stewart (1983) summarized the major findings in this area and attempted to integrate them into a meaningful framework. This framework identifies the key task variables (e.g., number of alternatives, number of attributes, time pressure, etc.) and task X individual difference interactions (e.g., the exposure situation, impulse purchases, etc.) which impact on the decision process.

While a review of the studies in each of the areas is beyond the scope of the present paper (for the full review, see Punj and Stewart 1983), an examination of the findings reveals two important generalizations. First, many of the studies have focused on broad level types of processing which occur when a decision is made. A variety of different dependent variables have been examined including: the amount of information processing (as examples, Jacoby, Chestnut, and Fisher 1978; Bettman and Park 1980), the processing strategy employed (by brand or by attribute--e.g., Bettman and Kakkar 1977; Wright and Barbour 1977), the amount of time taken (e.g., Gardner, Mitchell, and Russo 1978), accuracy of choice (e.g., Jacoby, Szybillo, and Busato-Schach 1977), and intentions (e.g., Belk 1974, 1975). However, a major void concerns the examination of how different task and individual difference factors influence the specific choice rules used to make a decision. Only a handful of studies (e.g., Wright 1975; Wright and Barbour 1977; Park 1978; Crow, Olshavsky, and Summers 1980; Bettman and Park 1980) have focused on this dependent variable and these studies have been concerned with only one task characteristic--the number of alternatives available.

A few other studies have examined cross-product differences (e.g., Cunningham 1956; Massy, Frank, and Lodahl 1968; Wind and Frank 1969) but these studies have limited attention to general buying behaviors such as brand loyalty or private brand proneness. Blattberg, Peacock, and Sen (1976) examined differences in purchasing strategies across product categories, but their major interest was in determining how choice is influenced by general household

characteristics such as demographics and they examined differences across only two product categories.

Second, most of the studies have examined contingent effects in discrete situations where at least a moderate degree of information processing takes place (i.e., situations of high to moderate involvement). One must question, however whether the findings of these studies would generalize to situations where processing is relatively continuous or involves repeated decisions over time (Hogarth 1981) and where relatively little information processing occurs (i.e., low involvement situations--Ray, et al. 1973).

In light of these observations, the purpose of the present paper is to examine the very important effect of task variables in low involvement decision situations. The major question to be asked is to what extent do various aspects of the task influence consumers to employ a particular type of choice rule or heuristic. Hypotheses will be developed, followed by an empirical attempt to test these hypotheses.

The Nature of Low-Involvement, Repeat Purchase Decision Making

A recent article by Hoyer (1984) provides a view and empirical examination of consumer decision making for product categories which are purchased frequently over time and which are low in involvement or importance. The basic notion underlying this view is that consumers employ very simple choice heuristics when making low involvement purchases. These rules are referred to as "choice tactics" and they permit consumers to make a quick and effortless decision. These tactics are acquired as a result of a learning or "trial and error" process over time. In other words, depending upon the nature of the post-purchase brand evaluation (e.g., positive, negative, or neutral), consumers can "adjust" their decision heuristic on the next purchase occasion in order to provide a more satisfactory choice. Thus, low involvement repeat purchase decision making is viewed as a continuous as opposed to discrete processing situation and observed decision making at one point in time would appear to be very limited.

Some preliminary support for this notion has been provided in a study by Hoyer (1984). In examining the in-store purchase of laundry detergent, it was found that the median amount of time devoted to a purchase was about four seconds. Thus, on an observational level, there appears to be an extremely low level of in-store information processing. Further, when asked why they purchased the brand they did, 92% of the respondents supplied one simple reason (i.e., a choice tactic). These tactics tended to be of six major types: (1) price-oriented tactics (e.g., "buy the cheapest," "buy the brand on sale," "buy the brand for which I have a coupon," etc.), (2) performance tactics (e.g., "buy the brand which works the best," etc.), (3) affect-related tactics (e.g., "buy the most familiar brand," "buy the brand I like," etc.), (4) normative tactics (e.g., "buy what my parents bought," "buy what my friend advises," etc.), (5) in-store factor tactics (e.g., "buy the first brand I see," "buy the brand most prominently displayed," etc.), and (6) hybrid tactics (see Hoyer 1984). When viewed in conjunction with other studies (e.g., Olshavsky and Granbois 1980), there appears to be support for the notion that consumers employ simple choice rules in one type of low involvement situation.

In light of this fact, a major question which remains yet to be answered concerns the reasons why a particular tactic is employed. In particular, it is unlikely that the same tactic would be used in every product category. On the other hand, there will be certain individual difference

characteristics which will lead to the usage of a particular tactic. It is a major assumption of the present paper, however, that aspects of the situation (e.g., task variables) will also account for a significant portion of the potential within-subjects variance. Specifically, it is suggested that contingent factors will interact with individual difference factors to produce the usage of a particular choice tactic. Therefore, in order to more fully understand the nature of common, repeat purchase decision making, an attempt must be made to empirically examine the effects of these task variables upon the decision process.

In summary, a major purpose of the present research is to more formally examine the consistency of consumer decision strategies across a number of product categories. A major question concerns the extent to which consumers employ the same tactic or strategy across product categories or whether different strategies are used for different decisions. Specifically, consumers' choice tactics were assessed for 12 different product categories in order to examine both within-subject and across product consistencies.

In addition, the present research attempts to empirically assess the importance of a number of contingent or task factors: the amount of advertising for the product class, price variations within the product category, the number of brands available, and the perceived similarity of brands in the product category. In examining these factors, it is important to remember that interest is in examining factors which influence the specific reason why the brand was chosen as opposed to variables such as the amount of processing and the type of strategy employed (e.g., within-brand vs. within dimension). These hypotheses are not meant to be exhaustive; rather their intent is to provide initial evidence of the importance of contingent factors in determining the specific type of decision strategy employed. With this in mind, the following hypotheses are offered:

Hypothesis 1: The greater the amount of product class advertising, the more likely consumers will employ tactics based on affect or familiarity and less likely to base a decision on price tactics.

Given that familiarity which results from repeated exposures to advertisements is critical to the development of product-related affect (Ray, et al. 1973; Zajonc and Markus 1982), it is hypothesized that affect related tactics are more likely to be employed in product categories where there tends to be a heavy amount of advertising.

Hypothesis 2: The greater the range in prices for a particular product category, the more likely consumers will employ a price related tactic and less likely they will employ an affective, normative, or performance tactic.

If no appreciable variations in price exist, consumers must rely on some other form of criterion to make a decision. Put another way, little variance on the attribute would not permit it to be determinant (Alpert 1980). If, on the other hand, there are major price differences between brands, it is much more likely that this factor will come into play as a key decision criterion. This would be consistent with the finding that consumers are less brand loyal when prices are active (Farley 1964).

Hypothesis 3: The greater the number of brands, the more likely consumers will employ a price tactic and less likely to employ a performance tactic.

If there are a large number of brands available, it is likely that there are a number of alternatives which will satisfy consumers' needs. Therefore, consumers could select an inexpensive brand from this set. Further, research has indicated that consumers tend to be less loyal toward products with many available brands (Farley 1964).

Hypothesis 4: When the perceived similarity of brands is high, consumers will be less likely to base their decision on a performance tactic and more likely to employ a price tactic.

In other words, if the brands in a particular product class are perceived to be of roughly equal quality, some other form of tactic other than a performance-related one is likely to be employed. If there is a strong discrimination in terms of quality, however, a performance tactic will have a higher probability of being chosen.

Method

Subjects. The subject population consisted of 175 consumers in a Southwestern city who were intercepted as they engaged in grocery shopping. Shoppers were interviewed in eight different grocery stores (representing the three major local chains) throughout the entire city. Interviewing times were divided equally between the morning, afternoon, and evening hours. However, due to varying traffic patterns, 22 (12.5%) of the shoppers were interviewed in the morning, 117 (67%) in the afternoon, and 36 (20.6%) in the evening. One hundred twenty four of the subjects (70.9%) were women and 51 (29.1%) were men. When compared to city demographics, subjects approximately corresponded to the city population in terms of education, age, and income.

Product Categories (Independent Variables). Twelve different product categories were selected for study. These products were chosen to ensure variance along the major independent variables (i.e., the external factors): advertising expenditures, the number of brands available and the price range among brands. The remaining variable: (i.e., the internal factor of perceived similarity of brands) varies from individual to individual and, thus, was measured by means of a questionnaire item.

In order to select the product categories, information was collected along the previously mentioned dimensions for 24 common low involvement products. In each of the eight test stores, interviewers recorded the number of brands available, the number of shelf tags present, the price range (lowest to highest brands), and the face dominance (one, two, three, or no brand dominates). The values for each individual store were then combined to calculate an overall mean for each product for each variable. The product categories resulted by selecting products which were high, medium, and low in terms of the means for each external factor. The twelve products chosen adequately fulfilled this requirement. These products were: breakfast cereal, canned peas, canned soup, coffee, butter, shampoo, headache remedies, bar soap, toothpaste, aerosol bathroom cleaner, toilet paper, and tuna.

Assessment of Other Major Variables

Choice Tactic. The major variable of interest was the choice tactic(s) employed by consumers when making a purchase. Due to the fact that consumers were volunteering their time in the middle of a shopping trip to indicate their choice strategies for 12 different product categories, a verbal protocol was abandoned in favor of a more streamlined procedure.

On the basis of a number of previous studies (Deshpande, Hoyer, and Jeffries 1982; Cobb 1983; Hoyer 1984), six major types of choice tactics were identified. A list of these is provided in Table 2. A seventh category (I never buy this product) was added to account for subjects who did not purchase the product. Subjects were presented with these statements by means of an index card and were asked to read aloud the number of the statement(s) which best represented the way they usually bought the product. The response was then recorded on a special answer sheet by the interviewer.

Similarity of Brands. A similar procedure was employed to measure the perceived similarity of brands in the product category. Subjects were presented with an index card which contained categories ranging from 1=very similar to 5=very dissimilar. Subjects were asked to indicate how similar in quality the brands in the product category were. Again, responses were recorded by the interviewer.

Results

Variations in Tactic Usage Within Subjects

Table 1 presents a summary of the number of choice tactics employed by each subject. It can be seen from the Table that tactic usage varied fairly substantially among the decision makers. Only 7% (n=12) of the subjects employed the same tactic across all 12 product categories, while 49% of the sample (n=85) used 4 or more. Thus, it can be concluded that a substantial number of consumers do use different choice strategies across different product categories. This finding serves as the justification regarding further investigation as to the origins of this variation.

TABLE 1

NUMBERS OF DIFFERENT TACTICS USED			
Number of Tactics Used	n	Percentage	
1	12	7%	} 23%
2	27	16%	
3	50	29%	
4	54	31%	} 49%
5	26	15%	
6	4	2%	
7	1	1%	
	174	100%	

Choice Tactic Usage Across Product Categories

A second area of interest was to determine the specific types of tactics used across product categories. It can be seen from Table 2 that significant variations in tactic usage did exist. First, price-related tactics were most likely to be employed for decisions regarding toilet paper (42.3%), tuna (27.4%), and butter (24.6%), while price was of least concern for breakfast cereal (5.7%) and toothpaste (11.4%) decisions.

Performance-related tactics were most evident for decisions regarding shampoo (40.0%), breakfast cereal (36.6%), and toothpaste (30.9%), while least employed for canned peas (16.6%) and aerosol bathroom cleaner (16.9%).

Familiarity-related tactics were employed little across all product categories. This tactic was most evident for bar soap (10.3%) and canned soup (9.7%). One possible reason for this low reporting however may be the social undesirability of admitting this type of behavior. Normative tactics were also employed infrequently, but were most likely to appear in breakfast cereal decisions. This likely reflects the influence of children in the decision.

Finally, significant variations existed in the tendency to purchase habitually (i.e., always buy). This type of decision making was most likely to appear for toothpaste (40.0%), butter (32.0%), canned soup (29.1%), and bar soap (29.1%). This tactic was employed in choices regarding aerosol bathroom cleaner (9.1%) and canned peas (12.0%).

In summary, wide variations in tactic usage do appear to exist across product categories. Different types of tactics tend to be employed in different product categories. Merely documenting this fact however, does not provide provocative information to those interested in consumer decision making. What is needed is an attempt to explain the nature of the variations in tactic usage or why different tactics are employed across product categories. Attention is now turned to an initial investigation of several potential factors.

Tests of Hypotheses

Four exploratory hypotheses were presented to provide a preliminary explanation of strategy variation across product categories. Specifically, four major situational variables were investigated: amount of product class advertising, price variations within the product category, the number of brands available, and perceived similarity among

brands.

In order to test the hypotheses related to each of these variables, previously collected information regarding each of the independent variables was converted to ranks. For example, each of the product categories was ranked from 1 (=low) to 12 in terms of the amount of advertising, number of brands available, etc. These rankings were then correlated with a ranking for the presence of a tactic for the product category using a rank-order correlation statistic. Table 3 presents a summary of this analysis.

Hypothesis 1 stated that the greater amount of product class advertising, the more likely consumers will employ familiarity based tactics and less likely to base the decision on price factors. It can be seen from the Table that support for the hypothesis was mixed. Consumers were less likely to employ price tactics ($r = -.78$, $p < .01$) when product class advertising was high, but were not more likely to use a familiarity tactic ($r = .28$). It is important to note, however, that consumers did not indicate heavy usage of familiarity as a tactic across all product categories. It was interesting to find, however, that the usage of performance-related tactics increased with higher levels of advertising ($r = .66$, $p < .05$). One possible explanation for this finding is that advertising may create stronger performance perceptions in consumers' minds.

Hypothesis 2 states that greater price variations in a product category will lead consumers to use a price-related tactic and result in less usage of affective, normative, or performance tactics. From Table 3, it can be seen that support for this hypothesis was not in evidence. When price variations were higher, consumers were no more likely to employ a price tactic ($r = -.06$); rather, the incidence of performance ($r = .43$) and habitual tactics ($r = .50$, $p < .05$) were more in evidence. One possible explanation is that a price-quality relationship may be higher when price variations are greater.

Hypothesis 3 indicates that consumers will be more likely to employ a price tactic and less likely to employ a performance tactic when there are a greater number of brands available. In this case, findings were in the opposite direction from the hypothesis. As the number of brands increased, consumers were less likely to employ a price tactic ($r = -.50$, $p < .05$) and more likely to use a performance tactic ($r = .59$, $p < .05$). Perhaps with many brands available, consumers are more likely to rely on a favored brand in order to make the decision task more manageable.

Finally, Hypothesis 4 states that consumers will be less likely to use a performance tactic when the perceived similarity of the brands in the product category is high. As shown in Table 3 strong support for this hypothesis is in evidence. When perceived similarity was high, consumers were more likely to use a price tactic ($r = .49$) and much less likely to base their decision on performance ($r = -.79$, $p < .01$) and habit ($r = -.40$).

Discussion

The results of the present study indicate that significant variations in choice strategies do exist across product categories. First, a fairly substantial proportion of consumers employed 4 or more tactics across the 12 product categories. If individual difference factors were the major determinant of decision strategy, one would expect strategies to be fairly consistent across product categories. The findings of the present study suggest, however, that certain aspects of the task of decision situation intervene to cause subjects to employ different strategies across choice situations. As further evidence of this fact, a second finding was that the different types of choices were employed in different proportions across the product categories. For some products, price related tactics were dominant, while for other performance related, habitual, or other tactics tended to be employed. Again, it is suggested that certain aspects of the task cause these tactics to be applied in different proportions across the product categories.

TABLE 2
CHOICE TACTIC USAGE ACROSS PRODUCT CATEGORIES

Product Category	Choice Tactic							
	Performance	Price	Normative	Always Buy	Most Familiar	Strands Out on Shelf	Combinatorial	Never Buy
Breakfast Cereal	36.6% (11)	5.7% (1)	12.0% (12)	18.9% (3.5)	3.4% (1.5)	4.6% (12)	5.1% (7)	13.7% (9)
Canned Peas	16.6% (2)	20.6% (8)	2.3% (2.5)	12.0% (2)	6.9% (8)	-0- (1)	2.2% (3)	39.4% (11.5)
Canned Soup	26.3% (6)	15.4% (4)	4.0% (7.5)	29.1% (9.5)	9.7% (11)	1.7% (6.5)	2.9% (5)	10.9% (8)
Coffee	22.9% (3)	17.1% (5)	2.9% (4.5)	22.3% (6)	8.6% (9.5)	1.7% (6.5)	5.7% (10.5)	18.9% (10)
Margarine/Butter	25.7% (5)	24.6% (10)	2.3% (2.5)	32.0% (11)	5.7% (6.5)	1.1% (2)	2.3% (3)	6.3% (5)
Shampoo	40.0% (12)	13.1% (3)	2.9% (4.5)	24.0% (7)	5.1% (5)	4.0% (11)	5.1% (7)	5.7% (4)
Headache Remedy	30.3% (8.5)	18.3% (6)	4.6% (10)	26.9% (8)	4.6% (4)	3.4% (10)	1.7% (1)	10.3% (7)
Bar Soap	30.3% (8.5)	18.9% (7)	3.4% (6)	29.1% (9.5)	10.3% (12)	1.1% (2)	5.1% (7)	1.7% (3)
Toothpaste	30.9% (10)	11.4% (2)	4.6% (10)	40.0% (12)	4.0% (3)	1.1% (2)	6.9% (12)	1.1% (2)
Bathroom Cleaner	16.9% (1)	21.7% (9)	4.0% (7.5)	9.1% (1)	5.7% (6.5)	1.7% (6.5)	2.3% (3)	39.4% (11.5)
Bathroom Tissue	24.0% (4)	42.3% (12)	1.7% (1)	20.6% (5)	3.4% (1.5)	2.3% (9)	5.7% (10.5)	0% (1)
Tuna	26.9% (7)	27.4% (11)	4.6% (10)	18.9% (3.5)	1.7% (6.5)	1.7% (6.5)	4.6% (9)	7.4% (6)

^aNumbers in parentheses are ranks from 1 (lowest) to 12 (highest).

The present study attempted to provide initial evidence regarding the influence of several contingent factors or tactic usage. Results of this attempt was mixed. Both the amount of product class advertising and the perceived similarity of brands in the product class appeared to have a strong impact on the type of tactic employed. When advertising levels are high, consumers are more likely to employ performance related tactics and less likely to use price related tactics. The perceived similarity of brands in the product category had the opposite effect (i.e., greater use of price tactics and less use of performance and habitual tactics). In addition, the degree of price variations increased the level of performance tactic usage and the number of brands led to a decreased use of price tactics and more frequent use of performance tactics.

It is important to note a number of limitations of the present research. First, the present study, due to its exploratory nature, examined the effects of contingent factors in a global level. However, a complete understanding of the selection of a choice tactic involves individual level measurement that pertains to the purchase of a particular brand in a particular store and in a particular store environment. Further research is needed to examine the raised issues in this more individual level context. Second, in some cases, one may question whether the classification schemes for choice tactics are mutually exclusive. For example, knowledge of price or performance factors may be the bases for which consumers claim familiarity with or positive effect towards a brand. Future research of this nature might employ probes to determine the underlying nature of tactic usage. Also, further research is needed to evaluate the adequacy of the tactic measurement approach employed. The possibility exists that retrospective questioning may not be the most effective method for determining choice strategies.

These findings are taken as evidence of how meaningful hypotheses regarding the impact of contingent factors on the use of choice strategies can be developed. Future research is now needed to explore the effects of other contingent factors on the decision process. A number of potentially interesting variables can be identified. These would include both external factors which involve basic aspects of the task which are generally consistent across all individuals, and internal factors which are individual centered perceptions which the consumer brings to the situation. In addition to the number of brands, amount of product class advertising, and price variations, external factors would include product packaging, amount of shelf space,

brand placement on the shelf, the presence of coupons, the presence of displays, and price fluctuations. Also, the type of advertising may have a strong impact on the type of choice tactic used. For example, if the product class advertising was price-based or stressed particular performance attributes, these factors should logically influence the choice. Internal factors would consist of the nature of post-purchase evaluations, the perceived similarity of brands, product class experience, time pressure, and individual difference variables (e.g., frugality, dogmatism, self-confidence, etc.). It is hypothesized that both these internal and external factors will interact to determine the type of choice strategy chosen. Finally, studies which more specifically examine the task-individual interaction are needed.

In summary, the results of the present study indicate that we cannot assume a consistent decision process across all choice contexts. Individuals are reactive to their environment and a complete theory of consumer choice must specify how key contingent factors impact on the decision process. This study is viewed as an initial step in this direction. Future research is needed to develop richer hypotheses regarding these concepts and to test these hypotheses empirically.

TABLE 3

Factor	Price	Performance	Most Familiar	Always Buy	Normative
# Amt. of Advertising	-.78**	.66*	.28	.35	.51*
Price Variations	-.06	.43	.05	.50*	-.14
# of Brands	-.50*	.59*	-.11	.38	.08
Similarity	.49	-.79**	.27	-.40	-.22

* p<.05

** p<.01

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THE PERSON BY SITUATION INTERACTION MYTH: IMPLICATIONS FOR THE DEFINITION OF SITUATIONS¹

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Abstract

This paper examines the ability of common versus individualized situational effects to predict behavior. The results show a greater generalizability of situational responses than previously thought. Some implications for the definition of situations are discussed.

Introduction

Past research on situational variables has assumed that situational effects depend upon the individual rather than being similar across individuals. This assumption has never been well tested in the consumer behavior area, yet has been used as a bases for defining and evaluating situational effects. The purpose of this paper is to discuss the generalizability of situational effects. Given the results, the current definitions of situations are reexamined.

Much of the work in situation research has argued that people react differently to a given situation, and it is this interaction between the person and the situation that explains most of the variance in behavior (Bowers 1973; Endler 1975). The basis for this claim comes from ANOVA studies of situations. In these studies, the person by situation interaction is often found to explain behavior better than either the person main effect or the situation main effect (Bowers 1973; Ekehammer 1974; Magnusson 1975; Sarason et al. 1975). These results have been used to claim that situational effects depend upon the individual. The belief is that the individualized effects of situations are more important (explain more behavior) than the common effects of situations.

The importance of the individualized effects of situations has been used as support for a subjective definition of situations (Lutz and Kakkar 1975, p. 440).

In restricting the definition of situations to 'observable aggregate effects,' Belk differs with most situational theorists. For example, Cottrell (1950) stated (rather categorically): 'We are quite certain that individuals and groups react to their own definitions of situations...' (p. 711), thus suggesting a subjective, rather than an objective definition.

Are Situational Effects Always Subject Specific

The conclusion that situational effects depend upon the subject may be misleading. The common effects of situations can be defined as the extent to which subjects behave similarly in a given situation. If a situation has a common effect on subjects, then all subjects should

behave the same in that situation. The opposite position maintains that situational effects are individualized, in other words, subjects behave differently in a given situation.

When consumer researchers began to examine situation effects they simply replicated the ANOVA procedure used in the psychology literature. The only difference was that consumer researchers examined a set of product choices rather than examining a single trait. This change, however, affects how the ANOVA results are interpreted (Bonner 1984). The situation main effect no longer measures common situational effects. Instead, the situation by response interaction indicates the common effect for situations (Bonner 1984). A similar problem exists when examining individualized situational effects. When trait categories are used the person by situation interaction indicates individualized situational effects. However, when product categories are used, the person by situation by product interaction indicates individualized situational effects.

Unfortunately, very few ANOVA studies in consumer behavior have reported the person by situation by response interaction. A reexamination of two of these studies (Belk 1974; Sandell 1968) indicates that common situational effects are a major predictor of behavior. In the Belk study, common situational effects accounted for 18.7% of the variance in behavior while individual effects accounted for 3.4%. In the Sandell study common situational effects accounted for 39.8% of the variance while individual effects accounted for 27.8%. These results indicate that while individualized situational effects exist, there are also significant common situational effects. In fact, these common effects may be as important (predict behavior as well or better) as the individualized effects.

Other evidence indicates that situations have common effects across individuals. Srivastava (1980) found that situational factors were stable across individuals and that individuals had similar response patterns to situations. In the ANOVA studies, situation scenarios are presented and subjects are asked to imagine their response to that situation. Therefore the situation by response interaction is the appropriate measure of common situational effects. In the regression studies, however, the occurrence or expected occurrence of a situation is measured rather than imagined. Some subjects experience the situation; others do not. In this case, the appropriate measure of common situational effects is the ability of occurrence to explain behavior. In other words, if a situation occurs, the regression coefficient indicates the effect of the situation for all subjects. Regression studies have also shown that situational effects can be similar across subjects (Wicker 1971; Bearden and Woodside 1976, 1978; Greer 1977; Cote, McCullough and Reilly 1985). These studies only included situation main effects; situation by person interactions were not included or

¹ The comments of James McCullough, Wendy Bryce, and an anonymous ACR reviewer are gratefully acknowledged.

were not found to be significant.

Hypotheses

The results discussed above raise two important questions. Do individuals have similar perceptions about the occurrence of a given situation and do they react similarly to that situation. An exploratory study was conducted to determine the extent to which consumers perceive and react similarly to situations. Both individualized and common situational variables were used to predict behavior.

Past research indicates that consumer reactions may be similar in a given situation. But if a situation is to have a common effect on behavior, then consumers must agree that the situation has occurred. For example, if all subjects have a major paper due before a social event, they should all indicate a high likelihood of the situation occurring. Therefore:

H1: If a situation is certain to occur, subjects should all perceive that the situation will occur.

Under normal circumstances, individualized situational effects would be expected to predict behavior better than common effects. This is true because individual effects allow for a subject's idiosyncratic behavior. However, this is only important when each subject has a completely different view of the world. In many situations, segments of people may have fairly similar views of the world. Within these market segments, common situational effects would exist.

As stated earlier, past research supports the idea that situations may have common effects on consumers. However, there has never been a direct comparison of individualized versus common situational effects. Hypothesis two is an explicit attempt to compare the predictive ability of common situational effects to individualized situational effects.

H2: Common situational effects should predict behavior as well as individualized situational effects.

If subjects respond similarly to a particular situation, then adding individualized situational effects should not improve our ability to predict behavior. Simply knowing that the subject experienced the situation would provide enough information to predict behavior. If subjects each have a different reaction to a particular situation, then behavior can not be predicted unless the individualized effect is included.

Methodology

Subjects

Data were collected on the intentions and actual attendance of 61 students to a social function (class party held by the instructor). Measures of intentions to attend the social function, the likelihood of various situations occurring, and the expected influence of the situations were collected at three different times over a two month period. A paper and pencil questionnaire was administered six weeks before the social function (long term

expectations), repeated three weeks before the social function (medium term expectations), and one day before the social function (short term expectations). Attendance at the social function and the actual occurrence of the situations was measured three days after the social function.

Intentions and Behavior

Intentions were measured using the following likelihood scale: "Given the information provided, how likely is it that you will attend the function?"

+	+	+	+	+	+	+	+	+
Defi	Probably	Not	Probably	Definitely	will	Sure	will not	will not
nitely	will	Sure	will not	will not	will	will	will	will
will	come	come	come	come	come	come	come	come
come	come	come	come	come	come	come	come	come

Intention values ranged from 0 (not come) to 100 (will come) depending on the distance the subject's mark was from the endpoint of the scale. Actual attendance was measured using a yes (1)/no (0) question three days after the social function.

Situations

The list of relevant situations was generated using focus group interviews. Students were asked to describe any situations they thought would affect their attendance to a social function. The researcher then reduced this list by combining similar situations and dropping variables that did not fit Belk's (1974) objective definition of situations. The following list of situations was used in the study:

- 1) Function is scheduled just before a big examination or class paper.
- 2) Function is scheduled just after a big examination or class paper.
- 3) Other functions or activities scheduled (not scheduled) at the same time as this one.
- 4) Student forgets about the function.
- 5) Directions are poor.
- 6) There are not many people at the function.
- 7) Ability to get transportation to the function.
- 8) Student gets involved in other things.
- 9) Bad weather (Social function occurred in the winter).
- 10) Friends or spouse want to do something else that night.
- 11) Any other situations.

To assess the individual effect of situations, subjects were asked to report the expected effect of a situation if it occurred. The questions on the expected effects followed the following format, "The function is scheduled just before a big examination or class paper. This would:"

+	+	+	+	+	+	+	+	+	
Insure	Increase	Have no	Decrease	Insure	that I	the like-	effect	the like-	that I
would	lihood	on my	lihood	would	would	I would	I would	not	would
come	I would	deci-	I would	come	come	come	come	come	come
come	come	sion	come	come	come	come	come	come	come

Scores ranged from 0 (Insure not come) to 100 (insure would come) depending on the distance the subject's mark was from the endpoint of the scale. The influence of "other situations" was measured by asking the subject to indicate any

other situations they expected to influence their behavior and the extent of that influence.

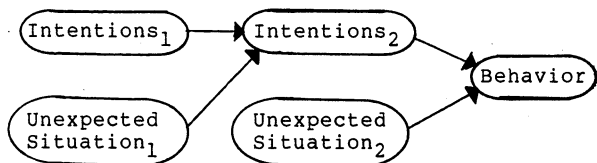
In addition, the expectation of the situation occurring was also measured. This question was worded as follows, "What is the likelihood that you will have a big exam or class paper just before the function?"

+ + + + + + + +
 Defi- Probably not probably definitely
 nitely will sure will not will not
 will

Scores ranged from 0 to 100% chance of occurrence depending on the distance the subject's mark was from the endpoint of the scale. The situational questions were repeated for each of the situations studied. The actual occurrence of the situations was measured using a simple yes (1)/no (0) format.

It was assumed that changes in intentions are attributable to unexpected situational effects (Cote, McCullough, and Reilly, 1985). Hence only changes in the expected effects or likelihood of occurrence were used in the analysis. Unexpected situational occurrences were defined as the difference between the expected probability of the situation occurring in the previous time period subtracted from the expected probability of the situation occurring in the current time period. Figure 1 outlines the model used in the study.

FIGURE 1
 SITUATIONAL MODEL



The first step in the analysis was to develop common and individualistic measures of unexpected situations. Common situational effects assume that all subjects will react the same in a given unexpected situation. The only information needed to determine common situational effects is whether the subject experienced the situation unexpectedly. If two subjects both unexpectedly experienced the situation, then the situational effect would be the same (assuming common effects). Since not all situational effects were controlled or known, self-reported unexpected situations (as defined above) were used as the measure of situational occurrence. Regression or discriminant analysis was then used to estimate the common situational effects given the occurrence of unexpected situations. As long as subjects had the same perceptions about the situational occurrences, the analysis assumed the effect of the situation on behavior was the same for all subjects. Therefore, common situational effects were estimated using the following equation.

$$BI_t = a + b_{t-1}(BI_1) + \sum_i (b_i * US)$$

or

$$B = a + b_1(BI) + \sum_i (b_i * US)$$

where:

B=Behavior (attend/not attend)
 BI=Intention
 US=Unexpected Situational Occurrences
 t=time period 2 and time period 3
 i=Situation 1 to 11
 b₁=Common Effect on Behavior (BI) for a given Unexpected Situational Occurrence i

Individualized situational effects were assessed by including the reported effect of the situation on behavior separately for each subject. This measure includes the subject's individual reaction to the situation. For example, two subjects could report that a given unexpected situation had occurred, but one might report that the situation had no effect on behavior while the other might report a large effect on behavior. The individualized measure needs to include both the unexpected occurrence of the situation and the effect of that situation on the subject. Therefore individualized situational effects were assessed by multiplying the expected effect of the situation by the self-reported occurrence of an unexpected situation. Individualized situational effects were modeled using the following equation.

$$BI_t = a + b_1(BI_{t-1}) + \sum_i (b_i * US * SE)$$

or

$$B = a + b_1(BI) + \sum_i (b_i * US * SE)$$

where:

B=Behavior (attend/not attend)
 BI=Intention
 US=Unexpected Situational Occurrences
 SE=Self-Reported Situational Effect
 t=time period 2 and time period 3
 i=Situation 1 to 11
 b₁=Effect on Behavior (BI) for the Subject's Reported Effect of a Situation i

Analysis

Several situational occurrences were controlled or known. The date for the function was set in period two. The function was scheduled right after a major paper was due in the class. Therefore, subjects should have realized that a major paper was due in the class just before the function. In addition, the weather the night of the function was clear and dry. If subjects had similar and accurate perceptions of reality, then they should have reported a high probability of occurrence for, "a major test or paper due before the function", and a low occurrence of bad weather. The first hypothesis will be supported if the expected occurrences of the major test due before the function is close to 100% and if the occurrence of bad weather is reported to be close to 0%.

The second hypothesis will be tested by predicting "current" intentions and behavior using previous intentions and unexpected situations (each situation included as a separate variable). Stepwise regression will be used to model intentions at each time period. Stepwise discriminant analysis will be used to model actual behavior. Models will first be fit using the common situational effects equation described above. A second set of models will be fit using the individualized situational effects equation described above.

The second hypothesis will be supported if the two sets of models (common effects vs individual effects) predict intentions and behavior equally well.

Limitations

Several limitations should be kept in mind when interpreting the results. First, the relative importance of common versus individual effects can not truly be assessed unless all relevant situations are included in the analysis. Therefore the estimated situational effect in this study will be biased since all relevant situations are not included in the study. Secondly, terms like "just after", and "good weather" may mean different things to different people. Therefore, comparing subject's perceptions to the researcher's perceptions may be inaccurate. Finally, the research assumes that subjects will be able to accurately report the effect a situation may have on them. This may not be the case, especially if the subject does not expect the situation to occur.

Results

Hypothesis one was not well supported by the data. Subjects may not have accurately perceived the known situational occurrences. In period three and four, the expected probability of occurrence should have been close to 100% for, "have a paper due just before the function." The reported expected probability was 28.7% for period three and 24.6% for period four. This finding may have been caused by the use of the term "just before." The class paper was due the day before the function. Therefore, subjects may not have felt it was "just before" the function. The reported occurrence of bad weather was as expected. No subjects should have stated there was bad weather, and only 0.2% of the subjects did report bad weather.

The data did support hypothesis two. Common situational effects predicted behavior as well as individualized effects. The results of the analysis are presented in Table 1. When examining medium term intentions common situational effects explained 64.7% of the variance while individual situational effects explained 38.7%. The findings for short term intentions were similar with common situational effects explaining 75.3% and individual effects explaining 64.3% of the variance. Finally, common and individual effects explained about the same amount of behavior (attendance) 91.8% and 86.9% respectively.

These results agree with previous studies which indicate that individualized situational effects did not predict behavior better than common situational effects. This supports the idea that there might exist certain market segments that would react similarly to a given situation.

Discussion and Summary

A reanalysis of past research has shown that situations can have common effects across consumers. The results of this exploratory study supports this position. Individualized situational effects do not appear to be needed to accurately predict behavior. However, some subjectivity may be required to model situational effects since subjects may not accurately perceive all situations.

TABLE 1

ABILITY OF PREVIOUS INTENTIONS AND CHANGES IN SITUATIONAL VARIABLES TO EXPLAIN PRESENT INTENTIONS AND BEHAVIOR

Dependent Variable	REGRESSION ANALYSIS	
	adj R ² for the model using:	
	Common situational effects	Individualized situational effects
Medium term intentions	0.647	0.387
Short term intentions	0.753	0.643

DISCRIMINANT ANALYSIS

Percent Correctly Classified Using²:

Dependent Variable	Common situational effects	Individualized situational effects
Actual behavior	91.8%	86.9%

¹ Model is as follows:

$$BI_t = a + b_1(BI_{t-1}) + \sum_i (b_i * US)$$

or

$$BI_t = a + b_1(BI_{t-1}) + \sum_i (b_i * US * SE)$$

² Model is as follows:

$$B = a + b_1(BI) + \sum_i (b_i * US)$$

or

$$B = a + b_1(BI) + \sum_i (b_i * US * SE)$$

Implications for the Definition of Situations

As stated earlier, the use of the subjective definition of situations is based on the possibly false claim that situational effects depend on the person. Given that a basic premise of the subjective definition of situations may be erroneous, it would be wise to reconsider its use.

There are several additional problems with the subjective definition of situations. The subjective definition is concerned with whether and how the subject perceives, processes, and responds to the situation. This definition, in fact, contains two separate issues, what is a situation, and what is the subject's response to the situation. Taken to the extreme, the subjective definition of situations is actually a type of behavior because it is concerned with response. It makes sense to separate these issues. We need to first determine what a situation is and then examine the effect of its occurrence.

The subjective definition also does not allow for lawlike generalizations. As stated by Mausner (1963, p. 107), "If one specifies the stimulus in terms of the nature of the

receiver, lawfulness becomes impossible." Belk (1975, p.429) also notes that the subjective definition may lead to a tautology, "(the subjective definition) tells us no more than the comparably hollow individual differences explanation that this is the sort of behavior engaged in by the sort of person who engages in this sort of behavior."

Given the problems associated with the subjective definition of situations, it would appear reasonable to consider only an objective definition of situations. The objective definition not only has numerous advantages over a subjective definition, but contributes to definitional parsimony by excluding several additional concepts from the definition of situations.

Subjective versus Objective Orientation?

The real question being raised by the subjective versus objective debate is not really how a situation should be defined, but what orientation situation research should take. Lutz and Kakkar (1975) argue that, "there appears to be a need to adopt a subjective view of the situation in order to understand its effects on human behavior." The ability to explain variations in behavior should not be the focus of situation research. Instead, research should focus on why and how situations affect behavior. This clearly has merit, but may lead to two important misconceptions. First, that the definition of situations should include other constructs such as subject responses. Second, that the use of situations to predict behavior is not interesting in itself.

The selection of the appropriate orientation toward situations will depend to some extent on the topic of interest to the researcher. If the researcher is interested in understanding consumer behavior, then the subjective orientation is preferable. If the researcher is interested in how to manipulate situations or what differentiates situations from other types of environmental stimuli, then an objective orientation is more appropriate. When it comes to predicting behavior, the researcher can use either orientation.

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PERCEIVED CORRELATES OF STORE PRICE IMAGE:
AN APPLICATION OF THE BOOTSTRAP¹

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The findings of this nonexperimental study suggests that consumers perceive correlations between store attributes and store price image, and may use the former to predict the latter. Within a multiple regression context, the propensity to heuristically use such perceived predictors seem to be related to (1) perceived difficulty of basing the price image judgment exclusively on self acquired price samples, (2) time pressures, (3) self assessment of experience as a shopper, and (4) the extent to which price variation is expected across stores. Also, an application of the bootstrap, a resampling procedure, is presented which provides a nonparametric estimate of the expected error of prediction for the estimated regression equation.

Introduction

In a comprehensive study published more than a decade ago, Brown and Oxenfeldt (1972) reported that consumers perceived covariation between various store attributes and store price levels, and used the information regarding the former to predict the latter. One of the two major objectives of this study is to examine whether and to what extent, perceptions as such still exist today. The second objective is to relate the propensity to use such still exist today. The second objective is to relate the propensity to use such perceived correlations as predictors of price image to individual and task related variables. Both types of information should be valuable to managers in charge of pricing decisions at the retail level, since price image is theorized (Berry 1969 Hansen and Deutscher 1977-78, Kelly and Stephenson 1967), and reported to affect store choice (Progressive Grocer 1981, 1982).

Literature Review

Perceived Covariates of Store Price Image

Judgements of covariation between events is a critical aspect of cognitive behavior. Knowledge regarding which attributes or events are related and the degree of their relationship helps individuals to infer causal relationships between the variables observed in the past, control some events in the present through manipulation of a set of covariates, and predict the future or present value of a criterion given the values of some diagnostic predictors (Bettman, John and Scott 1984, Crocker 1981, Nisbett and Ross 1980, Hogarth 1980). Indeed, many psychological and socio-psychological theories are based on the notion that individuals detect covariation between cues, variables and events. Examples are Brunswik's Lens Model (e.g., Castellan 1973), Anderson's Functional Measurement (1981), and Kelley's Attribution Theory (1973).

Similarly, Brown and Oxenfeldt's (1972) findings suggest that consumers assume covariation between various store attributes and store price levels and use the information regarding the store attributes to predict store price levels. This large scale survey covered five cities (Havertown, Greensboro, New York, San Francisco, St. Louis), 60 different food retailing outlets and included more than 1,000 interviews with housewives regarding the price of 80 product items at different stores in their neighbourhood.

Respondents in each of the five cities were asked to rank

¹This study was funded by a research grant from Marketing Department, Graduate School of Business, Indiana University.

perceived price levels given 11 store attributes. These attributes included whether the store was new, untidy, in a large shopping center, engaged in lots of advertising, had wide assortment, promoted "loss leaders", gave trading stamps, had an expensive interior, was open late, provided extra services and was small. A high degree of similarity existed across five communities in terms of rankings as summarized by a high coefficient of concordance (.92).

The authors concluded that consumers expected extra costs incurred by a store to be reflected in higher prices: in descending order of importance extra services offered by the store, late hours of operation, having expensive interiors and giving out trading stamps are perceived to be cues related to high prices. On the other hand, store attributes which may be regarded as indicators of large volume of operations were predictors of lower prices: being located in a large shopping center, lots of advertising and having a wide assortment of products were correlated with low prices. While small size was perceived to be the strongest correlate of high prices, untidiness and being a "new" store in the community were generally ranked at the top of indicators of low prices. The authors stated that, "These findings sketch the beginning of a model which links operating characteristics of stores to perception via cues involving expenses and volume" (Brown and Oxenfeldt 1972, p. 49).

Heuristic Use of Perceived Covariates as Predictors

Brown and Oxenfeldt (1972) argued that consumers heuristically use store attributes in their price image judgments as part of a task simplification strategy possibly because of the complexity of the price structure at stores. They found that, for a basket of 80 product items, a given store may have higher than average prices for some items and lower than average prices for other items in the basket. Therefore, they implied that, overall price image of the store may be cognitively difficult to assess only by sampling prices from the marketed assortments, but easier to predict from non-price store attributes perceived to be correlated with store price image. Consequently, consumers can rely on the perceived correlates if they believe a more careful decision rule such as examining the prices of a self-selected basket of items is not likely to improve the outcome of the judgment process substantially (Svenson 1979) and if the cost of the first strategy outweighs the expected benefits from it (Christensen-Szalanski 1978). The use of such predictors are encouraged also when they are perceived to be causally related to the criterion of interest as in this context (Azjen 1977). Brown and Oxenfeldt concluded (1972, p. 42):

"This deductive process of applying a broad generalization to specific situations occurred in several phases of our research. It is one of the more pervasive results. Misperceptions often occur when the environmental situation is contrary to intuitive or logical generalizations. The generalization, not the facts, gives rise to perception. The facts seldom alter a logical conclusion."

Similar store profile effects have been reported by Wheatley and Chiu (1977) in consumer judgments of product quality. Consumer predictions of one attribute value from a correlated attribute have also been observed in price-quality tradeoffs (Levin and Johnson 1984) and product evaluations (Huber and McCann 1982).

In general, use of judgmental heuristics are found to be encouraged by factors which induce cognitive complexity such as time pressure, distractions, and information overload (e.g., Hogarth 1980, Newell and Simon 1972, Payne 1976, Wright 1974). Such factors may operate in the judgment task studied here and therefore motivate prediction of price image from perceived correlates. Distractions such as crowding, noise and indoor advertising within a store may aggravate the complexity due to price structure mentioned above. Also, some consumers feel more time pressure than others and/or perceive the comparison of the price images of different stores based on self sampled prices to be more difficult than the comparison of the price images based on perceived correlates of price image. Therefore, perceived time pressures may lead to higher propensity to use the perceived correlates as predictors of price image.

As alternatives to predicting store price image exclusively from perceived correlates, the prediction based on self acquisition and cognitive integration of a price sample independent of the perceived correlates or in conjunction with them requires examination of a basket of prices. In such a task, the magnitude of the deviations of the sampled prices from some subjective reference prices (Monroe 1973) need to be judged and cognitively intergrated into an overall judgment about the observed basket and then generalized to the whole store as the price image of the store. Thus, the comparison task and the final judgment will involve some uncertainty due to uncertainty associated with the subjective reference prices since their recall is expected to be less than perfect especially for infrequently purchased and low priced items.

Since decreases in the uncertainty regarding the subjective reference prices is likely to alleviate the perceived difficulty of basing the price image judgment on a price sample, those individual related variables which enable or stimulate more attention to and better recall of prices are expected to lead to lower propensity to use the perceived correlates as predictors of price image. Self assessments of experience as a shopper, accuracy of recall of prices, overall sensitivity to prices, perceived budget constraint, and the extent to which shopping is enjoyed can be suggested as a possible list of such individual related variables.

Finally, if the consumer believes that there are no significant price differences from one store to another (say, in food retailing) then the propensity to heuristically use the the perceived correlates should decrease because the need to compare the stores in question with regard to price subjectively does not exist.

Given the above discussion, Table 1 summarizes the expected relationships between the propensity to use the perceived correlates of store image as predictors of price image and the individual related variables. In order to build on the previous research by Brown and Oxenfeldt (1972), the shopping context is limited to grocery purchases. The individual related variables are presented in Likert scale form as they appear on the questionnaire.

Methodology

A mail survey was conducted to collect the data of the study. The questionnaire included the Likert scales exhibited in Table 1 and the items in Table 2. The second set of items attempts to measure the direction and the degree of perceived correlation between each of various store attributes and store price image on a 5-point scale ranging from -2 on the left to +2 on the right. By presenting the poles of the scale as the characteristics of two different stores and by instructing the subjects to indicate the store they would expect to have a "higher" or "somewhat higher" grocery bill, both the magnitude and the direction of correlation is measured through a single response. The central response category reflects perceived lack of correlation between that attribute and the overall price image of the store. The store attributes

in the table are based on the Brown and Oxenfeldt study (1972) and informal discussions with eight experienced grocery shoppers.

One potential problem with the instrument as it is presented in Table 2 is that the store description presented on the same side of the page may be perceived as a profile of a store and the attributes examined earlier in the questionnaire may affect the responses to the later items in the questionnaire. This may happen despite the two warnings on the questionnaire to evaluate each attribute (i.e., pair of stores in a given item) independently. In order to cancel out such "profile effects," three forms of the questionnaire were constructed. The second form presented the last one third of the items at the top, and the left pole descriptions were interchanged with the ones on the right pole. The third form moved the middle one third of the items to the top of the list and similar interchanges of the poles were made.

A total number of 270 questionnaires (i.e., 90 of each form) were mailed to potential respondents in four adjacent zip code areas in a Midwestern city. A city directory was used as the sample frame and the addresses were selected through a systematic random sampling method. The primary grocery shopper was asked to fill out the questionnaire. Thirty-five questionnaires could not be delivered. Eighty-nine questionnaires were returned making the response rate 37.9 percent. Four of the returns were not useable. The final number of useable responses for the three forms of the questionnaire were 27, 33 and 29.

Results

Perceived Correlates of Price Image

The data regarding the perceptions of correlation between the store attributes and the store price image are summarized in Table 3 and Table 4. While the t-tests on means in Table 3 test whether the data confirm the expected direction of the perceived correlations, Table 4 summarizes the χ^2 tests on variances which attempt to assess the consistency of the perceived correlation across the sample.

As it is presented in Table 3, consumers expect extra operating expenses and investments in the store to be reflected in higher prices (rarely waiting a long time in the check-out line because a sufficient number of lines are open, ready availability of salespeople, being located at a major shopping center and therefore paying higher rent,¹ being open 24 hours, being tidy and neat, displaying products on the shelves rather than carton boxes, providing extra services, having elegant store and lighting). Similarly, small volume of business at the store and company level is believed to indicate higher prices (few shoppers on Saturday, one of the smaller food retailers in the city, family owned, independent store rather than being part of a chain organization which owns a large number of stores). Also, if the assortment is extended to include gourmet food, deli and bakery, and non-food products, price image is adversely affected.² Finally, high frequency of printed retail advertising and large number of featured items per advertising are perceived to be associated with lower prices. Overall, these results parallel Brown and Oxenfeldt's (1972) findings.

The above perceived correlations seem to be consistent across the sample as suggested by the χ^2 tests on variances of the perceived correlation scores for each store attribute. It was judged to have a variance less than unity for each attribute so that only a relatively small percentile of the distribution of the scores would extend over to either side of the central category. Store attributes numbered 1, 2, 3, 4, 5, 7, 8, 11, 14, 15 and 16 met this criterion.

Prediction of store price image from the above store attributes was confirmed by two follow-on studies. In

TABLE 1
HYPOTHESIZED DIRECTION OF RELATION BETWEEN THE INDIVIDUAL RELATED VARIABLES
AND THE PROPENSITY TO USE THE PERCEIVED CORRELATES OF
STORE IMAGE AS PREDICTORS OF STORE IMAGE

Individual Related Variable ^a	Hypothesized Direction	Beta Weights ^b	α
X1. I feel that my grocery budget is very tight	-		
X2. I am an experienced shopper.	-	1.195	.02
X3. It seems that there are no significant differences in grocery prices from one store to another.	-	-1.201	.01
X4. When I shop, I cannot pay as much attention to the grocery prices as I would like to because of time pressure.	+	1.712	.00
X5. I can accurately recall the prices of most of the grocery products I buy.	-		
X6. I enjoy grocery shopping.	-		
X7. It is very difficult to judge the expensiveness of different grocery stores just by comparing their prices.	+	2.000	.00
X8. I would consider myself to be more price sensitive than most consumers	-		

^aMeasured on a 5-point Likert scale: Strongly Disagree = -2, strongly Agree = +2.

^bOnly those variables which are included in the equation as a result of stepwise regression are reported.

the first study, two store profiles were constructed by retaining the subset of the above attributes for which the average score was significantly different from zero (implying positive or negative perceived correlation) and variance less than or equal to one (implying relatively consistent perceived correlation across the sample). While the combination of those verbal descriptions which defined the negative poles of the scales constituted the "high" priced store profile, the combination of the verbal descriptions at the positive poles made up the "low" priced store profile (Buyukkurt 1985). The two store profiles were tested in a drop-and-pick-up survey using an independent sample and found to lead to significantly different perceptions of "high" versus "low" priced stores ($t=12.30$, $d.f.=62$, $p=.000$). Confidence in these judgments was high for both store ($\bar{x} > 7.4$ given a 10-point rating scale) but not significantly different across the two stores ($t=1.35$, $d.f.=62$, $p=.163$). In this survey, field workers contacted 75 residences and completed 69 interviews, out of which 64 were usable. 29 and 35 respondents were exposed to the "high" and "low"-priced store profiles respectively.

The same two profiles were later used in an experimental setting as a manipulation of store profile effects where 240 grocery shoppers judged the perceived value of a self selected basket of grocery items. Again, price judgments were affected by store profile ($F=5.886$, $d.f.=1,190$, $\alpha = 0.02$) (Buyukkurt 1985),.

Regression Results

The hypotheses in Table 1 regarding the relationship between the individual related variables (independent variables) and the propensity to use the perceived correlates to store image as predictors of store image (dependent variable) were tested by conducting a step-wise multiple regression analysis.

The dependent variable was operationalized by summing the absolute values of the perceived correlation score across all store attributes in Table 2 for a given subject. This sum increases (1) as the degree of perceived covariation between an attribute and price image increases and (2) as the number of such perceived covariations increases. As such, the sum, as an indicator of the propensity to use the perceived correlates as predictors of price image, is based on the assumption that the probability that a cue will be used in predicting a criterion increases as the perceived predictive validity of that cue increases.

Also, the higher the number of such predictors, the more likely it is that the prediction will be affected by such perceived correlates. If the degree of perceived correlation between an attribute and price image is conceptualized as the strength of a belief, then a theoretical justification can be provided for the above operationalization, for example, from the attitude research (Fishbein and Azjen 1975) and research on information search (Duncan and Olshavsky 1982) where beliefs and tendency to act are theorized and shown to be related.

Stepwise regression was preferred to ordinary least squares mainly because of the exploratory nature of the study. Selection of the variables into the equation was controlled through "tolerance" and on F-value-to-enter. Technically, tolerance is equal to one minus the squared multiple correlation between an independent variable which has not yet been included in the equation and those that are already in the equation. In this study, tolerance was set equal to 0.9 F-value-to-enter was 2.8 which assures statistical significance at $\alpha = .10$ for the regression coefficients of the entered variables.

A stepwise inclusion history of the independent variables is presented in Table 5. Four independent variables were included in the equation with final adjusted $R^2 = .38$. In their order of inclusion, these variables are perceived difficulty of making price image comparisons by sampling prices (X7), not being able to pay enough attention to grocery prices because of time pressures (X4), belief that no significant differences exist in grocery prices from one store to another (X3), and self ratings of experience as a grocery shopper (X2).⁴ Except for the last variable, the signs of the regression coefficients are expected. The positive coefficient for X2 indicates that the the propensity to use the perceived covariates as indicators of price image increases as self perception of experience as a shopper increases. A posteriori, this finding is not extremely surprising because (1) the perceived covariates may in fact be valid predictors of price image in the market for this sample and their beliefs may have been confirmed over time or (2) since people often see what they expect to see (Hogarth 1980, Nisbett and Ross 1980), confirmation of their hypotheses may have been mainly illusory since accurate judgments based on self acquired price samples will involve substantial uncertainty.

The Bootstrap and Cross-Validation

One immediate question about the regression findings is the predictive ability of the final model since the regression weights are based on a relatively small sample size. To eliminate this concern the bootstrap was used to estimate the expected excess error of prediction (Efron 1979) by randomly drawing samples of a fixed size with replacement from the original sample. A parallel estimate of expected excess error was obtained from another method of sample reuse widely known in the marketing literature as cross-validation (Appendix).

The expected error of prediction is 2.237 and 2.120 for cross-validation and the bootstrap respectively which are not substantially large given a dependent variable with a mean of 14.31, a minimum value of 4.0 and a maximum value of 31.

Conclusions

More than a decade after Brown and Oxenfeldt's (1972) study, the data from a geographic area which was not included in their study confirmed that consumers still predict store price image through store attributes which are perceived to be indicators of expense and volume. Furthermore, these perceived correlations seem to be rather consistent as suggested by the sample studied here.

The propensity to use such perceived correlations in predictions of price image seem to be positively related to (1) perceived difficulty of basing the price image

TABLE 2

ITEMS TO MEASURE THE DIRECTION AND THE DEGREE OF PERCEIVED CORRELATION BETWEEN VARIOUS STORE ATTRIBUTES AND STORE PRICE IMAGE

MY GROCERY BILL WILL BE

STORE A	HIGHER AT STORE A	SOMEWHAT HIGHER AT STORE A	ABOUT THE SAME AT STORE A AND STORE B	SOMEWHAT HIGHER AT STORE B	HIGHER AT STORE B	STORE B
1. YOU OFTEN HAVE TO WAIT A LONG TIME IN THE CHECK-OUT LINE	-----	-----	-----	-----	-----	YOU RARELY WAIT A LONG TIME IN THE CHECK-OUT LINE
2. HAS BEEN OPEN 4 YEARS	-----	-----	-----	-----	-----	OPENED 2 WEEKS AGO
3. A SALES PERSON IS EASILY FOUND WHEN YOU WANT TO ASK A QUESTION.	-----	-----	-----	-----	-----	HARD TO FIND A SALES-PERSON WHEN YOU WANT TO ASK A QUESTION.
4. ONE OF THE SMALLER FOOD RETAILERS IN THE CITY.	-----	-----	-----	-----	-----	ONE OF THE LARGEST FOOD RETAILERS IN THE CITY.
5. HAS DEPARTMENTS SUCH AS GOURMET FOOD, DELI, AND BAKERY.	-----	-----	-----	-----	-----	DOES NOT HAVE DEPARTMENTS SUCH AS GOURMET FOOD, DELI, & BAKERY
6. ADVERTISES SPECIALS ABOUT TWICE A MONTH IN THE NEWSPAPER.	-----	-----	-----	-----	-----	ADVERTISES SPECIALS EVERY WEEK IN THE NEWSPAPER.
7. PLAIN STORE DECOR AND LIGHTING	-----	-----	-----	-----	-----	ELEGANT STORE DECOR AND LIGHTING.
8. LOCATED OUTSIDE MAJOR SHOPPING CENTER.	-----	-----	-----	-----	-----	LOCATED AT A MAJOR SHOPPING CENTRE
9. LARGE OFFERING FOR NON-FOOD PRODUCTS.	-----	-----	-----	-----	-----	SMALL OFFERING FOR NON-FOOD PRODUCTS.
10. MOST MAJOR BRANDS ARE IN STOCK.	-----	-----	-----	-----	-----	FEW MAJOR BRANDS ARE IN STOCK.
11. OPEN 24 HOURS	-----	-----	-----	-----	-----	STORE HOURS: MONDAY-SATURDAY: 9:00-10:00pm SUNDAY: 10:00-6:00pm
12. LARGE NUMBER OF SHOPPERS ON SATURDAY.	-----	-----	-----	-----	-----	FEW SHOPPER ON SATURDAY.
13. ABOUT 10 ITEMS ARE ADVERTISED AS SPECIALS IN EACH NEWSPAPER ADVERTISING.	-----	-----	-----	-----	-----	ABOUT 40 ITEMS ARE ADVERTISED AS SPECIALS IN EACH NEWSPAPER ADVERTISING.
14. FAMILY OWNED, INDEPENDENT STORE.	-----	-----	-----	-----	-----	PART OF A CHAIN ORGANIZATION WHICH OWNS A LARGE NUMBER OF STORES.
15. UNTIDY, MESSY.	-----	-----	-----	-----	-----	TIDY, NEAT.
16. PRODUCTS ARE DISPLAYED IN CARTON BOXES.	-----	-----	-----	-----	-----	PRODUCTS ARE DISPLAYED ON THE SHELVES.
17. NO SERVICE SUCH AS BAGGING, CHECK CASHING AND CARRY-OUT SERVICE	-----	-----	-----	-----	-----	SERVICE LIKE BAGGING, CHECK CASHING AND CARRY-OUT SERVICES ARE OFFERED.

judgment on self-acquired samples, (2) time pressures, and (3) self perception of experience as a shopper, and negatively related to whether the consumer believes that there are significant differences in terms of price across stores. The regression coefficients on which the above conclusions are based seem to be stable and the expected prediction error seem not to be excessive as indicated by the nonparametric resampling methods. These methods, however, should not be regarded as perfect substitutes for sufficiently large sample sizes, and therefore, this study should be replicated by taking larger samples, preferably in different geographic areas, to reflect possible variations at the retail level. Such an effort is already under way with replications in the northeast and the northwest.

Further research in this area seems to be warranted. Knowledge about the cognitive integration of the perceived correlates in a judgment context and the relative subjective importance assigned to each correlate should be valuable to retail strategists. Also, perceived correlates of store price image can be conceptualized as beliefs (Duncan and Olshavsky 1982) or hypotheses (Bettman, John and Scott 1984), and their development and revision as new information is gathered can be studied.

Footnotes

1. In Brown and Oxenfeldt's (1972) study, being "located at a major shopping center" was perceived to be related to higher volume, and, therefore, associated with lower prices. During the questionnaire construction stage, the housewives who were interviewed associated it with higher rents, therefore, higher prices. The respondents of the survey seem to believe along the same lines.
2. This finding regarding extension of the assortment should be viewed with caution since the scales in Table 2 ask the respondents to indicate the store for which they expect their grocery bill will be higher. It is possible for some consumers to think of some additional items that they can purchase when the assortment is richer and therefore expect their grocery expenses to increase for the store with the extended assortment rather than thinking about possible differences in the prices of a given basket of items in the two stores described as the poles of the scale.
3. Naturally, the number of predictors that can be used does not increase indefinitely because of information processing capacities of human beings.
4. As far as multicollinearity is concerned, the null hypothesis of zero population correlation coefficient could be rejected at $\alpha = .05$ only for the sample correlation between X5 and X7 ($r = .475$). Because of the stringent tolerance value, it is apparent that X5 was kept out of the equation after the entry of X7.

TABLE 5
STEPWISE REGRESSION RESULTS (a,b)

Step Number	Variable Entered (3)	F-Value to Enter (d)	α	Overall R^2	Adjusted R^2
1	X7(d)	16.98	.00	.17	.16
2	X4	15.93	.00	.31	.16
3	X3	6.99	.01	.36	.34
4	X2	5.68	.02	.41	.38

TABLE 3

PERCEPTIONS OF CORRELATION BETWEEN STORE ATTRIBUTES AND STORE PRICE IMAGE

t TEST ON MEANS

Attributes No.	\bar{X}	t	H ₀ (2)
1	.459	5.337	b
2	-.369	-3.765	a
3	-.417	-5.635	a
4	-.833	-8.588	a
5	-.373	-3.926	a
6	-.353	-3.495	a
7	.798	8.226	b
8	.494	5.093	b
9	-.181	-1.775	b
10	-.341	-3.045	a
11	-.729	-7.755	a
12	.333	3.000	b
13	-.393	-3.930	a
14	-.929	-10.802	a
15	.284	3.227	b
16	.819	10.367	b
17	.741	7.337	b

- (1) Please refer to Table 2 for the description of the store attributes.
- (2) a) $H_0 : u > 0$
 $H_1 : u < 0$ b) $H_0 : u < 0$
 $H_1 : u > 0$.
- all significant at $\alpha = .05$.

TABLE 4

PERCEPTIONS OF CORRELATION BETWEEN STORE ATTRIBUTES AND STORE PRICE IMAGE

χ^2 TESTS ON VARIANCES¹

Attribute Number	χ^2	d.f.	α
1	53.088	84	.005
2	67.562	83	.10
3	38.429	83	.005
4	65.653	83	.05
5	61.418	82	.05
6	73.416	84	.25
7	65.570	83	.05
8	67.284	84	.10
9	70.274	82	.25
10	89.124	84	*(2)
11	62.748	84	.05
12	80.000	80	*
13	70.052	83	.25
14	51.543	83	.005
15	50.480	80	.005
16	42.312	82	.005
17	72.324	84	.25

- (1) $H_0 : \sigma^2 > 1$
 $H_1 : \sigma^2 < 1$

- (2) $\alpha > .25$.

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Appendix

THE BOOTSTRAP AND CROSS-VALIDATION ESTIMATE OF EXPECTED EXCESS ERROR

Assume a linear regression model

$$Y_i = X_i \beta + \epsilon_i, \quad i = 1, 2, \dots, n$$

Where X_i is known ($1 \times k$) vector of predictors, β is a ($k \times 1$) vector of unknown parameters, and ϵ_i are i.i.d. $\sim F$, where F is an unknown probability distribution with an expected value equal to zero.

1. Having observed $Z_i = (Y_i = y_i, X_i = x_i)$ $i = 1, 2, \dots, n$, define \hat{F} as the empirical probability distribution of the data:

$$\hat{F} : \text{mass } \frac{1}{n} \text{ at } Z_1, Z_2, \dots, Z_n$$

2. Draw a bootstrap sample from \hat{F} with replacement

$$Z_1^*, Z_2^*, \dots, Z_n^* \quad \text{iid } \hat{F}$$

and calculate $\hat{\beta}^*$, ($k \times 1$) vector of bootstrap estimates, using ordinary least squares.

Given a bootstrap sample as in step 2 above, the resampling vector

$$P^* = (P_1^*, P_2^*, \dots, P_n^*), \text{ where } P_1^* = \frac{\text{number of } \{Z_j^* = Z_1\}}{n} \text{ has a rescaled multinomial distribution}$$

$$P^* = \frac{\text{Multinomial}(n, P^0)}{n} \quad (1)$$

Then, the bootstrap estimate of Expected Excess Error is:

$$EEE(\text{Boot}) = E^* \sum_{j=1}^n (P_j^0 - P_j^*) (y_j - \hat{y}_j^*)^2$$

here E^* indicates expectation under (1) and \hat{y}_j^* is the predicted value of the criterion y_j given $\hat{\beta}^*$.

The cross-validation estimate of expected excess is:

$$EEE(\text{CV}) = \frac{1}{n} \sum_{i=1}^n (\hat{y}_i - y_{(1)i})^2 - \frac{1}{n} \sum (y_i - \hat{y}_i)^2$$

where $\hat{y}_{(1)i}$ and \hat{y}_i refer to predictions of y_i when x_i is and is not held out.

The above notation is adopted from Efron (1979). See the original article for further details.

SHOPPING AREA IMAGE: ITS FACTOR ANALYTIC STRUCTURE AND
RELATIONSHIPS WITH SHOPPING TRIPS AND EXPENDITURE BEHAVIOR

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Abstract

Few studies have focused on the image of a shopping area and its relationship with shopping trips and expenditures. This research focuses on the development of a scale to measure the image of a downtown shopping area. Of the four component scales identified, two - the operational and facilitative factors - were found to significantly affect shopping trips and expenditures.

Introduction

Marketing research on image had historically been confined to the store level. However, with the emergence of more and more shopping centers as business entities, there is a need to focus research on the image of a shopping area. In fact, there is no theoretical reason why image research at the store level cannot be extended and applied to the shopping area level. The importance and relevance of image research to shopping area patronage was recognized some 15 years ago by Moore and Mason (1969):

"Socio-economic variables do not satisfactorily explain the retail centre patronage decisions of the residents of the study area. It may be inferred that psychological or attitudinal differences of the residents are perhaps of more importance."

With the development of shopping centers, studies have begun to focus on image-like variables of shopping areas (Frederick et al. 1975; Carter 1978, 1981; Hauser and Koppelman 1979; O'Neill and Hawkins 1980; Berman 1983). Studies by Bellenger, Robertson and Greenberg (1977), and Gentry and Burns (1977) have confirmed the importance of image-like variables in shopping center patronage.

However, the most significant study on shopping area image thus far has been that of Houston and Nevin (1980). In their study of the downtown area and four shopping centres on 16 image items, Houston and Nevin used factor analysis to identify three major dimensions or factors of shopping area image. The first factor consisted of six items -- quality of stores, variety of stores, merchandise quality, product selection, special sales/promotion, and great place to spend a few hours -- which were related to the assortment of benefits offered by the area. The second factor (6 items) consisted of features that helped to ease the shopping effort -- parking facilities, availability of lunch/refreshment, comfort areas, easy to take children, layout of area, and special events/exhibits -- and was named the facilitative nature of the area. The third factor (4 items) -- general price level, atmosphere, store personnel, and conservative -- were associated with positioning of the area as an integrated complex of stores, and was named market posture.

Some Areas of Concern

There are several areas of concern that still need to be addressed with regard to the study of shopping area image. The first concern involves the appropriateness of applying the items drawn from the store image literature to that of shopping area research. Houston and Nevin (1980) developed their scale from a review of earlier store image research and discussion with shopping center managers. Whether the items were appropriate, especially in the eyes of the consumers, were not considered. This limitation was clearly recognized by Howell and Rogers (1980). Thus, to begin

with, it may be more appropriate to sample a wider domain of items, especially at such an exploratory level, in order to have a better understanding of the underlying dimensions of shopping area image.

The second concern involves the issue of familiarity. Acito and Anderson (1979) found that image was more differentiated, better articulated and of higher dimensionality for recent shoppers compared with non-recent shoppers of a retail store. The same concern was shared by Hirschman (1981). In essence, image research that is based on ratings by consumers without taking into account the extent of their familiarity with the stores or areas is not likely to provide meaningful results that managers can act upon. For example, can one rely on the ratings of consumers, whether favorable or unfavorable, if they have never been to particular shopping areas, or only been there once or twice a year? When one considers that respondents are typically asked to react to some 15 to 20 items on the image scale, the problem is further compounded. It can be argued that the image of a shopping area may be more complex than that of a single store, since a shopping area is a conglomerate of different kinds of stores that offer a wide variety of products and services. In fact, in a recent study, Wee (1985) found that the factor analytic structure of the image scale for a shopping area differed with regard to recency effects and the size of the shopping area. Thus, the need for the consumer to be familiar with the shopping area is crucial to any assessment of its image.

Finally, the relationship between shopping area image and patronage behaviour, especially in terms of actual consumption behavior like number of trips made and the amount of expenditure spent at the area, needs to be better established. The findings by Nevin and Houston (1980) should not be taken as conclusive in that they included a variable on preferred store, measured in a dichotomous basis, in their study. To the extent that the image of a shopping center is correlated with the image of that store (whether or not shopping center image actually exists), the significance of shopping center image will lessen. Thus, it is possible for a shopping center image to exist and help determine shopping behavior, yet emerge as insignificant from Nevin and Houston's analysis.

The Study

The purpose of this study is to focus on the relationship between shopping area image and patronage behavior by taking into account the need to develop an appropriate shopping area image scale and to ensure that shoppers are familiar with the area before they are asked about its image. To this end, data was obtained from a large scale study that was designed to obtain information on the shopping behavior of consumers in London (a mid-size city with a very well-developed public transportation system), Canada. The study required the respondent to complete an eight-page questionnaire that included questions on the image of the downtown shopping area, and to keep a two-week diary that recorded information on shopping trips and expenditures to that area. Based on the results of two pilot studies, it was decided that principal shoppers, who in most cases may be females, would be the subjects of this study. Thus, initial contact letters, personally addressed to the female heads of households whenever possible, were mailed to 2070 residences in the city. A telephone call followed a few days after the letter. Of the 1269 principal shoppers reached by telephone, 823 agreed to participate in the study and a total of 679 returns were received. Of these, 482

respondents completed both the questionnaires and diaries and they formed the usable data-base sample. The return rate was equivalent to 58.6% of those who agreed to participate or 38.0% of those reached by telephone. Considering the level of difficulty of the survey instruments, the return rates were considered very satisfying.

To overcome the familiarity issue, only those respondents (n=479) who had ever been to the downtown area were considered for the analysis. The respondents represented a cross-section of residents in the city in that they did not differ from the original sampling frame by postal region. In addition, consistent with prior expectation, 91.3% of the principal shoppers were females and only 51.3% were employed. Non-response bias was determined in two ways. For those people who refused to participate in the study, three demographic questions on age group, educational level and years living in the city were asked over the telephone. The results of the difference of means test of the non-participants against the data-base sample showed that there were no significant differences with regard to the length of residence in the city and the education level. The only significant difference was that of age. Considering the nature of this study, the results were not surprising as older people tend to have more difficulties with their seeing and writing capabilities and thus tend to shun away from participating (Dillman 1978, p.53). In fact, the refusal rate was 42.1% for those people over 55 years of age.

As this study involved completion of both the questionnaire and diary, non-response bias was further assessed between those respondents who completed only the questionnaire versus the data-base sample. Comparison between these two groups were made along 7 criteria -- age, education, Siegel's (NORC) job prestige scale, income, years of living in the city, years living at the present address, and the number of shopping areas visited over the last three months. The only significant difference, using the difference of means test, between these two groups, at the conventional 5% level of significance, was that of educational level. Again, this result was not unexpected. It was possible that those participants with lower level of education had more difficulty in responding to both the questionnaire and diary.

Taking into account that there were no significant differences within each of the two sets of comparisons that were discussed above, it was concluded that non-response bias was not a serious problem in this study.

Development and Testing the Image Scale

To begin with, the number of items in the image scale were developed from several sources. A list of items was first drawn from a literature review of store and shopping area image research. Three "experts", consisting of the author, another doctoral student, and a professor then discussed and evaluated the items. The list of items were then pilot tested on a group of 6 retailers in the downtown area and a group of 8 consumers (6 females and 2 males). A focus group interview was conducted where among other items in the questionnaire, the image scale items were discussed among the 8 consumers and the three experts. This led to editing, purification and improvement in the scale. The improved scale of items was then tested on the same 6 retailers and another 7 female consumers. Another consumer focus group interview was conducted and the scale was purified and edited further. This finally resulted in a list of 31 items for the image scale which could be considered to have content and face validity, or intrinsic validity (Nunnally 1978, p.91-94 Guilford

1954, p.400). It is also important to point out that a 5-point Likert type scale was adopted after taking into account various factors that could affect a scale construction (Andrews 1982), and that 15 of the 31 items were stated negatively to prevent response style bias.

Upon collection of data, the domain sampling model (Nunnally 1978, p.193-200) was used to purify the scale further. However, as all the items were highly inter-correlated, no item was eliminated from the scale. The internal consistency of the items in the image scale was further checked by the Cronbach's coefficient alpha (Cronbach 1951) which was 0.82.

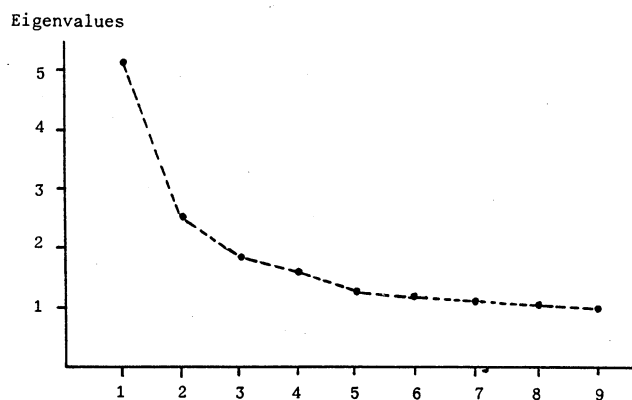
Factor Analytic Solution of Image Scale

Factor analysis was next carried out on the image scale to determine the component structure. R-factoring with principal component analysis was used and the obtained factors were rotated using the varimax method. Using the criterion of meaningfulness advocated by Gorsuch, and also shared by Cattell (1979, p.485), those items that did not have a factor loading of at least 0.30 on any factor were eliminated. In addition, those items that loaded heavily on more than one factor were also eliminated (Gorsuch 1983, p.210; Churchill 1979). Applying these two criteria resulted in 4 items been removed from the scale, leaving 27 items.

With regard to the number of factors to be extracted, two criteria were considered. Using the roots criterion (eigenvalues greater than 1), a maximum of 9 factors would be extracted. However, the roots criterion is only accurate when the number of variables is small to moderate and the communalities are high. When large number of variables are involved, the roots criterion becomes inaccurate (Gorsuch 1983, Ch.8; Stewart 1981). A better procedure for extracting factors is that of Cattell's scree test (Cattell 1979, Ch.5). The scree plot, however, did not provide a very clean break in the "elbow", and suggested a possible 3 or 4 factors. However, taking into account that the final conclusions of a factor analysis are likely to be more distorted by underfactoring than over-factoring (Cattell 1979, p.55), 4 factors were extracted (see Figure 1).

FIGURE 1

CATTELL'S SCREE PLOT OF IMAGE SCALE



The plot suggests that it is more adequate to extract four factors.

TABLE 1
COMPONENT IMAGE SCALES

ITEM	DESCRIPTION	Item- Total Corr.	Alpha If item Deleted
<u>Factor 1: Assortment Factor</u>			
1	An interesting place to shop	0.534	0.700
2	Has everything I need	0.507	0.701
4	Place to find out new and fashionable	0.507	0.702
6	Has greater store selection	0.605	0.683
7	Has better eat and drink places	0.314	0.741
16	Has enough major stores	0.329	0.749
27	Stores have better product selection	0.472	0.710
RELIABILITY COEFFICIENT ALPHA (7 items)		0.74345	
<u>Factor 2: Facilitative Factor</u>			
5	Is place to shop with children	0.403	0.682
13	Has enough parking	0.412	0.680
18	Is safe place to be	0.328	0.695
19	Is easy to get to by car	0.336	0.695
20	Has convenient washrooms	0.360	0.690
24	Parking is not too expensive	0.370	0.688
25	Stores are not too spread out	0.423	0.678
28	Easy to park where I shop	0.501	0.664
31	Merchandise prices are lower	0.329	0.696
RELIABILITY COEFFICIENT ALPHA (9 items)		0.71033	
<u>Factor 3: Maintenance Factor</u>			
3	Is not old and tired	0.356	0.619
9	Has good lighting	0.369	0.615
10	Is well-planned	0.498	0.575
11	Is clean and well maintained	0.336	0.624
12	Has attractive landscaping	0.363	0.617
14	Has convenient public phones	0.265	0.645
29	Has enough direction information	0.353	0.620
RELIABILITY COEFFICIENT ALPHA (7 items)		0.65267	
<u>Factor 4: Operational Factor</u>			
22	Salespeople care more	0.247	0.584
23	Store hours are convenient	0.355	0.517
26	Visited when weather is bad	0.458	0.432
30	Visited when short of time	0.395	0.477
RELIABILITY COEFFICIENT ALPHA (4 items)		0.57823	
TOTAL SCALE (27 items) ALPHA		0.81957	

The newly identified component scales are shown in Table 1. The first factor contained 7 items that were related to the total product and service offerings of the area, and was accordingly named assortment factor. The second factor had 9 items that were related to making the area more attractive to the shopper by its supportive facilities; that is, they were variables that helped facilitate the competitiveness of the area. Accordingly, it was named facilitative factor. The third set of 7 items were related more to maintaining the competitiveness of the area, and hence was appropriately called maintenance factor. Finally, the last set of 4 items were related to the day-to-day operations of the area, and was named operational factor. The coefficient alphas of these four factors ranged from 0.58 to 0.74.

Construct Validity of Scale

The best way to test construct validity would have been the multi-trait, multi-method matrix (Campbell and Fiske 1959). However, available resources did not permit the application of this method in the design and development of the instruments. Another acceptable way to test the adequacy of the outline of a domain relating to a construct is to determine how well the measures of observables "go together" in empirical investigations (Nunnally 1978, p.100). In this case, the construct validity of the image scale can be tested empirically by

determining how well the item scores correlate with one another. Thus if all the measures purportedly measure the same construct, they should be highly correlated or in Blalock's (1968) term, an "epistemic correlation." In addition to high correlations, the series of items should also display internal consistency. Coefficient alpha is useful for this purpose because it provides both a summary measure of the homogeneity of a set of variables and an estimate of the reliability of alternative forms of the instrument.

TABLE 2
EVALUATION OF CONSTRUCT VALIDITY OF IMAGE SCALE

Item	Description	Item- Total Corr.	Squared Multiple Corr.
1	An interesting place to shop	0.431	0.396
2	Has everything I need	0.383	0.310
3	Is not old and tired	0.358	0.223
4	Place to find out new and fashionable	0.316	0.345
5	Is place to shop with children	0.378	0.251
6	Has greater store selection	0.495	0.415
7	Has better eat and drink places	0.231	0.179
8	Does good job advertising	-	-
9	Has good lighting	0.366	0.269
10	Is well-planned	0.457	0.322
11	Is clean and well maintained	0.253	0.214
12	Has attractive landscaping	0.266	0.185
13	Has enough parking	0.316	0.283
14	Has convenient public phones	0.311	0.166
15	Has better entertainment places	-	-
16	Has enough major stores	0.380	0.205
17	Is easy to get to by bus	-	-
18	Is a safe place to be	0.370	0.190
19	Is easy to get to by car	0.312	0.214
20	Has convenient washrooms	0.380	0.239
21	Is not like other shopping area	-	-
22	Salespeople care more	0.216	0.184
23	Store hours are convenient	0.422	0.280
24	Parking is not too expensive	0.242	0.246
25	Stores are not too spread out	0.473	0.319
26	Visited when the weather is bad	0.256	0.304
27	Stores have better product selection	0.361	0.308
28	Easy to park where I shop	0.384	0.356
29	Has enough direction information	0.409	0.224
30	Visited when short of time	0.238	0.275
31	Merchandise prices are lower	0.348	0.215
RELIABILITY COEFFICIENT ALPHA (27 Items)		0.8196	
DETERMINANT OF CORRELATION MATRIX		0.0051	

Table 2 provides very strong support that the image scales used in this study had considerable construct validity. Overall, the high inter-item correlations were reflected by the very low value in the determinant of the correlation matrix of 0.0051. This was further supported by the fairly high item-total correlations and the respective squared multiple correlations, where the majority of the values was over 0.30. The coefficient alpha for the final total scale was 0.82 giving credence to support the fact that all the image items were related to a single underlying construct.

Image Effect on Shopping Behaviour

The summated scores of each of the four components of the image construct -- the assortment factor (7 items), the facilitative factor (9 items), the maintenance factor (7 items) and the operational factor (4 items) -- were then used to determine the relationship between image and shopping behaviour. Stepwise regressions were used and the results are shown in Table 3. Only two out of four factors -- the operational and facilitative factors -- were significantly loaded in the final equation for both the trip and expenditure data. For the trip data, the operational and facilitative factors accounted for an adjusted R-square of 0.162. The same two factors accounted for an adjusted R-square of 0.118 for the expenditure data.

TABLE 3

IMAGE EFFECTS ON SHOPPING TRIPS AND EXPENDITURE.

STEPWISE REGRESSION						
Step	Variable Entered	T to Enter	Significance	R ²	Adj. R ²	Overall F*
TRIPS						
1	Operational Factor	9.18	0.0000	0.149	0.148	84.30
2	Facilitative Factor	2.99	0.0029	0.165	0.162	47.33
EXPENDITURE						
1	Operational Factor	7.50	0.0000	0.105	0.103	56.19
2	Facilitative Factor	3.07	0.0022	0.122	0.118	33.31

VARIABLES IN FINAL EQUATIONS					
Variable	B	SE B	Beta	T	Sig. T
TRIPS					
Operational Factor	0.026	0.004	0.338	7.54	0.0000
Facilitative Factor	0.006	0.002	0.134	2.99	0.0029
Constant	-0.071	0.045		-1.57	0.1165
EXPENDITURE					
Operational Factor	0.025	0.004	0.272	5.93	0.0000
Facilitative Factor	0.007	0.002	0.141	3.07	0.0022
Constant	-0.040	0.054		-0.73	0.4641

VARIABLES NOT IN THE EQUATIONS					
Variable	Beta In	Partial	Min. Toler.	T	Sig. T
TRIPS					
Assortment Factor	-0.084	-0.084	0.787	-1.84	0.0661
Maintenance Factor	-0.054	-0.051	0.724	-1.13	0.2608
EXPENDITURE					
Assortment Factor	-0.023	-0.023	0.787	-0.50	0.6166
Maintenance Factor	-0.053	-0.050	0.724	-1.09	0.2774

* Significant at 0.0000 level

In terms of explanation, the operational factor was clearly the more dominant factor as it entered the regression equation first in both cases and also had a much higher beta value. It was at least 2.5 and 2.0 times as great as the effect of the facilitative factor for the trip and expenditure data respectively. In both regression equations, the two factors were highly significant as indicated by the T-values.

Discussion and Implications

In terms of the image construct, it is interesting to note that the assortment and facilitative factors of the image scale contain items that are very similar to those of Nevin and Houston (1980) study. However, the maintenance and operational factors contain very different items. The results confirm remarks made by Lindquist (1974-75) and other researchers about the complexity of the image construct. More importantly, the maintenance and operational factors in this study contain items that tend to reflect more the characteristics of a shopping area, and underline the importance of sampling a wider domain of items in a shopping area image study.

What has made earlier image research practical, acceptable and useful is that the findings have been applied to the positionings and development of marketing strategies by stores and shopping centers. The underlying assumption is that image can affect patronage behavior. This study provided the empirical evidence to support the impact of image on shopping trips and expenditure. It also confirmed the predictive validity of the shopping area image scale that was developed for this study. What was interesting, however, was the type of image components that were significant or insignificant in predicting and explaining shopping behavior. The assortment factor which represented the

"product and service offering" of the area and the maintenance factor were both not significant in affecting patronage behaviour. There are intuitive reasons for the lack of affects of these two factors. In general, shoppers may take for granted that for a large shopping area like downtown, it has to have a large assortment of stores and services. Therefore, because of this expectation, the assortment component of the image scale will not become a discriminating factor for visiting the area. Similarly, the downtown is generally the "heart" of the city, and shoppers may expect that it should be well kept and maintained. As such, this could possibly explain for the lack of effects of the maintenance factor.

The two image components that significantly affected shopping behaviour were operational and facilitative factors. In particular, the operational factor was at least twice as important as the facilitative factor in explaining patronage behaviour. Therefore, improving the operational factor should be an important element of a downtown strategy. This can include extending the store hours as well as providing some protection against the elements of nature. For example, building canopies along sidewalks may be a good approach to take. In the long run, it may be worthwhile to consider providing internal linkages within the whole downtown core so as to enable it to be marketed as a truly integrated shopping area.

Many of the items within the facilitative factor relate to making downtown a more attractive shopping area. Creating a more congenial environment for shopping, such as providing more common facilities like washrooms and children's play areas should help increase the level of patronage. In particular, there were three items representing parking. Improving the parking situation should help the business in downtown. This can be done in many ways. For example, merchants can help absorb part or all the parking costs of customers who made purchases at the stores. Lobbying the City officials for more parking spaces in downtown as well as extending the time on street parking meters may help. More importantly, there should be enough parking spaces near to where customers are shopping. In addition, in any future expansion or renovation in downtown, parking should be a key consideration in any building plans.

Limitations and Future Research

This study is not without weaknesses. By focusing only on one shopping area, it is impossible to infer what attributes determine a consumer's choice among various shopping centers. Although it has been shown that there is a relationship between patronage behavior and the image of a particular shopping area, it is difficult to know if the presence/absence of other shopping areas (and their images) would have affected the results.

Image, in terms of the operational and facilitative factors, only accounted for 16% and 12% of the variance of shopping trips and expenditure respectively. There remains a large proportion of variance not explained by the image construct. Variables like the size of the shopping area, the distance of the shopper's home to the shopping area, the presence or absence of large well-known stores, travel mode attributes, and other situational factors may be useful predictors to include in future studies. In fact, some studies have shown that the size of the shopping area and the distance to it can affect patronage behavior (for example, Gautschi 1981; Wee and Pearce 1985).

There are several other questions that remain to be answered with regard to research on retail images. For example, to what extent does the image of a store influence the image of a shopping center, and vice versa? So far, there have been no study on this. Does shopping center image influence some consumers more than

others? Within the same consumer, does shopping center image influence him/her more in some situations than others? In other words, does image have situational effects? Finally, do consumers form similar images of different stores (branches) that belong to the same company, that is, can image be transferable? These are worthwhile avenues for future research.

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RELATIONSHIPS BETWEEN AFFECT, PATRONAGE FREQUENCY AND AMOUNT OF MONEY
SPENT WITH A COMMENT ON AFFECT SCALING AND MEASUREMENT

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Abstract

This paper investigates relationships between affect, patronage frequency and amount of money spent for three retail stores: Sears, K-Mart and Wards. Predictions for a statistically significant relationship between affect, patronage frequency and spending were supported. Examination of two different scaling techniques, modified semantic differential and graphic, yielded no statistically significant differences.

Introduction

The concept of affect has been widely researched and discussed in psychology, but, more recently, has been introduced into the consumer behavior literature. In the psychology literature, affect has often been conceptualized as a "positive mood state" and treated as an experimental (manipulated) variable. In this context, a "positive mood state" has been associated with a variety of different variables, including: an increased propensity to engage in helping social behaviors and being more generous (Berkowitz 1972, Isen 1970, Isen and Levin 1972); reducing risk taking behaviors (Isen and Patrick 1983); reducing hostility in negotiations (Carnevale and Isen 1983); more positive expectations, evaluations and judgments of stimuli (Isen and Shalke 1982, Isen, Shalke, Clark and Karp 1978, Schiffenbauer 1974); increased efficiency in decision-making (Isen and Means 1983); and, a tendency to discriminate less among categories (simplified decision-making), increased memory and more creative problem solving (Isen 1984).

In an atypical study that investigated "negative mood states," Johnson and Tversky (1983) found that a report of a tragic event produced a strong increase in estimates of the frequency of risks and other undesirable events. They concluded that people tend to make judgments compatible with current mood, even if the subject matter is unrelated to the cause of the mood.

What the psychological research suggests is that "affect matters." It matters for cognitive processes, decision-making processes and results, as well as behavior. Indeed, interest in the processes by which happiness leads to helping behaviors produced studies concerning the influence of affect on decision-making and other cognitive processes (Isen 1984).

The potential implications for consumer behavior are self-evident and, hence, have inspired the interest of consumer behavior researchers in new directions for the study of affect. Until recently, affect studies in consumer behavior have focused on affect as a component of attitude rather than as a global measure of "feeling."

Affect and Consumer Behavior

A number of conceptual articles discussing affect have appeared in the consumer behavior literature. Cacioppo, Losch, Tassinari and Petty (1984) view affect as a "... system with motivational, perceptual, cognitive, physiological, motor expressive and subjective manifestations," and point out that by focusing solely on the "cognitive" consumer, researchers overlook potentially predominant,

although crude, forces on consumer behavior. Zajonc and Markus (1982) also present the thesis that affective factors potentially play an important role in the development and maintenance of preferences relevant to consumer behavior. Others have discussed the role of affect in categorization (Cohen 1982), the difficulties of measuring the cognitive neuropsychological effects of affect (Ray and Batra 1983) and measurement aspects of manipulating and assessing buyers' moods (Gardner 1984).

Empirical investigations of affect (as an experimental variable) in the marketing and consumer behavior literature have been relatively few. (The discussions of the difficulties of measurement and manipulation are not unfounded.) Yet, the consumer research studies that have treated affect as an experimental variable have tended to support predictions parallel to the findings in psychology.

For example, Gorn (1982, experiment one) found that subjects were more likely to choose a pen that had been accompanied with "liked" music than "disliked" music. In a second experiment, Gorn's (1982) subjects selected a pen advertised with attribute information when they were in a high consequence condition, but chose the pen advertised with music when they were in the low consequence condition. Thus, it was concluded that affect influenced choice more strongly than information when the situation was of low consequence.

These results are consistent with those that would be predicted with Petty and Cacioppo's Elaboration Likelihood Model of attitude change (Petty, Cacioppo and Schumann 1983). This model views simple affective cues as being more powerful determinants of attitudes when motivation and/or ability to process issue-relevant information is low (the peripheral route).

In a series of studies, Srull (1983) manipulated mood states and found that positive mood states lead to more favorable product evaluations at the time of information acquisition. A contrast effect of judgments occurred when the mood state at the time of retrieval was inconsistent with the major evaluative implications of the stimulus information. This appears to be due to a tendency to recall more items inconsistent than consistent with mood at the time of retrieval.

In another paper, Srull (1984) reported a study that manipulated mood and distinguished between computational and retrieval information processing objectives. Affective (mood) states had a direct effect on product evaluations for persons in computational (figuring out their evaluations), but not retrieval (recalling evaluations) situations.

Moore and Hutchinson (1983) studied the relationships between affective reactions to advertising and advertising effects. Immediately after exposure to print advertisements subjects had greater change in brand consideration as affective reactions became more positive. This same effect occurred for measurements taken two days after exposure; however, after a seven day delay, products associated with advertisements eliciting positive or negative affect showed greater change in brand considerations than did neutral advertisements. Thus, at least for some situations, over time the "positive affect effect" may converge to have the same impact as "any affect effect" (excluding neutrality). (Final implication added by these authors, not Moore and Hutchinson.)

¹This research was sponsored by a grant from the New York University Institute of Retail Management.

Response categories provided were: Never (1), Once a year or less often (2), Two to six times a year (3), Seven to twelve times a year (4), Two to three times a month (5), and Once a week or more often (6). Respondents wrote their response in the space provided beside the names of Sears, K-Mart and Wards.

The second behavioral measure investigated the amount of money spent at each of the three stores during 1983. Respondents were asked, "Approximately how much did you spend at Sears, K-Mart and Wards during 1983?" Again, responses were written in a space provided by the name of each store.

The questionnaire was pre-tested on a small convenience sample of individuals under actual field conditions. Minor wording changes were made for clarity.

Data Collection and Sample Description

A sample frame of 1600 adults from a nationwide consumer mail panel was selected to represent sex, region, population density and demographic criteria proportionate to the population of the United States.

The cover letter instructed the panel member to fill out the questionnaire him/herself in half the mailings with the other half of the cover letters instructing the panel member to ask his/her spouse to fill out the questionnaire. Thus, an attempt was made both in the administration and sample selection to balance the sample by sex (due to the larger number of females likely to respond). Subjects were randomly assigned to one of the four treatment combinations.

Questionnaire returns were terminated six weeks after mail-out. The final sample consisted of 894 usable surveys resulting in a response rate of 56 percent. Approximately twenty surveys were not usable.

More women (58.8 percent) returned the survey than did men (41.2 percent). The annual household income distribution for the sample was: 29.3 percent earned less than \$15,000 a year, 28.2 percent earned between \$15,000 and \$24,999 a year, 26.3 percent earned between \$25,000 and \$39,999 a year, and 16.2 percent earned \$40,000 or more a year. Approximately ten percent (10.4) of the sample had less than a high school education, 39.4 percent had graduated from high school, 25.1 percent had some college, and 25.1 percent had four years of college or more. Respondents represented the following geographical regions: New England (6.0 percent), Middle Atlantic (16.1 percent), East North Central (18.5 percent), West North Central (8.7 percent), South Atlantic (16.9 percent), East South Central (6.4 percent), West South Central (9.7 percent), Mountain (5.8 percent), and Pacific (11.9 percent). Thus, the sample represented a cross-section of the United States' population.

Preliminary Data Analysis

The preliminary analysis involved a two-way analysis of variance to determine the effect of scale type (semantic differential or graphic) and affect placement (before or after image) on affect ratings for each store separately. There were no significant main or interaction effects for any of the three stores (within an alpha level of .12). Thus, the format and positioning of the affect scales did not influence responses at a statistically significant level and the four treatments were collapsed for the remaining analyses.

Analyses and Results

In order to determine the pairwise relationships between affect, patronage frequency, and dollar amount spent at each store, Pearson correlations were calculated as indices of linear association. All of the pairwise correlation coefficients were significant within an alpha level of .01 for all three stores, as presented in Table 1.

Since the numerical values assigned to question responses

represent ranked categorical data, the treatment of these data as interval through Pearson correlations may tend to "artificially deflate r and systematically underestimate ρ " (Peterson 1982, p. 494). That is, the relationships may actually be "stronger" than these results represent.

The correlations between affect and patronage frequency and between affect and dollar amount spent include the total sample. However, because of the built in association between patronage frequency and dollar amount spent (no patronage, no spending), the "never shop" subjects were eliminated from the analyses.

TABLE 1
RESULTS OF PEARSON CORRELATIONS

Variables Correlated	r	r^2	d.f.
Affect with Patronage Frequency			
Sears	.46	.21	836
K-Mart	.54	.29	811
Wards	.53	.28	684
Affect with Amount of Money Spent			
Sears	.26	.07	783
K-Mart	.26	.07	761
Wards	.34	.12	583
Patronage Frequency with Amount of Money Spent			
Sears	.40	.16	760
K-Mart	.37	.14	732
Wards	.49	.24	447

As can be seen from inspection of Table 1, there is a considerable amount of consistency across stores within each of the three pairwise correlations. The strongest relationship emerges for affect and patronage, followed by patronage frequency and the amount of money spent. The association between affect and amount of money spent is not as strong as the other two relationships (lower explained variance).

In order to further investigate the relationship of affect and behavior, the data were submitted to partial correlation analyses with each of the behavioral measures treated as a partial. The subjects who never shopped at a store were eliminated from these analyses (for each store separately). The results of the partial correlation analyses are reported in Table 2.

TABLE 2
RESULTS OF PARTIAL CORRELATION ANALYSIS

Variables Correlated	Partial r	r^2	d.f.	p
Affect with Dollars (controlling for patronage frequency)				
Sears	.10	.0100	759	.003
K-Mart	.08	.0064	731	.017
Wards	.07	.0049	446	.070
Affect with Patronage Frequency (controlling for dollars)				
Sears	.35	.1225	759	.001
K-Mart	.45	.2025	731	.001
Wards	.45	.2025	446	.001

The results presented in Table 2 further support the relatively strong relationship between affect and patronage frequency and the very weak relationship between affect and amount of money spent. Although the partial correlations for Sears and K-Mart are statistically significant,

the amount of explained variation between affect and amount of money spent (controlling for patronage frequency) is virtually negligible. In contrast, the proportion of variability in affect associated with variations in patronage frequency (controlling for amount of money spent) is relatively substantial and consistently statistically significant for all three stores.

The data were submitted to a series of one-way analyses of variance to determine patterns of affect and expenditure means according to patronage groups. These analyses provide additional insight into the relationship between affect and patronage and patronage and dollar amount spent and treat the patronage frequencies as categorical data (as opposed to metric as in the correlational analyses).

The tabulation below presents the sample distribution of patronage frequency by store.

	Sears	K-Mart	Wards
Never	32	61	276
Once a year or less	120	82	224
Two to six times a year	309	174	155
Seven to twelve times a year	241	213	100
Two to three times a month	151	241	44
Once a week or more often	31	106	8

Wards is characterized by relatively infrequent shopping patterns, as can be seen from the number of subjects who "never" shop there (approximately one-third). More subjects actually shopped at Sears with some degree of frequency than either at Wards or K-Mart; however, K-Mart evidenced the highest frequency of shopping patronage (approximately one-third of the sample shopped there two to three times a month or more often). Only eight subjects said they shopped at Wards once a week or more often. The results for this cell are problematic statistically; however, the cells were not collapsed in order to preserve the consistency of calibrations across stores. Paired comparisons for this cell will be presented but should be interpreted with extreme caution.

As is shown in Table 3, there is a statistically significant effect of patronage frequency on both affect and dollar expenditures for all three stores. The F-ratio for all one-way ANOVAS were highly significant (within an alpha level of .01). Again, the analyses for affect and patronage frequency included all the subjects and analyses for patronage frequency and amount of money spent included only subjects who shopped at the store (i.e., eliminating the "never shop" subjects for each store).

TABLE 3
RESULTS OF ONE-WAY ANALYSES OF VARIANCE
FOR PATRONAGE FREQUENCY GROUPS

Dependent Variable	Store	M.S. Between	M.S. Within	F-Ratio	Eta Squared
Affect	Sears	134.45	2.65	50.81	.23
	K-Mart	161.72	2.43	66.44	.29
	Wards	147.09	2.54	57.84	.30
Dollars	Sears	8929440.91	209785.67	42.57	.22
	K-Mart	5218529.68	166492.32	31.34	.16
	Wards	3499463.20	91543.96	38.23	.25

Degrees of Freedom (between, within): Sears affect=5,832; K-Mart affect=5,807; Wards affect=5,680; Sears dollars=4,791; K-Mart dollars=4,763; Wards dollars=4,468.

Table 4 displays the mean affect and dollars spent by patronage frequency category. The letters that "match" beside the mean ratings indicate means that are significantly different from each other at the .05 level of alpha. These are the results of a Duncan's Multiple Range Test for each paired comparison.

TABLE 4
MEAN RATINGS AND RANGE TEST
FOR ANALYSES OF VARIANCE RESULTS

Patronage Frequency	Mean Affect Rating		
	Sears	K-Mart	Wards
Never	1.88 ^a	2.39 ^a	2.39 ^a
Once a year or less	3.18 ^{ab}	3.35 ^{ab}	2.89 ^{ab}
Two to six times a year	4.41 ^{abc}	4.12 ^{abc}	3.83 ^{abc}
Seven to twelve times a year	5.17 ^{abcd}	5.02 ^{abcd}	5.11 ^{abcd}
Two to three times a month	5.53 ^{abcd}	5.53 ^{abcde}	5.07 ^{abcde}
Once a week or more often	5.86 ^{abcde}	6.30 ^{abcde}	6.38 ^{abcde}

Patronage Frequency	Mean Dollars Spent		
	Sears	K-Mart	Wards
Once a year or less	98.75 ^a	40.15 ^a	38.03 ^a
Two to six times a year	237.37 ^{ab}	121.73 ^b	171.26 ^{ab}
Seven to twelve times a year	478.53 ^{abc}	249.33 ^{abc}	394.15 ^{abc}
Two to three times a month	650.03 ^{abc}	378.16 ^{abcd}	531.46 ^{abc}
Once a week or more often	727.13 ^{ab}	600.35 ^{abcd}	501.25 ^{ab}

The results presented on Table 4 indicate that people do what they "like." Clearly, the relationship between affect and patronage frequency is a strong one, as evidenced by the amount of variation in affect ratings explained by shopping frequency (Table 3). Further, in terms of paired mean differences, forty-three out of forty-five mean affect comparisons were significantly different from each other.

The same strength and direction of relationship results from the association between dollar amount spent and patronage frequency. Twenty-five of thirty possible paired mean comparisons were significantly different from each other. The conventional wisdom that "the more people come into your store the more they spend" appears to hold.

Conclusions and Implications

The results indicate that all three hypotheses were supported for each retail store. There were statistically significant relationships between affect and patronage (Hypothesis 1), affect and dollar amount spent (Hypothesis 2), and between patronage and dollar amount spent (Hypothesis 3). In addition, there were no statistically significant differences between the two scaling techniques for affect: semantic differential and graphic positioning.

Thus, a single item, global measure of affect was a fairly strong predictor of shopping frequency for a heterogeneous sample of consumers, validated across three retail stores, and supported by results with a relatively high amount of explained variance. However, with respect to the relationship between affect and dollar amount spent, although statistically significant, the explained variance is negligible. Patronage frequency appears to have a stronger relationship with dollar amount spent than does affect. People do, indeed, shop where they like and like where they shop.

This study measured affect on a continuum from dislike to like. Since affect may be conceived as a "system" that "lends its power to memory, to perception, to thought and to action no less than to drives," (Tomkins 1984, p. 164) there are many other "affective states" (beyond liking) appropriate for consumer behavior measurement (or manipulation). This research does suggest, however, that a single, easily applied measure of affect (operationalized as like/dislike) can contribute to explaining a reasonably "large" amount of variation in behavior.

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A TYPOLOGY OF CONSUMER KNOWLEDGE CONTENT

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Abstract

It is well accepted that stored knowledge about a domain affects the processing of new information about that domain; however, there is little agreement among consumer researchers on how to measure knowledge. It is argued here that consumer knowledge can be classified and measured by its content. A typology of consumer product knowledge content is proposed, based on a review of the relevant literature. An empirical study finds that this typology is comprehensive, reliable, and able to classify knowledge into empirically distinguishable categories.

Introduction

Stored knowledge about a domain affects the processing of new information about that domain. In one of the earliest studies to demonstrate this effect, de Groot (1965, 1966) found that expert chess players were able to recall mid-game chess positions better than novice chess players. Later research (Chase and Simon 1973a, 1973b) indicated that the experts' superior memory for chess positions was based on their knowledge of prototypical game patterns as opposed to a superior memory in general. Analogous conclusions have been drawn in at least eight other domains: physics, electronics, music, baseball, programming, and the games of Go, Gomoku, and bridge (Chi, Glaser, and Rees 1981). All of these findings indicate that differences in the content and organization of domain-specific knowledge between experts and novices result in differences in the processing and recall of domain-related information.

Recently, several studies have examined the effect of variables related to knowledge (e.g., product class experience, familiarity) on various consumer information processing activities (e.g., Alba 1983; Bettman and Park 1980; Bettman and Zins 1977; Brucks 1985; Edell and Mitchell 1978; Johnson and Russo 1984; Park 1976; Punj and Staelin 1983; Srull 1983; Sujan 1985). With few exceptions, the consumer behavior literature has treated knowledge as a unidimensional variable. However, recent research indicates that knowledge is a complex construct that is characterized by the structure and the content of information stored in memory (Brucks and Mitchell 1981; Hutchinson and Alba 1985; Kanwar, Olson, and Sims 1981). The structure of knowledge refers to how knowledge is represented and organized in memory. The reader is referred to Hutchinson and Alba (1985) for an outstanding review of this topic. The content of knowledge refers to the subject matter of information stored in memory. For example, three types of knowledge content are knowledge about terminology, knowledge about specific brands, and rules for evaluating a new brand. This paper reviews some previous typologies of knowledge content, and proposes a new, more comprehensive typology, which is empirically examined.

An understanding of the composition of knowledge content will aid researchers in developing objective tests of knowledge by indicating what questions need to be asked. Furthermore, a multi-dimensional account of knowledge content may provide a better understanding of consumer behavior if different types of knowledge content affect behavior in different ways.

Background

There are many possible ways to classify knowledge by its content, and in fact, several typologies have been proposed. One early typology was proposed by educational psychologists in an effort to help teachers construct exams that tap all types and levels of knowledge (Bloom et al. 1956). This comprehensive classification system, while developed for an entirely different application,

provides many useful ideas for developing a typology of consumer product knowledge. The relevant portion of this hierarchy is presented in Table 1.

TABLE 1

TYPOLGY OF KNOWLEDGE CONTENT FROM EDUCATIONAL PSYCHOLOGY (BLOOM ET AL. 1956)

1. Knowledge of Specifics
 - 1.1 Knowledge of terminology: knowledge of the referents for specific verbal and non-verbal symbols.
 - 1.2 Knowledge of specific facts: knowledge of dates, events, persons, places, sources of information, etc.
2. Knowledge of Ways and Means of Dealing With Specifics
 - 2.1 Knowledge of conventions: knowledge of characteristic ways of treating and presenting ideas and phenomena.
 - 2.2 Knowledge of trends and sequences: knowledge of the processes, directions, and movements of phenomena with respect to time.
 - 2.3 Knowledge of classifications and categories: knowledge of the classes, sets, divisions, and arrangements that are regarded as fundamental or useful for a given subject field, purpose, argument, or problem.
 - 2.4 Knowledge of criteria: knowledge of the criteria by which facts, principles, opinions, and conduct are tested or judged.
 - 2.5 Knowledge of methodology: knowledge of the methods of inquiry, techniques, and procedures employed in a particular subject field as well as those employed in investigating particular problems and phenomena.
3. Knowledge of the Universals and Abstractions in a Field.
 - 3.1 Knowledge of principles and generalizations: knowledge of particular abstractions that summarize observations of phenomena.
 - 3.2 Knowledge of theories and structures: knowledge of the body of principles and generalizations together with their interrelations that present a clear, rounded, and systematic view of a complex phenomenon, problem, or field.

More recently, other ways to classify knowledge by its content have been proposed. One useful and well-accepted dichotomy distinguishes declarative knowledge from procedural knowledge (Anderson 1976). Declarative knowledge refers to knowledge about concepts, objects, or events. Procedural knowledge, on the other hand, refers to knowledge of rules for taking action. Declarative knowledge is currently believed to be stored in an associative network and organized into schemas, whereas procedural knowledge is believed to be stored and organized into production systems.

The content of knowledge about physics has been examined for physics experts and novices (Chi, Glaser, and Rees 1981). In this study, two graduate physics students (experts) and two undergraduate physics students (novices) were asked to tell everything they knew about a

selected sample of 20 physics concepts. The protocols generated from this task were then analyzed on the basis of knowledge content. The analysis indicated, first, that both experts and novices possessed fundamental knowledge about the basic properties of physics objects (such as "inclined plane"), but the experts possessed a more complete, or detailed, knowledge of these properties, as well as additional knowledge based on the major physical laws affecting the object (such as "conservation of energy"). Second, the experts closely linked explicit problem-solving procedures with declarative knowledge of physical objects in long term memory. Novices showed almost no such linkages. And third, the experts had much more knowledge about the conditions under which the major physical laws are applicable to the object.

To generalize these results to the domain of consumer products, one might expect that both experts and novices possess knowledge about basic properties of a product class, possibly knowledge about which attributes characterize the product class. This knowledge would, however, be more detailed in experts, possibly including knowledge of how attributes are related to each other and how attribute types and levels affect performance. Second, we might expect that experts would have more knowledge about how to choose and buy a product in the domain. And third, we might expect that experts would have more knowledge about how the conditions under which the product will be used would affect the important attributes for evaluation. For example, compared with a novice, a stereo expert would be more likely to know that requirements for sensitivity and selectivity in stereo tuners and receivers differ between rural and urban settings. The discussion above suggests that detailed knowledge of attributes be classified separately from knowledge of the existence of attributes, and that classifications are necessary for procedural and situational knowledge.

Finally, this discussion of possible knowledge content classifications concludes with some notable research from the consumer behavior literature. Hastie (1982) makes a distinction between generic product knowledge and individual product knowledge. Generic product knowledge includes "general information about classes of products, instances exemplifying the products, the existence of different types of products (implying knowledge of correlations between product attributes, such as luxuriousness and gas consumption of an automobile), and information about the attributes or dimensions that are relevant and important in making decisions concerning the products (e.g., the distribution of existing product types along the price dimension)."

Individual product knowledge includes "information such as prices, color, taste, durability, features, etc., of each product. Furthermore, this knowledge structure would include information about relationships among the products. For example, that product X is more expensive than product Y, or that product A and product E are manufactured by the same company."

An approach that focuses on "individual product knowledge" is advocated by Russo and Johnson (1980). They propose that product knowledge be classified by level of inference and whether it is linked by attribute or by brand. Level of inference refers to the degree to which information available in the environment has been processed by the individual and retained in memory. The type of linkage refers to whether individuals link attribute values for each brand by brand or by attribute. In other words, individuals may link all the attribute values for a single brand together or they may link all the brands together for a single attribute. Russo and Johnson's classification scheme appears to be useful in that 80 percent of knowledge statements that had been generated by a knowledge probe fit into the scheme. Bettman and Park (1980) developed a coding scheme for classifying the use of prior knowledge during decision-making. This coding scheme includes brand evaluations, attributes of specific brands, and evaluations of particular levels of attributes.

In this section of the paper a comprehensive typology for consumer product knowledge content is proposed. The typology has continuously evolved over time. An early version, presented in Brucks and Mitchell (1981), was modified after some initial exploratory research. This initial research consisted of obtaining responses from a convenience sample of subjects to the probe "Write down everything you know about [product class]." Products used were microwave ovens, sugar, and aspirin. Analysis of the responses indicated that the typology was not sufficiently comprehensive, i.e., many statements of knowledge did not fit in any of the categories.

Based on this research, a new typology was proposed and a coding scheme developed. As the research described in the following section progressed, it became apparent that some minor changes were needed in this coding scheme. Modifications to the coding scheme (and therefore the typology) were made to satisfy three objectives:

- 1) The typology and coding scheme should be easy to use and seem logical to people who are using the coding scheme.
- 2) The typology should cover as many of the subjects' statements as possible while remaining relatively parsimonious.
- 3) The categories in the typology should be as distinct from each other as possible.

The following typology was developed in an attempt at satisfying the above objectives. It also incorporates many of the ideas from the research previously cited.

1. Terminology refers to knowledge of the meanings of terms used within a domain, for example, knowing that "pronation" refers to heels that turn in while running.
2. Product Attributes refers to knowledge of which attributes are available for evaluating a brand. It includes knowledge of attributes that a person would use in making a decision and also those that she would not use but is aware of their existence. For example, the statement "Some people consider light weight essential in a new running shoe" indicates knowledge of the attribute "weight" whether or not the individual thinks this a relevant attribute for her own decision making.
3. General Attribute Evaluation refers to knowledge of the overall evaluation for an attribute or an attribute level, for example, "I like waffle soles" or "I don't like a heavy shoe."
4. Specific Attribute Evaluation on the other hand, refers to knowledge of specific criteria used to evaluate an attribute, i.e., cut-off points or reference points used to judge how satisfactory an attribute level is, for example, "I won't spend more than 30 dollars." It also refers to how an attribute (or a specific level of an attribute) is related to other attributes and/or performance criteria, for example, "A lightweight shoe doesn't last very long."
5. General Product Usage refers to knowledge of how the product can be used, what characteristics of the usage situation are relevant when a purchase is being considered, and which product characteristics are affected by these usage situation characteristics. Included in this category are normative rules for usage, for example, "You should not wear running shoes to play tennis," and knowledge of how the product class can be categorized based on usage, for example, "There are several types of running shoes: competition shoes, training shoes, track shoes, and cross-country shoes."
6. Personal Product Usage knowledge includes memories of usage experiences, knowledge of memories of usage experiences of personal acquaintances, and knowledge of the salient characteristics of one's own usage situation and

the usage situations of personal acquaintances. For example, knowledge of characteristics of personal usage situations includes such knowledge as "I don't run long distances" or "My sister once wore out a pair of shoes in 3 weeks."

7. Brand Facts refers to knowledge of how brands "score" on an attribute, overall evaluations of a brand, and other brand facts such as comparisons between brands on an attribute. Example are "I'd never wear Adidas" or "Adidas have an antimicrobial sole."

8. Purchasing and Decision Making Procedures refers to knowledge about the purchasing process. Included in this category are memories of personal purchase experiences and also normative models of the purchase process. An example of the former is "I bought my last pair of shoes from Mitchell's Attic." An example of normative knowledge is, "You shouldn't buy the first thing you see."

Notice that categories 1 through 7 versus category 8 represent the distinction between declarative and procedural knowledge (although category 5 also contains some procedural knowledge). Declarative knowledge is further classified as either general product class knowledge (categories 1 through 6) or individual product knowledge (category 7). Within the declarative, general product class knowledge category, the distinctions made were inspired by Bloom et al. (1956), Chi, Glaser, and Rees (1981), and pretest results.

The usefulness of the proposed typology depends on how well these categories characterize a person's total knowledge structure, how well these categories can be measured, to what extent they exist independently of each other, and to what extent they have some differential impact on behavior. The study presented in the following section addresses the first three of these issues.

Empirical Examination of Typology

Specifically, the objectives of this study are:

- 1) to provide a test of the comprehensiveness of the typology,
- 2) to assess the inter-judge reliability of the coding scheme, and
- 3) to provide an estimate of the inter-correlations between the amount of knowledge in each of the categories.

Since this research is concerned with naturally occurring knowledge structures, there were no experimental manipulations of product knowledge. Rather, memory probes were used to elicit existing product knowledge. A relatively unstructured technique was chosen to measure the subjects' knowledge in order to minimize any biases that would result from imposing a preconceived structure. Thus, a free recall procedure was employed using the following memory probe: "I want you to think about purchasing a [product]. Now, tell me everything that comes to mind about [product]." The intent of this probe was to encourage the subjects to produce as much knowledge about the product class as they could. In this regard, the probe is similar to those used by Chi, Glaser, and Rees (1981) and Russo and Johnson (1980).

It was judged unlikely, however, that subjects would recall everything they knew in response to a single probe. Therefore, a double-layered series of probes was used in which subjects were asked to elaborate on each of the points that they had mentioned in response to the general probe. No estimates exist for the reliability of this procedure. The procedure used in this study was modeled after a multi-layered probe method described by Olson (1979). Olson's procedure was designed to measure the structure of stored knowledge in memory, thus his subjects were supposed to verbalize knowledge as it had been stored in memory. In the present study, however, subjects were not limited to reporting knowledge as it

exists in memory. Rather, they were allowed to make inferences and verbalize them during the reporting process. Such inferences have been termed "constructive recall." It was decided to allow constructive recall as well as stored knowledge in this study because it seems to better represent the knowledge that people actually use during decision making than stored knowledge alone. The statements elicited by these probes were classified according to the type of knowledge content as previously defined.

Subjects

The thirty-one subjects participating in this experiment were undergraduate college students. They agreed to participate in return for a three dollar cash payment. Subjects participated in the study individually, and the experimental sessions lasted 50 to 60 minutes on average, although only 20 to 30 minutes were devoted to the data collection described here.

Products

The product chosen was running shoes. This product showed substantial variance in self-reported expertise among a pretest population of 86 students. Running shoes were also considered complex enough to warrant study of knowledge, but not so complex as to create a frustrating task for the more knowledgeable subjects.

Experimental Procedure

At the beginning of each experimental session, the subject was given a practice verbalization task about a different product class--bicycles. This task was used to familiarize the subject with verbalizing her/his knowledge about a product class. The experimenter provided feedback to help the subject understand the desired breadth and depth of the response.

At this point, the tape recorder was turned on and the subject was asked, "I want you to think about purchasing a pair of running shoes. Now, tell me everything that comes to mind about running shoes." When the subject had finished, the subject was asked to elaborate on each of the points he or she had made (which the experimenter had recorded on paper and then read back to the subject one at a time). The entire verbalizing process, including the elaboration, took an average of about ten minutes. Because of tape machine failure, data from 5 subjects were unusable, resulting in a final sample size of 26. The author numbered the subjects' statements on the transcriptions of the audiotapes, and a research assistant classified these statements according to the coding scheme (which may be found in Brucks 1984). The author also coded the first 8 tapes that were transcribed in order to provide an estimate of inter-judge reliability.

Interjudge Reliability

The eight transcribed tapes that were coded by both judges yielded a total of 542 statements and 765 classifications. These 8 tapes represented 42 percent of the statements recorded. The judges agreed on seventy-two percent of the classifications, indicating that the elements in the proposed typology can be consistently identified.

In order to rely exclusively on the coding of one judge, it should be demonstrated that the coding of this judge does not systematically differ from the coding of the other judge. A repeated measures ANOVA was performed in order to test whether the judges systematically used the categories differently (i.e., whether they "favored" different categories). The factors (within-subject) were categories and judges, and the dependent variable was the number of coded pieces of knowledge. Since there were two judges, ten categories, and eight subjects, the ANOVA was computed based on 160 observations on the dependent variable. A significant Category X Judge interaction would imply that the judges were systematically assigning

category codes differently from each other. As Table 2 shows, this effect was not significant.

TABLE 2

ANALYSIS OF VARIANCE FOR NUMBER OF STATEMENTS CODED

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	R
Mean	15073.81	1	15073.81	28.55
Error	3696.04	7	528.01	
Categories	11294.51	9	1254.95	8.92
Error	8864.14	63	140.70	
Judges	1.41	1	1.41	1.81
Error	5.44	7	.78	
Cat x Judge	70.41	9	7.82	.84
Error	589.24	63	9.35	

Fiske and Cox (1979) suggest a measure of interjudge reliability that may be derived from this analysis. They point out that as the Judge X Category mean square error goes to zero, the following expression approaches unity, thus providing a measure of reliability:

$$\frac{\text{MSE (Categories)} - \text{MSE (Judges x Categories)}}{\text{MSE (Categories)}}$$

This formula yields an estimate of reliability of .934 for the present study. This means that although the judges disagreed on category classifications twenty-eight percent of the time, these differences were not systematic.

In order to investigate the possibility that the judges were systematically assigning category codes differently from each other for the most infrequently used categories (which might not be revealed by the above ANOVA), the total number of assigned statements per category for each judge was compared. At most, the student judge's assignments differed from the author's by 29 percent (for General Attribute Evaluation). Based on these results, it was decided to use the coding of the student judge exclusively.

Data Description

In total, 1295 statements were elicited from the 26 subjects. Of these, 65 (or 5.0 percent) were judged by the coder to be irrelevant to running shoes. A typical example of an irrelevant statement is "My parents took my brother to the doctor because he had really bad fallen arches." Eliminating these statements reduced the total number of statements to 1230. The number of relevant statements elicited for an individual varied from 15 to 130. The average was 47.

Composition of Elicited Knowledge

Over 98 percent of the relevant statements were classified into one of the eight categories of knowledge, clearly demonstrating that the typology is sufficiently comprehensive. As the data in Table 3 indicate, knowledge content was more likely to fall into some categories than others. In fact, over 60 percent of the statements were classified as Attribute or Attribute Evaluation knowledge. Almost 40 percent were classified as Specific Attribute Evaluation, indicating a possible need for subdivision within this category. On the other hand, less than one percent of the statements were classified as Terminology knowledge. In contrast to Russo and Johnson (1980), only a small proportion of elicited statements dealt with specific brands. This difference is probably due to the different probes used in the two studies to elicit product knowledge. As Rossiter (1980) noted, the Johnson and Russo probe emphasized brand knowledge.

TABLE 3

COMPOSITION OF KNOWLEDGE FOR RUNNING SHOES

Knowledge Category	Number	Percentage
Brand Facts	72	5.7
Attributes	224	17.9
General Attribute Evaluation	49	3.9
Specific Attribute Evaluation	494	39.4
Purchasing	112	8.9
General Usage	152	12.1
Personal Usage	120	9.6
Terminology	7	0.6
Unclassifiable	24	1.9
Totals	1230	100.0

It may be erroneous to conclude, however, that the frequencies in Table 3 represent the actual amount of knowledge that people have stored in memory in each of these categories. First, the general probe may have produced biases in the types of knowledge elicited. The accessibility of a piece of knowledge is related to how strongly it is associated with the probe (Collins and Loftus 1975). Consequently, a biased assessment of the composition of knowledge may result from the use of a probe that differs in its strength of association with the various types of knowledge content. For example, running shoe terminology may not be as closely associated with buying running shoes as evaluations of running shoe attributes are. Second, the number of statements elicited in a category may not represent the amount of knowledge in that category if information is "chunked" in memory, i.e., if a single statement summarizes a lot of detailed knowledge. This problem was somewhat reduced by the use of the double-layered probe technique and the coding instructions. Specifically, a statement could receive more than one code if it was judged to contain more than one piece of knowledge.

Relationships Between The Knowledge Categories

If the levels of knowledge (i.e., numbers of statements) in each category are highly correlated with each other, the proposed typology would be very limited in usefulness. First, high correlations would signify that a unidimensional measure would be sufficient to assess knowledge content. Second, high correlations would indicate that little benefit would be gained from isolating the effects of each type of knowledge on decision making behavior (since the knowledge variables would rarely occur in isolation). Of course, the knowledge categories are not conceptually independent, so a moderate level of correlation is to be expected.

Table 4 displays the correlations between the number of statements in each category. Of these, nineteen are below .3 and four are between .3 and .5. Only five correlations are higher than .5. The results indicate that these categories of knowledge content are, in general, fairly distinct. Since a few of the correlations are very large, however, it is useful to analyze the pattern of correlations in order to gain some insight into the relationships between the measures of the different categories.

Factor analysis was used to examine these relationships. Since there is no reason to expect the factors to be uncorrelated, an oblique rotation was used. Only those factors with eigenvalues greater than one were selected, resulting in a three factor solution. Direct oblimin was selected as the rotation procedure. A moderate degree of correlation between the factors was specified by the delta parameter. The sensitivity of the solution to this parameter was investigated by altering the delta parameter and refactoring the data. The resulting solutions led to the same conclusions as the

TABLE 4

CORRELATIONS BETWEEN TYPES OF KNOWLEDGE FOR RUNNING SHOES

	Brand Facts	Attributes	General Attribute Evaluation	Specific Attribute Evaluation	Purchasing Procedures	General Usage	Personal Usage
Brand Facts							
Attributes	.002						
General Attribute Evaluation	-.152	.638***					
Specific Attribute Evaluation	-.007	.770***	.544***				
Purchasing Procedures	-.037	.233	.441**	.162			
General Usage	.018	.193	.018	.614***	.001		
Personal Usage	.013	.256	.440**	.256	.680***	.228	
Terminology	.082	-.005	-.004	.367*	-.089	.432**	-.020

Notes

- * Significant at $P < .10$
 ** Significant at $P < .05$
 *** Significant at $P < .01$

TABLE 5

FACTOR PATTERN

	Factor 1	Factor 2	Factor 3
Brand Facts	-.0676	.0936	-.0104
Attributes	.9071	-.0133	-.0318
General Attribute Evaluation	.6273	-.1378	.3016
Specific Attribute Evaluation	.8192	.5235	-.0090
Terminology	.0538	.5501	-.0463
General Usage	.1266	.8083	.1325
Personal Usage	-.0213	.1241	.8420
Purchasing Procedures	-.0067	-.0799	.7855
Eigenvalues	2.9472	1.7151	1.1254
Percent of total variance	36.8	21.4	14.1
Percent Cumulative variance	36.8	58.3	72.3

TABLE 6

CORRELATIONS BETWEEN FACTORS

	Factor 2	Factor 3
Factor 1	.0477	.3804
Factor 2		-.0818

solution presented here.¹ The factor loadings are displayed in Table 5.

Three factors are identified by this analysis. The first factor can be interpreted as a "product attributes" factor, including knowledge of the existence of product attributes and knowledge of how to evaluate specific attribute values. Knowledge of Attributes, General Attribute Evaluation, and Specific Attribute Evaluation load highly on this factor. Three knowledge types load highly on the second factor: Specific Attribute Evaluation, Terminology, and General Usage. These three types are useful to a serious runner who needs to be able to communicate with other runners and choose shoes that will perform well in the various running situations that the serious runner encounters. Specific Attribute Evaluation and General Usage correspond to some of the differences in knowledge between experts and novices found by Chi, Glaser, and Rees (1981). The third factor represents knowledge of a personal nature, the kind of knowledge that is likely to arise directly out of personal experience. Knowledge of Purchasing Procedures and Personal Usage load highly on this factor. Brand Facts did not

¹An orthogonal solution was also obtained, again with very similar results.

load highly on any of the factors.

The results raise some interesting questions concerning how knowledge develops and how the knowledge content of experts differs from that of novices. It appears that consumers learn about product attributes somewhat independently of personal experience with the product. Only serious users of the product may acquire much knowledge of terminology and of the relationship between product usage situations and the appropriate product characteristics. Future research is needed to further explore these issues.

Summary and Conclusions

The coding scheme for knowledge content was found to be sufficiently reliable and comprehensive. In general, the knowledge categories were distinct from each other although there were some notable exceptions. The factor analysis indicates that, for running shoes, there may be fewer than eight empirically separable dimensions of knowledge content. This analysis is limited in generalizability, however, because of the small sample, the limitations of the free-elicitation measurement method, and the characteristics of the specific context of running shoes.

This research indicates that knowledge content is multidimensional, which has two important implications for future research on consumer product knowledge. First, measures of consumer knowledge should include a variety of questions in order to capture the full range of the knowledge construct. For example, Brucks (1985) developed structured and open-ended questions to measure product knowledge based on a modified version of this typology. Second, the different types of knowledge content may have different effects on decision-making and purchasing behavior. For example, knowledge of "Brand Facts" may be used to substitute for external information search, (thus decreasing search) while knowledge of "Terminology" may facilitate external information search (thus increasing search). Future research is needed to address the effects different types of knowledge content on decision-making behavior.

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MEASURING PRIOR KNOWLEDGE

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Abstract

This paper assesses the convergent, divergent and criterion validity of alternate methods of measuring prior knowledge. The context used to study the validity issue is the playing of board games. Evidence is found for all three types of validity for objective test and self-reported knowledge measures of prior knowledge. Usage measures appear to be more problematic.

Introduction

Intuitively, we know that our current behavior is influenced by our prior knowledge of a given area. If we usually buy Sears brand power tools we tend to notice and recall a newspaper advertisement for a Sears power tool sale. This proposition as well as other about the effects of prior knowledge on consumption behavior have been empirically tested. For example, there is a large body of literature examining the impact of prior knowledge on recall and use of new information about products. (See for example Brucks forthcoming and Johnson and Russo 1984). However, one of the major difficulties with this stream of research is the lack of consensus over appropriate methods of measuring prior knowledge.

The objective of this paper is to examine the convergent, divergent and criterion validity of alternate methods of measuring prior knowledge. The context used to study this issue was the playing of board games. One reason games were chosen was that pretesting indicated that there was considerable variance among undergraduates in prior experience with the board games, Monopoly and Life. Another reason was that intrinsically motivated behavior, such as game playing, has been under-investigated in the consumer behavior literature (Holbrook et al., 1984).

Background

First there is a need to develop a good working definition of prior knowledge. The definition we will use is particularly appropriate for this context and has been put forth by a group of psychologists working in the area (Chiesi, Spilich and Voss 1979). They view "knowledge of a domain as an understanding of its basic contents, as well as its goals, rules and/or principles." A review of the literature suggests that there are three approaches to measuring consumers' prior knowledge of a product class: tests of knowledge, self-assessed measures of knowledge and self-reported usage history.

Objective tests of knowledge are designed to assess how much a person knows about a particular domain. A person who receives a high score on the test is considered knowledgeable. Both psychologists and consumer behavior researchers have implemented this definition by administering tests to subjects to assess their knowledge of a particular product class. (See Bruck forthcoming, Spilich, Vesonder, Chiesi & Voss 1979, Staelin 1978). The underlying assumption is that people with equivalent scores on the knowledge test should perform in similar ways on tasks such as recall of new information.

Another method is to use a self-assessed measure of knowledge. Here subjects are asked to rate how much they know about a particular domain. For example in a recent political science study political expertise was defined using a self-reported measure of knowledge, interest and participation (Fiske, Kinder and Larter 1983). Researchers in consumer behavior have also used self-assessed measures of knowledge (Johnson & Russo 1984). The problem with these measures is that they may reflect generalized self-confidence more than any actual state of knowledge because people who are self-confident may report more knowledge than those with less confidence.

Finally, some researchers have measured knowledge by assessing usage or purchasing behavior. Here the assumption is that if you have used, purchased or sought out information on a product class then you have an increased level of prior knowledge. For example, Bettman and Park (1980) classified subjects based on responses to questions about whether or not the respondent had ever used, ever owned or ever searched for information about a microwave. The difficulty with this approach is that different types of experience could create different types of knowledge and thus affect behavior in different ways. For example, two researchers found that some types of experience (classroom training) had no effect on while other types of experience (interactive training) had an effect on the ability of judges to ignore irrelevant information (Gaeth and Shanteau 1984).

Hypotheses

In this study we used two different board games: Monopoly and Life. Prior knowledge of each board game was assessed in the three different ways described above. In addition we measured the emotional responses of subjects to the experience of playing each game. The main hypotheses is that measures of knowledge for the same board game should be related (convergent validity), while measures of knowledge for different board games should be unrelated (discriminant validity). In other words, the underlying proposition is that there is a distinct prior knowledge construct for each game and that each of the three measures of knowledge is an appropriate way to assess this construct.

An additional hypothesis is that because games are part of intrinsically motivated consumer behavior, people who have acquired a great deal of knowledge of a game should report high positive affect toward the act of playing the game (criterion validity). Previous research has suggested that the PAD scale, developed by Mehrabian and Russell (1974), can be used to characterize affective responses to intrinsically motivated behavior such as leisure activities, creativity and game playing (Holbrook et al. 1984). Consequently it is expected that prior knowledge should correlate positively with scores on the PAD scale.

The key issues in the study are summarized in the following three hypotheses:

- H1: Scores on self-assessed knowledge tests, usage questions and true/false knowledge tests should be positively correlated when the tests all relate to one particular board game (convergent validity).
- H2: Scores on self-assessed knowledge tests, usage questions and true/false knowledge tests should not be correlated when the tests relate to two different board games (discriminant validity).
- H3: All three measures of experience should correlate positively with scores on the PAD scale (criterion validity).

METHODOLOGY

Subjects

Forty-five undergraduate students completed the questionnaire in sessions conducted outside the classroom in groups of 8-10. The students were given class credit for participating in the study.

Content of questionnaire.

The following information was collected in the following order: self-reported knowledge of Monopoly, self-reported knowledge of Life, usage information for Monopoly, usage information for Life, PAD scale information for Monopoly, PAD scale information for Life, test of knowledge of Monopoly and test of knowledge of Life.

Self-reported knowledge measure. Fourteen Likert statements were administered to subjects to assess self-reported measures of

knowledge. A sample item is "I know most of the rules in Monopoly." Both the Monopoly and Life scale contained seven items, with coefficient alpha of .834 and .933 respectively.

Usage. Usage of the two games was determined by two open ended questions. One for Monopoly and one for Life: How many times have you played Monopoly (Life) in the last three years?

Test. Objective knowledge was assessed through a true/false test. Subjects responded to 9 true false statements about the rules of Monopoly (e.g., at the start of Monopoly each player is given \$1500) and 9 true/false statements about the rules of Life (e.g., in the game of Life you must land on a red pay day space to collect your salary). Response categories were definitely true, probably true, probably false and definitely false. This knowledge measure was taken last because it might bias responses to other questions.

Emotional Response (PAD scale). Subjects were told to think about the last time they played Monopoly (Life) and place a mark closest to the point which represents their feelings about the prior experience of playing Monopoly (Life). Subjects then completed the Mehrabian and Russell (1974) PAD scale. The scale consists of 18 items, 6 measure pleasure-displeasure, 6 measure arousal-nonarousal and 6 measure dominance-submissiveness. The form of the scale is a semantic differential. The coefficient alpha's and a sample item are reported in Table 1.

TABLE 1
COEFFICIENT ALPHA'S FOR THE PAD SCALE

Scale	Sample Item	Coefficient Alpha for Monopoly	Coefficient Alpha for Life
Pleasure/Displeasure	Happy/Unhappy	.91	.90
Arousal/Nonarousal	Stimulated/Relaxed	.85	.85
Dominance/Submissiveness	Influential/Influenced	.55	.84

Results

First consider the evidence for convergent validity. Prior knowledge was measured in three ways for two games. The six correlations of relevance here are reported in the multi-trait, multi-method matrix (Table II). Each one has the subscript C next to it. All are non-zero, suggesting that in fact self-reported measures of knowledge, usage experience and tests of knowledge all assess the same underlying construct.

TABLE 2
CORRELATIONS BETWEEN MEASURES OF KNOWLEDGE

		Self-Reported Knowledge		Usage Experience		Objective Test	
		Monopoly	Life	Monopoly	Life	Monopoly	Life
Self-Reported Knowledge	Monopoly	1.0	.108 _F	.39 _C **	-.257 _D	.47 _C **	.02 _D
	Life		1.0	.08 _D	.63** _C	.10 _D	.56** _C
Usage Experience	Monopoly			1.0	.79** _F	.34* _C	.19 _D
	Life				1.0	-.10 _D	.77** _C
Objective Test	Monopoly					1.0	-.01 _F
	Life						1.0

* p < .05
** p < .001

Next consider the evidence for discriminant validity. This requires considering three criteria. First, the correlations between two different measures of the same variable should be larger than the correlation between that variable and any other variable which has neither trait nor method in common (Campbell

and Fiske 1959). To test this, each of the 6 entries labeled C were compared statistically to each of the 6 entries labelled D. (The r to z transformation of R. A. Risher as discussed in Sachs 1982 page 427-432 was used). Of the 36 comparisons, all were in the predicted direction and 26 were statistically different from each other (α = .05). Consequently this condition is partially satisfied.

Additional evidence of discriminant validity is garnered by examining the coefficients labeled C in relation to the correlations labeled F. The correlations in C should be higher than those labeled F because correlations within a trait measured by different method should be higher than correlations between traits which have a method in common." Of the 18 comparisons made, 10 are statistically different in the predicted direction (α = .05, using the r to z transformation). Six of the nonsignificant comparisons involve the correlation between usage of monopoly and usage of life which is unexpectedly large and significant. This suggests that there is some method variance present in the usage question.

Finally additional evidence of discriminant validity comes from examining the pattern of correlations labeled (F) and (D). The correlations labeled F share common methods but not traits, while the correlations labeled D share neither method nor trait in common. The rank order of correlations should be the same in both group F and group D. In this case all these correlations are close to zero, except for the usage measure. Again, using the r to z transformation, we found that none of the correlations labelled c differed from each other (α = .05) or from zero. In addition, the same pattern was observed for correlations labelled D, except for the correlations of usage for the two games. Consequently, the third criterion for discriminant validity is only partially satisfied.

A final question concerns criterion validity. Do these measures of prior knowledge predict some criterion measure? To assess criterion validity, we analyzed the correlation between prior knowledge and responses to the PAD scale. These are reported in Table III.

TABLE 3
CORRELATIONS BETWEEN MEASURES OF EMOTION AND MEASURES OF KNOWLEDGE

	Monopoly			Life		
	Self-Reported Knowledge	Usage	Objective Test	Self-Reported Knowledge	Usage	Objective Test
Score on Pleasure Scale	.43***	.06	.28**	.26**	.55**	.01
Score on Arousal Scale	.42***	.26**	.15	.09	.38*	.05
Score on Dominance Scale	.41***	.27*	.23	.33***	.33	.10

*** p < .01

** p < .05

* p < .1

One thing to note is that all the correlations are in the predicted direction. That is for the correlations that are significant there is a positive relationship between prior knowledge with a particular board game and reported feelings of pleasure, arousal and dominance. Because this is a relatively unexplored area, one way of looking at the data is to compare the effects of prior knowledge on the experience of playing Monopoly with the effects of prior knowledge on the experience of playing Life. For both games self-reported knowledge correlated with self-reported feelings of pleasure and dominance. Usage of Monopoly correlated with feelings of arousal and dominance, but usage of Life correlated with feelings of pleasure and dominance. The scores on the test for Monopoly correlated positively with the reported pleasure from playing monopoly. This relationship did not hold when Life was the game in question.

Consequently, the following generalizations can be made regarding criterion validity: (1) experience with playing a game is positively related to reported feelings of affect associated with playing the game; (2) all measures of prior knowledge do not have the same effect on feelings of affect; (3) the relationship between prior knowledge and reported affect seems to be somewhat idiosyncratic to the particular game in question.

Conclusions

Evidence was found for convergent validity of all three measures of prior knowledge. In other words objective tests of knowledge, self-reported measures and usage measures of the same trait correlated positively.

Evidence was also found for discriminant validity. However, the measure of Monopoly usage correlated with usage of Life. This result may indicate one of two things. First it may be that respondents who play one board game also tend to play other board games. This explanation, however, is weakened because the other measures of prior knowledge of Monopoly did not correlate with measures of prior knowledge of Life. An alternate explanation is that the usage measured suffered from psychometric flaws. For example, it is possible that respondents tended to overestimate or underestimate how many times they had played both games because the usage questions were asked at the same time and with the same question.

The evidence for criterion validity was less straightforward. All measures of knowledge that were significantly related to affect were in the predicted direction. In other words, when knowledge was related to a dimension of affect it tended to enhance the positive nature of the affect. However, not all measures of knowledge had the same effect on dimensions of the PAD scale. In particular for both games, self-reported knowledge is most clearly related to self-reported affect. However, objectively assessed knowledge seems to be least related to scores on the PAD scale. This pattern could arise for one of two reasons. It is possible that although the different measures of knowledge are clearly related, they do not measure identical constructs. Consequently these different measures of knowledge influence and are influenced by other constructs in unique ways. Beattie (1982), for example, suggests that the type of advertising copy one should use depends on whether the target audience has high knowledge as assessed by product usage or by product knowledge.

Alternatively, it is possible that the strong positive relationship between self-reported knowledge and self-reported affect reflects the fact that both measures are self-report scales.

There is a growing body of literature examining the impact of prior knowledge on all aspects of consumer behavior. In order to synthesize this literature, we need to know more about the psychometric properties of the alternate measures of prior knowledge. This paper represents an initial effort in that direction. One limitation of this research is that the psychometric properties of these measures were tested on just one product class. It makes intuitive sense that a person who frequently plays Monopoly will be a high scorer on a test of the rules of monopoly. However, it also makes intuitive sense that a person who frequently listens to a stereo system may not be a high scorer on a test of the technical attributes of a stereo system. Consequently, by choosing a product that one has to know a lot about in order to use, we may have obtained results that are not generalizable across product classes.

In conclusion, the data in this study suggest that one can generalize with caution across measures of knowledge. This seems to be especially true for objective test and self-reported measures of knowledge. Usage measures of knowledge need to be refined and used with care.

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SUBJECTIVE AND OBJECTIVE MEASURES OF PRODUCT KNOWLEDGE CONTRASTED

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Abstract

The present paper contrasts subjective and objective measures of product knowledge. Findings from a study related to home computers reveal that the two set of measures are related, but also that they not are substitutable. Objective measures seem preferable when focusing on ability differences among consumers, while subjective measures should be preferred when focusing on motivational aspects of product knowledge.

Introduction

The purpose of the present paper is to contrast "objective" and subjective measures of product knowledge.

Product knowledge can be defined as product related information stored in memory, such as information about brands, products, attributes, evaluations, decision heuristics and usage situations (Marks and Olson 1981). The concept is considered being of crucial importance among consumer researchers, not at least due to the following:

- First, knowledgeable consumers are expected to possess superior ability in approaching new information. Due to more developed knowledge structures such consumers are assumed more able to interpret and intergrate new information than are their less informed counterparts (Johnson and Russo 1984; Chase and Simon 1973).
- Second, product knowledge is assumed to impact the decision-heuristics applied in handling buying decisions. A few examples may clarify this point. Park and Lessig (1981) found informed consumers to make more use of functional attributes than did their less knowledgeable counterparts. Consumers low in product knowledge are assumed to be more inclined to seek external information than are consumers high in product knowledge (cf. Cox 1967; Newman 1977; Punj and Staelin (1983). An inverted U-shaped relationship between product knowledge and intensity of information search due to lower ability to handle and integrate among consumers low in product knowledge, have, however, been reported (Bettman and Park 1980).

Measurement of Product Knowledge

Consumers develop product knowledge through search and use of information as well as through experience (Howard and Sheth 1969). Based on our above definition, the content of the knowledge domain may be described in terms of objects or brands known by the consumer, his or her knowledge about product attributes and usage situations, the ability to discriminate between product alternatives, and product evaluations.

In several studies the consumer's product class experience has been used as a proxy for his or her product knowledge (Bettman and Park 1980; Jacoby et al 1978; Katona and Mueller 1955; Newman and Staelin 1972). There are, however, several conceptual problems associated with the use of product experience as a measure of product knowledge.

- First, product knowledge may be developed through information search and use, and may thus be present without personal product experience.
- Second, increasing product experience may occur without subsequent increase in product knowledge. Bettman (1979) argues that development of product knowledge in general and decision heuristics in particular do not only depend on product experience as such, but also on how this experience is interpreted and causal inferences with regard to decision outcome made. An outcome as expected may lead to simplified decision heuristics, and thus increased ex-

perience may cause no change in product knowledge at all.

Subjective as well as objective measures have been used when studying consumers' product knowledge. Subjective measures are based on consumer's interpretation of what s/he knows, while objective measures are based on another person's evaluation of this knowledge. In consumer research there has been a tendency to prefer subjective measures (Brucks 1985; Park 1976), while there has been preference for objective measures among researchers from other disciplines such as social cognitive psychology (cf. Streufert and Streufert 1978). This has also been noted by Brucks (1985). Moreover Sujan (1985) has recently applied objective measures, and Brucks (1985) objective and subjective measures as well.

Whether subjective or objective measures are chosen should depend on the purpose of the research (Mitchell 1982). In our view objective measures are preferable when the research objective is related to the consumer's ability to encode new information or to discriminate and choose between product alternatives. Objective measures are related to the organization of the individual knowledge structure. Organization of information and knowledge structures is closely connected to the ability to filter out irrelevant information (Taylor and Crocker 1980); to retrieve relevant information from memory (Sternthal and Craig 1982); to rehearse or encode new information (Fiske, Kinder and Larter 1980). Knowledgeable consumers, objectively assessed, should therefore be superior to less knowledgeable consumers in encoding product related information, and be better able to choose an alternative close to the ideal or preferred.

Subjective evaluation of ones product knowledge should have significant impact upon the motivation to conduct various behaviors. A consumer perceiving s/he knows everything that matters about a specific product class, and the various bits of knowledge are in balance, will feel confident and perceive the level of risk and cognitive conflict associated with the buying decision as low or modest (Cox 1967). A confident consumer is among other expected to acquire less information, to seek less advice from friends and more information from commercial sources. Their confidence make them feel better able to handle any attempt of commercial "manipulation".

One possibility is that subjective measures are perfectly correlated with objective measures. That is novices¹ perceive themselves as novices and experts perceive themselves as experts. Another possibility is that the two types of measures are modestly or not correlated.

If the subjective measures don't match the objective measures, this implies that som real novices perceive themselves as experts, and some real experts perceive themselves as novices. Novices that perceive themselves as experts overestimate their own knowledge. Experts that don't perceive themselves as experts underestimate their ability judge and choose among the various alternatives.

An intuitive research question is: What is the relationship between subjective and objective measures? In our opinion the relationship could - in the language of factor analysis - be either orthogonal, oblique or perfectly correlated. In case of the latter outcome, perfect correlation, choice of product knowledge measure, i.e. objective or subjective, would not matter at all. In such a situation the consumer interpret what s/he knows from in-

¹ A novice is here a person with a low level of product knowledge, objectively assessed. Similarly an expert is a person with a high level of product knowledge.

formation stored in memory. If the two measures are orthogonal, and thus unrelated, the researcher should be extremely careful in choosing between which measure to use. In the case of correlated, but not perfectly correlated measures, perceptual knowledge will depend on the interpretation of what is actually stored as well as other individual and situational factors.

Methodology

Below is reported on the methodology underlying the present study designed to empirically explore the relationship between subjective and objective product knowledge measures.

Due to lack of relevant secondary data, primary research was conducted. A cross-sectional survey study was found appropriate to explore the relationship between the two sets of measures due to the requirement of keeping the intra-individual product knowledge constant.

Personal computers were chosen as reference-product in the present study due to expected variation in product knowledge. The factual knowledge related to this product, also makes it relatively easy to construct objective measures of product knowledge.

The sample consisted of 297 students attending a one-year introductory program in management. The students were very heterogeneous with regard to previous education (including students with high-school only as well as college degrees in engineering, sociology and law) and work experience (ranging from no experience at all to several years of well-paid middle-management training).

Data collecting procedure: The participants were asked to complete a questionnaire addressing their familiarity with personal computers, not being allowed to talk to each other during the test. The data collection was conducted during the first week of the program.

Measurement

The following subjective measures were used:

- (1) Level of subjective knowledge, SEV
- measured by the respondents' agreement of the degree to which s/he knew the relevant decision criteria².
- (2) Confidence, OEV, measured by asking how the respondents thought their closest friend would evaluate their familiarity with personal computers.
- (3) Advicegiving, ADV, assessed by questioning whether the respondents had been asked for advice.
- (4) Selfevaluation of brand knowledge, OBK, assessed by asking about success in a hypothetical computer purchase.

Objective measures: Level of differentiation, discrimination, and integration are important dimensions to describe and map the individual knowledge structure (Streufert and Streufert 1978). Level of differentiation reflects the number of salient dimensions in the consumer's cognitive domain, level of discrimination is related to the number of categories among which the consumer is able to discriminate, and level of integration relates to the ability to associate different dimensions. In addition to cognitive structure, product knowledge is related to terminology or understanding of the product language. The following objective measures were used.

- (1) Level of differentiation, two measures
 - ATT - number of attributes
 - BKN - number of salient brands

²The same operationalization has been reported by Park (1976).

- (2) Level of discrimination, DSC
 - inferred from the question used to assess ATT³
- (3) Level of integration, INT
 - interpreted from a picture drawn by the respondents.
- (4) Terminological complexity, TER
 - based on twenty 'what-is-meant-by' - questions reflecting various aspects of personal computers.

Appendix A gives a more detailed description of the various measures. The level of each dimension, that is level of discrimination (DSC), was determined from a table developed during the research process (see Appendix B). A qualitative analysis on a sample of questionnaires was the input in producing this table. The table shows that respondents used quite different terminology to describe the same aspect of the product. For example, some students referred to the 'size' or the 'capacity' of a PC, whereas others were more advanced and referred to 'number of bits', 'RAM', 'ROM' and similar to describe the same aspect of a PC. Eight different aspects of personal computers emerged in this analysis. The average respondent, however, mentioned only a few of these aspects. Even if the table is biased toward the author's perception of the product domain, other 'experts' on personal computers found the table to be quite sensible.

To obtain the DSC measure, each attribute or characteristic the respondent mentioned was given a number from 1-4, reflecting the level of complexity as illustrated in the table. The weighted attributes were summed and averaged:

$$DSC = \frac{\sum_{i=1}^n w_j C_i}{ATT} \quad (1)$$

DSC: Level of discrimination

ATT: Number of attributes

C_i : Characteristic or attribute i

w_j : Weight assigned to attribute i ; $w_j = 1, 2, 3$ or 4 .

Level of integration (INT) was interpreted from the chart illustrating how the respondent believed the various characteristics belonged together. The charts were given scores from 0 to 6. Zero points were given to those respondents that did not answer the question. Points were awarded on the basis of how the respondent managed to give a wholistic picture of the product, that is illustrate how the different characteristics were connected. The most advanced charts had clearly divided between software and hardware related characteristics, and hardware was further divided into categories like processing capacity and 'cosmetic' characteristics like terminal, display, printer and so on.

Level of terminology (TER) was inferred from the 20 questions reflecting the respondent's understanding of words and expressions often used in the product language. Each answer was given a score from 0 to 2, where 0 indicates no understanding; 'some understanding'; and 2 a good understanding of the word or phrase in focus. The 20 questions were summed to produce TER. Cronbach's α (Nunnally, 1978) was computed to analyze the internal consistency of the scale:

$$\alpha = \frac{k}{k-1} \left(1 - \frac{\sum \sigma_i^2}{\sigma^2} \right) \quad (2)$$

³A score, ranging from 1 to 4 was given for each characteristic. The average score across characteristics were computed for each individual (see Appendix A).

where k is the number of items, σ_1^2 is the variance of the measuring instrument item (each question), and σ_y^2 is the variance of the sum of the k items. Alpha for the 20 items was 0.898, indicating a very strong internal consistency among the 20 items.

Findings

Below are summarized the main findings:

TABLE 1. CORRELATION COEFFICIENTS (r)^{*}

	\bar{X}	SD	ATT	DSC	INT	BKN	TER	SEV	OEV	ADV	OBK
ATT (O)	2.27	1.91	1.0								
DSC (O)	1.00	0.73	0.72	1.0							
INT (O)	0.99	1.21	0.58	0.54	1.0						
BKN (O)	0.76	1.27	0.29	0.26	0.40	1.0					
TER ^{**} (O)	0.58	0.51	0.40	0.43	0.60	0.45	1.0				
SEV (S)	1.41	0.54	0.34	0.29	0.44	0.41	0.58	1.0			
OEV (S)	1.51	0.59	0.28	0.28	0.37	0.26	0.51	0.65	1.0		
ADV (S)	1.32	0.47	0.31	0.23	0.37	0.31	0.42	0.42	0.38	1.0	
OBK (S)	1.91	0.74	0.39	0.33	0.48	0.41	0.61	0.61	0.49	0.46	1.0

*) All coefficients significant at $\alpha = 0.01$ level

**) Coefficient alpha for the 20 items is 0.9.

Table 1 reports means, standard deviations and correlation coefficients between the variables used.

The average correlation within the objective measures (i.e. off-diagonal elements) is .467 and the corresponding standardized item - alpha⁴ is .81. The high alpha indicates that the measures correspond with some underlying score. The square root of alpha equivalates the correlation of the test with the true score (Nunnally 1978), i.e. .9 with the true score.

The average correlation within the subjective measures is .5, and the corresponding standardized item-alpha amounts to .8. The square root of Alpha is .89, i.e. the correlation coefficient between the subjective measures and the true score.

The average correlation coefficient between the subjective and objective measures is .38 ($p < .100$). Thus a significant relationship is present between the two sets of measurements. Due to the somewhat higher average within correlation for the objective (.467) and subjective measures (.5), there is, however, some support for separating the two sets of measures. Due to different scales involved (three - five points, numerical counts) some of the relationships might have been understated.

A principal component factor analysis was conducted to infer the underlying dimensionality of the variables. Inspection of the table revealed that all variables are loading high on the first factor, which indicate some common score. The first factor explained almost 50% of the variance, the second 13%. Number of attributes (ATT) and level of discrimination (DSC) load high on both the first and the second factor. The eigenvalue on the third factor dropped to 0.77. As we also expected two significant

⁴The standardized item α is described in Hull and Nie (1981). The computational formula is given by:

$$\alpha_s = \frac{k \bar{r}}{1 + (k-1)\bar{r}}$$

where \bar{r} is the average correlation between items. This is equal to standardizing each item, and thus making the various measures comparable.

factors, we concluded only the two first factors in the remaining analysis.

By conducting an orthogonal rotation on the first two factors extracted, the following picture emerges:

TABLE 2. VARMAX - ROTATED FACTOR - LOADING MATRIX

	FACTOR 1	FACTOR 2
SEV (S)	<u>0.84</u>	0.15
OEV (S)	<u>0.77</u>	0.09
ADV (S)	<u>0.63</u>	0.17
OBK (S)	<u>0.76</u>	0.26
TER (O)	<u>0.72</u>	0.38
ATT (O)	0.20	<u>0.88</u>
DSC (O)	0.14	<u>0.89</u>
INT (O)	<u>0.45</u>	<u>0.68</u>
BKN (O)	<u>0.53</u>	0.27

Inspection of Table 2 reveals that the structural variables, except for number of salient brands, BKN, and the subjective variables together with TER (terminology) and BKN are clustered together. As discussed above, the two factors (subjective and objective) may not be orthogonal, but rather correlated. Oblique rotations were conducted.

TABLE 3. OBLIQUE-ROTATED FACTOR - LOADING MATRIX

	FACTOR 1	FACTOR 2
SEV (S)	<u>0.86</u>	-.08
OEV (S)	<u>0.81</u>	-.12
ADV (S)	<u>0.65</u>	-.01
OBK (S)	<u>0.78</u>	0.05
TER (O)	<u>0.72</u>	0.19
ATT (O)	0.11	<u>0.85</u>
DSC (O)	0.05	<u>0.88</u>
INT (O)	0.40	<u>0.57</u>
BKN (O)	<u>0.54</u>	0.12

Table 3 reports the results from an oblique rotation of the factor-loading matrix. Delta equals -.6 and the correlation coefficient between the two factors is .37. Inspection of Table 3 reveals that all the subjective variables are loading on the first factor, while three of the five objective factors are loading high on the second factor. The two remaining objective variables, TER and BKN are loading on both factors, but most on the first one. In sum, the results to some extent support the assumption that product knowledge has subjective as well as objective aspects. Moreover, the two aspects are related.

Discussion

Based on previous research two aspects of product knowledge were assumed at the outset of this paper. The reported findings support this assumption. The observed relationship between subjective and objective measures, does not, however, allow for straight forward recommendations, except for the obvious one that research purpose should guide the actual choice of measures. Based on the reported findings it can also be argued according to our previous discussion that objective measures are preferable when research is focusing on ability differences, while subjective measures should be preferred when preoccupied with motivational aspects of product knowledge.

The present piece of research including one product only, definitely has its limitations. However, the findings falsify the hypothesis that subjective and objective measures always can be substituted. The two aspects of knowledge are related, but the shape and degree of relationship will probably be influenced by other individual variables, situational factors as well as by the product involved.

As objective and subjective measures of product knowledge are related but not substitutable, this implies that some consumers overestimate their own ability to buy the product, while others underestimate their ability. Future research should focus on these different types or constellations of knowledge and how the different types affect other consumer behavior variables. Most interesting would it be to investigate the relationship to information search intensity and direction, and also to the ability to select good alternatives in a product differentiated market.

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Appendix A: Variables and Measurements

Variable	Operationalization
SEV	Below are given three descriptins (A, B, C) of product knowledge about personal computers. Read the alternative (A, B, C) and mark the alternative best describing your familiarity with personal computers. A: I am quite unfamiliar with personal computers in the sense that I do not have any clear idea about which product characteristics are the important ones in providing me with maximum usage satisfaction. B: I am somewhat familiar with personal computers in the sense that I have a somewhat clear idea about which product characteristics are important in providing me with maximum usage satisfaction. C: I am quite familiar with personal computers in the sense that I have a very clear idea about which product characteristics are important in providing me with maximum usage satisfaction.
OEV	"How do you think your closest friends evaluate your familiarity with personal computers?" A: Quite unfamiliar B: Somwhat familiar C: Quite familiar
ADV	"Does it happen that you are asked for advice about personal computers?" A: Never B: Sometimes C: Very often
OBK	"If you were going to buy a personal computer today with your current level of knowledge about the various alternatives, how well do you think you would succeed?" A: Very poor B: Poor C: Neither poor nor well D: Well E: Very well

Variable Operationalization

ATT "Let us assume that you are going to buy a personal computer. What characteristics (attributes/dimensions) would you use to evaluate the different alternative based on your present knowledge about personal computers?"

1. _____
 2. _____
 .
 .
 20. _____

BKN "If you were going to buy a personal computer, which alternatives would you consider?"

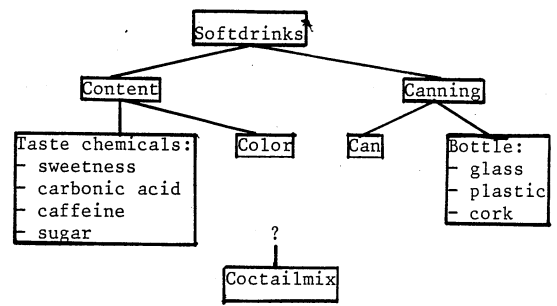
1. _____ 4. _____
 2. _____ 5. _____
 3. _____ 6. _____

TER "What is meant by"

1. BASIC
 2. TERMINAL
 3. CPU
 .
 .
 20. 200 K

Variable Operationalization

INT "We will illustrate this question by an example. The task is to group the characteristics you gave on the previous question the way you mean they naturally belong together. The characteristics should first be divided into main categories, then further into sub categories and sub-sub categories and so on. To illustrate this we can think of softdrinks, and we assume that the following characteristics is given: sweetness, taste, carbonic acid, caffeine, sugar, color, bottle, glass, plastic, cork and cocktailmix. These can be divided into two main groups: 1) Content and 2) canning. Content can be divided into "tastechemicals" and color; canning can be divided into bottle and cans. These can further be divided into subgroups, and we draw the following picture:



We may not be able to place all the characteristics. This is quite natural, and you should not try place a characteristic unless you believe it is a natural connection (e.g. "cocktailmix").

On this question, there is no right answer. What we want to know is the way you believe these characteristics belong together.

Your task is to make a similar chart with the characteristics you provided on the previous question.

You are not to make any corrections on the previous question, but you may add new characteristics on this task if someone comes to mind. Use the nest page to make the chart".

Appendix B

Dimension Level	MEMORY	CAPACITY	SOFTWARE; OPERATIV SYSTEM	SOFTWARE; PROGRAMS	PHYSICAL APPEARANCE	MANUAL OPERATION	PRICE	BRAND
1	-Memorycapacity -Memory-opportunity	-Size -Capacity	-Easy for program -Easy to operate	-Software in general -Possibilities	-Form -Design -Mobility	-User-friendly -Easy to learn -Documentation	Price	Brand-name
2	-Memory compared to price -Discettes	-Speed -Extensibility -Number of Ks -Number of bits	-Operativ system -Compatibility -More languages	-Selection of progr. -Special progr. types	-Noice	-Keyboard -Printer -Monitor	-Easy to sell -Usage of electricity -Financing	
3	-Number of discettes -Discettstations	-RAM -ROM	-IBM-comp -DOS -UNIK -CP/M-K/PM	-Basic -Wordstar -Modern -Interface		-Norwegian Keybord -Function keys -12" monitor		
4	-KB measures on memory	xxRAM xxROM 8/16 bit						

REPRESENTING ATTITUDE STRUCTURE: ISSUES AND EVIDENCE¹

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Abstract

The representation of attitude structure and associated causal issues has been a topic of considerable interest recently. This research examines whether variations in outcome evaluation produce corresponding variations in attitude, the discriminant validity between the cognitive and affective components of attitude, and the accuracy of a "cognition determines affect" causal ordering.

Introduction

In the past few years, the consumer research literature has witnessed a renewed interest in the Fishbein-Ajzen behavioral intention model (Ajzen and Fishbein 1980; Fishbein and Ajzen 1975). A primary thrust has been an examination of the model's causal properties (Bagozzi 1982, Burnkrant and Page 1982, Miniard and Page 1983, Ryan 1982, Shimp and Kavas 1984). This focus is quite understandable given the increased interest in structural equations as an analytical tool and the relatively strong theory specification offered by the Fishbein-Ajzen model.

One area of concern in these causal investigations involves the representation of attitude structure. A review of the literature reveals that researchers have rarely employed the same approach for representing the cognitive structure underlying attitude. Rather, several alternative approaches have been proposed which vary along conceptual and/or methodological dimensions. In the following section we discuss these alternative representational approaches and associated causal issues.

Background

As a starting point, let us consider the relevant causal assumptions underlying the Fishbein-Ajzen model. It is postulated that the distinction between cognitive ($E_{b_i e_i}$) and affective (A_p) components of attitude is a meaningful one. Specifically, beliefs about behavioral outcomes weighted by the evaluation of these outcomes are viewed as the building blocks for overall evaluation of performing a behavior.

Evidence concerning this proposition has yielded mixed support. Experimental research by Lutz (1975) revealed that a manipulation of beliefs produced changes in both the cognitive and affective components, but that a manipulation of outcome evaluation altered the cognitive component without influencing the affective component. Furthermore, when Lutz (1977) employed path analysis for these data, $E_{b_i e_i}$ was a significant predictor of A_p in only the belief manipulation experiment.

Nonexperimental research has also reported challenging results. Burnkrant and Page's (1982) LISREL analysis of a survey focusing on charitable blood donation behavior found a lack of discriminant validity between the cognitive and affective components. That is, the affective and cognitive latent variables were so highly related that the parameter estimate between them did not significantly differ from one! Obviously, this result leads to very different conclusions about attitude relationships than those suggested by Lutz's (1977) findings. To the best of

our knowledge, no other study of the Fishbein-Ajzen model has found the cognitive and affective dimensions to be so highly related that they would not achieve discriminant validity.

A further assumption underlying the Fishbein-Ajzen model is that the cognitive component is best viewed as a unidimensional construct in which different behavioral outcomes are aggregated into a single index of cognitive attitude. In accordance with this assumption, research has typically employed a unidimensional representation of cognitive attitude although such research has utilized a variety of approaches in doing so. Some studies (e.g., Miniard and Page 1983, Shimp and Kavas 1984), for example, have used the $E_{b_i e_i}$ index as the sole indicator of cognitive attitude. Unfortunately, this approach is constrained by its inability to divest the influence of measurement error on parameter estimates.

Other research has avoided this limitation by employing multiple indicators of cognitive attitude. Ryan (1982), for instance, used each behavioral outcome as a separate indicator. This approach, however, may undermine the measurement model fit since each salient behavioral outcome may not yield, by itself, a valid estimate of cognitive attitude. Consider the person who perceives a product as too expensive but is favorably impressed with the product because of its performance on nonprice attributes. In this example, a behavioral outcome measure capturing pricing concerns, unlike nonpricing outcomes, would yield a less accurate estimate of cognitive attitude. Although this salient pricing outcome should not be deleted from the measurement model on theoretical grounds, its retention would have an adverse impact on model fit. Consequently, the requirements for the measurement model may be unfulfilled when salient behavioral outcomes are inconsistent (some are very positive while others are only slightly positive or even negative). However, when salient outcomes are consistent, then the problem essentially disappears.

Alternatively, some researchers have used different attitude scaling techniques as multiple indicators of cognitive attitude. Burnkrant and Page (1982) employed the $E_{b_i e_i}$ index and Likert scaling as separate indicators, while Bagozzi and Burnkrant (1979) used Guttman, Likert, and Thurstone scaling as alternative assessments of cognitive attitude. Lacking, however, is research which has developed separate estimates of the $E_{b_i e_i}$ index, an approach that would seem most appropriate for operationalizing Fishbein and Ajzen's conception of cognitive attitude.

Research Objectives and Hypotheses

The following study provided additional evidence concerning the structural and discriminant relationships among cognitive and affective attitude constructs as conceptualized and operationalized within Fishbein and Ajzen's theory and model of intentions.² We examined the relationship between cognitive and affective attitudes in an

¹The authors wish to thank anonymous reviewers for their useful comments and suggestions. Financial support for this research was provided to the senior author by the Marketing Faculty Research Fund, The Ohio State University.

²An important characteristic of Fishbein and Ajzen's formulation is that all outcomes, both personal and normative, are reflected by attitude. Other formulations, however, do not share this perspective (e.g., Miniard and Cohen 1983).

attitude formation experiment (Carnegie Mellon Seminar 1978). Consequently, we could control the outcomes which determined subjects' attitude for this novel behavior, a feature very desirable in restricting measures of cognitive attitude to salient beliefs.

Our first hypothesis (H1) is that a manipulation of outcome evaluation will produce corresponding variations in both cognitive and affective attitude. This hypothesis is consistent with Fishbein and Ajzen's conceptions of attitude relationships, although Lutz (1975) did not substantiate this prediction in his experiment. We believe, however, that Lutz's null finding is attributable to methodological limitations which the present study overcomes (see Discussion section).

A second hypothesis (H2) which follows from Fishbein and Ajzen's model is that the affective and cognitive components of attitude are related but distinct constructs. We would expect this distinction to be more meaningful and vivid when the components are assessed in close temporal proximity to their creation. In this study, the components were measured only minutes after their formation.

It is also hypothesized (H3) that a "cognition determines affect" causal flow would occur in our study. As detailed below, subjects were required to process information about the outcomes of a novel behavior. Although there may be situations in which cognition does not precede affect (e.g., Zajonc and Markus 1982), the informational approach used in the present experimental procedures dictates a causal ordering of "cognition determines affect."

Method³

Subjects

One hundred and twenty one male and female undergraduate marketing students participated in the experiment as partial completion of class requirements. The task was designed specifically for these subjects in order to heighten involvement and relevance. Accordingly, marketing students were placed in a "case analysis" type of setting involving a new product introduction. Subjects were assigned randomly to one of the two cells comprising the single factor design.

Procedure

Subjects were lead to believe that they were participating in a study of factors (e.g., communication patterns, group cohesiveness) that influence group decision making. Subjects were told that they would act as a marketing consulting group for a company that was introducing a new boiling bag food item. The group's task was to select one of two alternative brands (identified as Brands B and F) for market introduction. After reviewing with the experimenter a written copy of the experimental procedures, subjects were placed in separate rooms and read the materials describing the case situation. A critical section of this material was the product trial results consisting of target consumers' brand ratings on product attributes considered by these consumers in making their purchase decision. Brand B was rated as excellent in taste, good in nutrition and convenience, and average in price. Brand F was rated less favorably on taste (good) and nutrition (average), but more favorably on price (good) and convenience (excellent). These brand ratings were intended to make the two alternatives fairly equivalent in overall attractiveness. As a result, the influence of the manipulation (explained below) could more easily manifest itself. A configuration of attribute ratings which clearly favored a particular brand would have greatly lowered the manipulation's potential to impact on subjects' choice behavior.

³The current study employs essentially the same methodology reported in Miniard and Cohen (1983). The reader is referred to their article for additional details about the experimental procedures.

After they had reviewed the case materials and attribute ratings, subjects received via the experimenter a written message from the group leader advocating brand F. This was followed by messages delivered sequentially from the remaining group members that supported the leader's choice. All messages were in fact fictitious and predetermined by the experimenter. Following these messages, subjects transmitted their communication, responded to a questionnaire, and indicated their choice on a brand recommendation form.

The experimental manipulation was operationalized in the form of a "group member award." This award was justified to subjects on the grounds that, due to the temporary nature of the group, it was unlikely that cohesiveness (claimed to be a group characteristic of interest) would be as prevalent in the present experimental group as it would be in more "natural" groups. Consequently, the award was to be given by the group through a voting system to the member demonstrating the highest level of "team spirit" in order to compensate for this study limitation. Subjects understood that this vote should be based "solely upon a group member's willingness to work in a harmonious fashion with the group and upon a member's loyalty to the group" and that the group could not vote for someone "unless he or she acts in a cohesive manner which, in this situation, is defined as recommending the same brand as the leader."

In one condition, the winner of the award was simply to be known as the best or most loyal group member. In the other condition, the award was to be accompanied by a \$20 cash prize. Thus, the manipulation was intended to vary the importance subjects attached to one of the outcomes (i.e., winning the award) associated with their choice behavior. This manipulation of outcome evaluation, if successful, permits a further test of Lutz's (1975) challenging result where variations in outcome evaluation did not produce corresponding changes in affective attitude.

Questionnaire

The questionnaire began with one and a half pages of instructions on the appropriate usage of the 7-point bipolar response scales employed for measuring the various constructs. Although the questionnaire contained measures for all of the constructs within Fishbein and Ajzen's intention model, only measures relevant to the focus of this paper are discussed here.⁴ The affective attitude toward recommending each brand (A_B) was measured by five evaluative semantic differential scales (good-bad, wise-foolish, beneficial-harmful, satisfying-dissatisfying, rewarding-punishing).

Cognitive attitude was assessed in accordance with the procedures for operationalizing the $\Sigma b_i e_i$ index. Beliefs (b_i) that recommending the brand would lead to a particular outcome were assessed by three probabilistic scales (likely-unlikely, possible-impossible, probable-improbable). Outcome evaluation (e_i) was measured by three evaluative scales (good-bad, beneficial-harmful, rewarding-punishing). Beliefs and outcome evaluations are typically assessed with one, not three, measurement scales. The use of three scales, however, allowed us to construct three separate $\Sigma b_i e_i$ indices by arbitrarily pairing belief and evaluation scales.⁵

In order to identify the salient behavioral outcomes underlying subjects' choice behavior, a pretest was under-

⁴The ultimate objective of this research is to test the entire causal model proposed by Fishbein and Ajzen. In this first cut at the data, however, we restrict our focus to cognitive and affective attitude relationships.

⁵One might be concerned that the causal results may vary across different measurement pairings. However, a comparison of results using different pairings revealed virtually no difference.

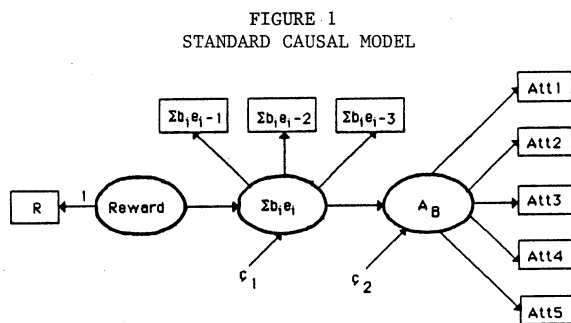
taken in which approximately 25 subjects participated in the experiment as described above, with one exception. Rather than completing a questionnaire concerning beliefs, attitudes, and intentions prior to their choice behavior, pretest subjects responded to a questionnaire consisting of several open-ended questions following their brand choice. These questions asked subjects to identify those considerations important to them in making their brand choice (e.g., the advantages/disadvantages of choosing brand B/F).

This pretest revealed that subjects' decision making largely focused around picking the best brand within the case context (a personal outcome). Winning the award (a normative outcome since it is under the control of others) was also considered by subjects, particularly by those in the \$20 condition. Further evidence substantiating the salience of this outcome is presented in the Results section. Some subjects expressed concerns over attributions the group might make about them (e.g., "I chose F because I didn't want the group to think I was being defiant"), another normative outcome. These various concerns were represented in the form of three consequences which were used in the belief and outcome evaluation measures: meeting the needs of the target market, winning the group member award, and having the group act and/or think favorably about the subject.

Causal Model Analysis

Because measurements were collected for each brand individually, one analytical approach involved testing a causal model for each separate brand. However, Ajzen and Fishbein (1969) have demonstrated greater predictive accuracy when attitudes toward all behavioral alternatives are considered simultaneously (i.e., when difference scores are employed) than when the attitude toward only one of the possible alternatives is considered. Consequently, difference scores between the cognitive and affective attitudes for brands B and F were also used for deriving the correlation matrix employed in the LISREL VI analyses.

Figure 1 contains the basic causal model tested in this research. The experimental manipulation (Reward), treated as a dichotomous variable, should have a causal impact on cognitive attitude (assessed by three $\Sigma b_i e_i$ indices). Cognitive attitude, in turn, should both determine affective attitude (assessed by five evaluative scales) as well as completely mediate the influence of the manipulation on affective attitude (i.e., Reward should not have a direct effect on A_B).



Results

Impact of the Manipulation

It would of course be inappropriate to test the first hypothesis if the manipulation failed to influence outcome evaluation. Consequently, it was necessary to establish that the manipulation of the group member award's monetary value was successful in altering subjects' evaluation of the "winning the award" outcome. As expected, subjects' responses to the three evaluation scales (e_i) pertaining to this outcome were significantly ($p < .001$) more favorable when the award carried a \$20 cash prize than when it lacked a monetary value.

It is also useful to consider the manipulation's impact on subjects' choice behavior. In the condition where the award did not carry a financial incentive, nearly half (21 out of 47) of the subjects chose the same brand (F) as the group. In the condition where the award was accompanied by the \$20 cash prize, two-thirds (49 out of 74) of the subjects selected brand F. This variation in choice behavior was significant ($p < .02$). In addition to substantiating the manipulation's effectiveness, these findings further support that winning the award was a salient consideration in subjects' decision making.

Causal Model Findings

Findings concerning various goodness-of-fit indices, the measurement model, and the structural model parameters are presented in Tables 1-3 respectively. Note that these tables contain the results based on difference scores as well as for the individual brand responses. As can be seen, the results are highly similar for the difference and individual brand models. The fact that the path estimate between Reward and $\Sigma b_i e_i$ is positive for the brand F model but negative in the other two models simply reflects the impact of how the dummy manipulation variable was coded (no \$20 = 1, \$20 = 2) as well as the manner in which difference scores were estimated (brand B response minus brand F response).

TABLE 1
CAUSAL MODEL RESULTS FOR GOODNESS-OF-FIT INDICES

Model	Chi-square	df	p	RMR	Rho
Diff	85.37	26	.000	.031	.941
Brand B	63.24	26	.000	.045	.948
Brand F	98.88	26	.000	.028	.923
Reverse Diff	93.29	26	.000	.048	.933
Reverse B	72.23	26	.000	.063	.936
Reverse F	101.49	26	.000	.036	.920

Note: The top half of the table contains the results for causal models assuming cognition before affect while the bottom half results represent causal models with the opposite ordering.

TABLE 2
MEASUREMENT MODEL RESULTS

Standardized Factor Loadings	Diff		Brand B		Brand F	
	Loading	Reliability	Loading	Reliability	Loading	Reliability
Att1	.956	.914	.931	.866	.935	.873
Att2	.935	.875	.922	.850	.931	.868
Att3	.937	.878	.866	.749	.943	.889
Att4	.914	.835	.850	.722	.909	.825
Att5	.870	.757	.713	.508	.902	.813
$\Sigma b_i e_i - 1$	.959	.920	.937	.879	.948	.899
$\Sigma b_i e_i - 2$	.968	.937	.923	.852	.949	.901
$\Sigma b_i e_i - 3$	.942	.886	.926	.857	.919	.845

Note: All parameter estimates are significant ($p < .01$)

TABLE 3
STANDARDIZED STRUCTURAL MODEL PARAMETERS

Path	Diff	Brand B	Brand F
Rew $\rightarrow \Sigma b_i e_i$	-.310	-.307	.257
$\Sigma b_i e_i \rightarrow A_B$	.770	.741	.747
<u>Residuals</u>			
$\Sigma b_i e_i$	.904	.906	.934
A_B	.406	.451	.443

Note: All parameter estimates are significant ($p < .05$).

As was the case for all the causal models examined here, the chi-square test was highly significant ($p < .001$). However, there seems to be a growing consensus that this indicator of model fit is too conservative. Indeed, the results for alternative fit indices such as the root mean square residual (RMR) and Bentler and Bonett's (1980) rho statistic (ρ) suggest that the causal model depicted in Figure 1 provides a very good representation of data relationships.

The measurement model results are also quite strong. All factor loadings except one (Att 5 for brand B) are estimated to be greater than .80 and most exceed .90. In addition, the measured variables are excellent indicators of the latent factors as evidenced by the strong reliabilities reported in Table 2. However, several of the affective attitude measures shared considerable measurement error. Indeed, simply freeing three of the parameter estimates representing correlated measurement errors resulted in a model with a more "acceptable" chi-square. The results for the difference model, for example, were: $\chi^2(23) = 34.01$, $p = .065$; RMR = .027; $\rho = .988$. Finally, as shown in Table 3, both causal paths (manipulation to cognitive attitude and cognitive to affective attitude) are significant ($p < .05$) for all models.

Research Hypotheses

The preceding analyses have yielded several findings supportive of H1. It was shown that the evaluation of the "winning the award" outcome was affected by the manipulation. Accordingly, the manipulation had a significant impact on cognitive attitude, as reflected by the significant path estimate between Reward and Σb_{1e} in the prior causal model analysis. Similarly, the path estimate between cognitive and affective attitude was also significant.

These latter two results, while suggestive, do not directly show that the manipulation of outcome evaluation did in fact influence affective attitude. Consequently, a direct test of this issue is necessary, particularly since it bears directly on Lutz's (1975) finding that such a manipulation did not influence affective attitude. An analysis of the difference model excluding cognitive attitude (i.e., only Reward and affective attitude were included) revealed a significant ($p < .05$) path between the manipulation and affective attitude (the same result also occurs in the individual brand models), the final piece of evidence necessary for supporting H1. Interestingly, this path estimate ($\gamma = -.169$) was smaller than the estimate observed between the manipulation and cognitive attitude ($\gamma = -.310$). These results suggest that the manipulation had a stronger impact on cognitive attitude and are consistent with the hypothesized causal flow of cognition determining affect (H3).

Examination of the discriminant validity between cognitive and affective attitude (H2) involved two analytical procedures. The first procedure involved testing whether the path estimate between cognitive and affective attitude differed from one. Although this path estimate in the difference model was substantial ($\beta = .770$, $s.e. = .067$), it did significantly ($p < .05$) differ from one. Similarly, the path estimates in the individual brand models also differed ($p < .05$) from one.

The second approach employed confirmatory factor analyses. A single factor model in which cognitive and affective indicators were loaded on one factor was compared to a two factor model consisting of separate but related cognitive and affective components. A comparison of the chi-square values for these two models revealed that the two factor model provided a significant ($p < .01$) improvement in representing data relationships for both the difference and individual brand models. The findings from both approaches therefore support the second hypothesis that cognitive and affective attitudes, while strongly related, are distinct components.

Evidence relevant to H3 was attained by analyses which reversed the ordering of cognitive and affective attitudes in the causal model. The results of these reverse order models are summarized in the bottom half of Table 1. Comparisons of the goodness-of-fit indices for models differing in their causal ordering of the attitude components reveals that the reverse order model results are only slightly worse than those found for the hypothesized order model.

In contrast, consideration of cognitive attitude's ability to mediate the influence of the manipulation on affective attitude (and vice versa) proved quite informative. A cognition before affect ordering suggests that the manipulation should influence affect only through cognition and should not have a direct effect on affect. Similarly, the affect before cognition ordering implies that the manipulation should influence cognition only through affect. Consistent with the hypothesized causal flow, the manipulation did not have a direct effect ($p > .05$) on affective attitude for either the difference or individual brand models. For the reverse order models, however, the manipulation did have a significant ($p < .05$) influence on cognitive attitude which was independent of affective attitude. We interpret these results as supporting H3.

Discussion

This study provides additional support for the conceptualization offered by Fishbein and Ajzen concerning attitude structure. First, the results show that a manipulation of a salient behavioral outcome had a significant impact on both cognitive and affective attitude. This inconsistency with Lutz's (1975) findings (where the influence of the experimental manipulation on cognitive structure did not "carry over" to affective attitude) may be due to methodological differences. Lutz's study attempted to influence subjects' attitude toward an unknown brand of laundry detergent by varying information relevant to their evaluation of a detergent's sudsiness, a relatively minor attribute.

In contrast, the current study employed a powerful financial manipulation for altering outcome evaluation as well as a highly involving choice situation. The likelihood that affective attitude would also reflect influences impacting on cognitive structure would seem to be greater in the present study given subjects immediate need to make a choice between two alternatives which differ considerably in their outcomes (i.e., only one leads to the reward). Finally, Lutz's study did not enjoy the advantage of multiple measurements and structural equations analysis, and thus one can not eliminate the possibility of "biased" results due to measurement error.

Fishbein and Ajzen's position that cognitive and affective attitudes are distinct but highly related in that cognition is the basis for affect development is also supported by this research. Of course, other settings may generate different causal relationships than observed here. The informational approach employed in the experiment for affect formation and the assessment of the attitudinal constructs in close temporal proximity to their development would seem to be major determinants of the present findings.

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AN EXPLORATORY INVESTIGATION OF CONSUMER INNOVATIVENESS AND INTERPERSONAL INFLUENCES

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Abstract

Alternative weights within the theory of reasoned action were proposed for both innovators and noninnovators. The models were tested for nine brands for both a private necessity and a public luxury product--situations in which reference group influences are expected to vary. Tests of the behavioral intention equation supported the hypothesized pattern. However, the results of the normative crossover effects analysis were inconclusive.

Introduction

Consumer innovativeness and the diffusion of innovations are two of the most frequently researched concepts in consumer behavior. Midgley and Dowling (1978) have provided an excellent summary of the issues involved in the conceptual definition and measurement of consumer innovativeness. One outcome of their thoughtful discussion is the conclusion that "innovativeness is the degree to which an individual makes innovation decisions independently of the communicated experience of others" (Midgley and Dowling 1978, p. 235). As such, innovativeness is posited to be a generalized personality trait and adoption decisions are seen as a function of product interest, individual situations, personal characteristics, and a network of interpersonal influence. It is this later premise, i.e., the potential relationship between innovativeness and differences in interpersonal influence, that precipitated the present study.

In the exploratory effort that follows, differences between innovators and noninnovators in interpersonal influence effects within the theory of reasoned action are hypothesized and tested for multiple brands of two products assumed to differ in perceived reference group influence. Prior to describing that study and the ensuing results, a brief review of prior research and the research hypotheses are presented.

Theoretical Perspectives

Innovativeness and Interpersonal Influence

Much communication and diffusion research has ignored the effects of social influence (Rogers 1976, p. 298). Social influence can be categorized into informational and normative influence. Informational influence occurs when individuals accept information as evidence of reality while normative influence involves conformity to the expectations of others (Burnkrant and Cousineau 1975, pp. 206-207). These social influences are thought to operate through the processes of internalization, identification, and compliance (Kelman 1961). Information is internalized if it is perceived as enhancing the individual's knowledge of the environment. Normative social influence may also occur if the individual is motivated to realize a reward or avoid a punishment. Compliance in this situation would occur if the individual believes the behavior is visible or known to others.

It is generally accepted that word-of-mouth communications often affect the eventual acceptance and diffusion of new products (Midgley and Dowling 1978; Rogers 1983). However, empirical evidence addressing the link between the trait of innovativeness and perceived interpersonal influence is limited. Further, the evidence that is available is equivocal. For example, Berning and Jacoby (1974), in their study of information acquisition in new product purchase decisions, concluded that the decision-making process preceding the purchase of an innovation differs

from the process preceding the purchase of an established alternative. The principle difference underlying that process was concluded to be that innovators first seek information from other people. In contrast, and in support of Midgley and Dowling's view, Carlson and Grossbart (1984) found a significant positive relationship between independent judgment making and inherent novelty seeking. [It should be noted that the Berning and Jacoby (1974) study focused upon actual new products while Carlson and Grossbart (1984) assessed their constructs using generalized multi-item scales.]

The replication and extension of Raju's (1980) optimum stimulation paradigm by Joachimsthaler and Lastovicka (1984) indicates that the relationship between innovativeness and information seeking is quite complex (bicausal). However, close examination of the content of the statements comprising the information seeking scale reveals that the items comprising the scale contained a mix of both personal and impersonal sources of information.

Interpersonal Influence Differences

One explanation of interpersonal influence in consumer behavior is the theory of reasoned action (Ajzen and Fishbein 1980). This frequently applied model provides a vehicle for exploring some of the differences in interpersonal influences between innovators and noninnovators. Interpersonal influence is assumed operative in several linkages within the model. The basic equation proposes that behavioral intention is affected directly by subjective norms and attitudes-toward-the act of purchase. Social influences on behavioral intentions are thought to operate principally through an overall measure of subjective norms. Subjective norms, in turn, are presumed to stem from the combination of normative beliefs, i.e., beliefs that certain referents think the person should or should not perform a particular behavior, and motivations-to-comply with the referent group.

Two phenomena exist which make the isolation of perceived reference group influences in the theory of reasoned action problematic. These issues are raised now since one provides a basis for one of the research hypotheses proposed in the next section. These two issues are: (1) multicollinearity between the Aact and SN predictors of behavioral intention and (2) crossover effects from the model's exogenous cognitive and normative structures to the summary constructs of attitudes and subjective norms.

Multicollinearity among predictor variables in the theory of reasoned action makes the interpretation of the relative weights in the model problematic. Since this paper attempts to examine the relative weights in the model, caveats regarding this problem are warranted. However, in an effort to address the multicollinearity issue, both correlated and uncorrelated models are tested and, for one set of analyses, an extra-sums-of-squares test is used involving reductions in explained variance when predictors are omitted. Miniard and Cohen (1981) have outlined the theoretical arguments for interdependence among the personal and normative components of the Fishbein and Ajzen model. In fact, it has been proposed that for those interested in distinguishing between personal and normative influences that an alternative model is more appropriate. These criticisms stem largely from the premise that the normative component does not discriminate adequately between informationally-based social influence and influences that are truly normative in nature (Miniard and Cohen 1981, 1983).

Crossover effects between normative structure and attitude and between cognitive structure and subjective norms have been addressed in recent tests of the theory of reasoned action (Ryan 1982; Shimp and Kavas 1984). Since differences for noninnovators and innovators in crossover effects for normative structure to attitudes are hypothesized and tested in the present study, some justification for these effects is warranted. Ryan (1982) proposes that inferential belief formation accounts for many of the crossover effects in the theory of reasoned action and the interdependency between attitudinal and normative variables. From Ryan's summary of earlier research, empirical studies have found that (1) normative information was more favorably evaluated if it supported the listener's views, (2) respondents more readily accepted an attitude in line with reference group majority opinion, and (3) respondents were more likely to act in accord with stated attitudes if such attitudes were consistent with the actions of others. Shimp and Kavas (1984) argue for a normative structure-attitude crossover relationship for couponing. The expectation is that because couponing is a form of behavior that has direct consequences for important others, the consumer will utilize others' opinions in addition to his/her personal beliefs when forming attitudes toward coupon usage.

Research Hypotheses

Innovativeness has been defined as the degree to which an individual makes innovation decisions independently of the communicated experience of others, i.e., information passed verbally between individual consumers (Midgley and Dowling 1978, p. 235). Based on the premise that noninnovators learn from others (including some feel for their expectations), the following hypothesis regarding the relative influence of subjective norms is proposed:

H₁: Subjective norms will exhibit less relative influence on behavioral intentions for innovators than for noninnovators.

Crossover effects from normative structure to attitude representing the impact of social influence on affect reflect a susceptibility or general willingness to incorporate or infer social influences on one's attitude structure. Normative information from others signals the direction of the attitudinal norm and implies that others will like the subject for holding an attitude consistent with these norms (Oliver and Bearden 1985). Again, since innovators are defined as making decisions independently of others, and, in contrast, other adopter categories seek information "from their near peers whose subjective opinion of the innovation ... is most convincing" (Rogers 1983, p. 170), a second hypothesis regarding crossover effects is proposed:

H₂: Innovators will exhibit a lesser tendency than non-innovators to exhibit crossover effects from normative structure to attitude.

As alluded to above, the normative structure component of the theory of reasoned action reflects exclusively beliefs about referent expectations (Miniard and Cohen 1981, p. 315). This conceptualization of normative influence is similar to the utilitarian influences of Deutsch and Gerard (1955). However, social influence can be based upon both informational and normative sources. The findings of Berning and Jacoby (1974) suggest that innovators seek information from others. In contrast, the Midgley and Dowling (1978) definition stresses the absence of communicated experiences for innovators (i.e., information). Given these conflicting perspectives, no formal hypothesis is offered regarding the differential role of informational versus utilitarian influences. However, the relationships

¹This hypothesis is similar to the recent proposition of Gagnon and Robertson (1985, p. 856): consumers who are highly dependent on normative influence (conformity intention) will be slower to adopt.

between overall subjective norms and both informational and utilitarian (normative) influences will be examined for innovators and noninnovators.

Method

Data were collected from 139 undergraduate male and female marketing students. Responses were obtained for nine brands of two products -- toothpaste and luxury automobiles. The products were selected to represent products varying in susceptibility to reference group influence. Consistent with the typologies of Bourne (1957) and Bearden and Etzel (1982), toothpaste and luxury automobiles represent private necessities (PRN) and public luxuries (PUL), respectively. Private necessities are hypothesized to be not susceptible to reference group influence while reference group influence is hypothesized to operate for brand selection decisions among luxury automobiles.

Analysis

The sample was divided equally using a median split into innovators and noninnovators. Responses to the ten seven-place agree-disagree statements comprising the innovativeness factor identified by Raju (1980, p. 278) were used to operationalize innovativeness. (Efforts in this study to assess the reliability of the scale are described below.) Aggregate cross-sectional tests of the principle behavioral intention equation of the theory of reasoned action were conducted first for each subsample. Second, crossover effects from normative structure to attitudes were tested for both innovators and noninnovators. Third ordinary least squares regression was used to estimate the subjective norm equations using utilitarian and informational influences as predictors. For the aggregate Aact-SN and the crossover effects analyses, correlations were used as input into LISREL VI to test the alternative models (Joreskog and Sorbom 1983).

Operational Measures

The two sets of modal referent groups (Ajzen and Fishbein 1980, p. 75) used to represent normative influences were elicited in separate pretests of 15 undergraduate students. The elicitation procedure employed open-ended questions to identify referents most likely to influence toothpaste and luxury automobile purchases. Three referents were found for each product: close friends, family members, and dentist for toothpaste and close family members, friends and relatives, and salesperson for luxury automobiles. All measures were developed in the context of the respondent's next purchase.

Two measures of subjective norms (SN) were employed. One measure was the standard item: "Most people who are important to me think I (should/should not) purchase (brand)." The alternative measure was worded: "The important people in my life would ... (want/not want) me to purchase (brand)." Respondents provided their attitude toward the act of purchasing (Aact) each brand on three seven-point semantic differential scales labeled good-bad, foolish-wise, and beneficial-harmful. Behavioral intentions (BI) was assessed using a single seven-place item scale labeled likely-unlikely designed to reflect intentions to purchase. The direction of the SN and Aact items were reversed to limit acquiescence bias.

Normative beliefs were also assessed using measures similar to those typically employed in tests of the Fishbein extended model. Respondents indicated their normative beliefs for each referent by indicating "the extent to which (referent) would expect you to buy (brand)." The seven-point scales were labeled definitely would not expect me to buy (-3)/definitely would expect me to buy (+3). Motivation-to-comply was operationalized using measures such as: "With respect to the purchase of toothpaste, I want very much to (6)/I want very much not to (0) do as my (referent) expects." The use of a unipolar motivation-to-comply scale is consistent with the premise that people are unlikely to be motivated to do the opposite of what their salient referents think they should do (Ajzen and

Fishbein 1980, p. 75). These measures were also converted into analogous statements reflecting the availability and willingness to obtain information (cf. Park and Lessig 1977). These latter operationalizations were used later to explore the feasibility of including both utilitarian and informational measures as predictors of subjective norms.

Reliability Estimates and Manipulation Checks

Innovativeness. The coefficient alpha estimate of internal consistency reliability for the ten-item innovativeness scale was .77. Additional evidence of reliability is provided by its correlation with other measures collected to examine the properties of the scale. First, the innovativeness measure was significantly correlated (Pearson correlation = .63, $p < .01$) with a similarly measured seven-item scale (reliability = .71) of agree-disagree statements used by Needham, Harper, and Steers. Second, the Raju scale was positively correlated ($r = .44$, $p < .01$) with a summed index reflecting the purchase (non-purchase) of 30 newly introduced or innovative products and services. This type of cross-sectional innovativeness measure has the advantage of controlling for some of the situational and communication effects associated with individual products (Midgley and Dowling 1978) and has been used in a number of earlier innovativeness studies (e.g., Darden and Reynolds 1974; Baumgarten 1975).

A twenty-item measure of dogmatism ($\alpha = .68$) (Troidahl and Powell 1965) was also assessed to assist in examining the validity of the Raju scale. Dogmatism is one of the psychological traits proposed by Midgley and Dowling (1978, p. 236) as affecting innate innovativeness. A strong, negative correlation was anticipated between dogmatism and the innovativeness measure. However, the resulting correlation was .09 ($p = .15$). In retrospect, this low correlation might be attributed to one or both of two reasons. First, a closer reading of the items comprising the twenty-item dogmatism measure questions whether or not the scale addresses receptivity of new ideas (close-mindedness). Second, the results of Coney and Harmon (1975) suggest that the relationship between dogmatism and innovativeness is subject to situational influences and may not be linear as initially thought.

The dimensionality of the scale was also examined using confirmatory factor analysis (Jöreskog and Sörbom 1983). Three alternative factor models were tested: a one-factor model, a three-factor uncorrelated model, and a three-factor correlated model. The three factor structure was hypothesized based on the item category assignments used by Raju (1980, p. 278) in which different items were posited as reflecting multiple categories of exploratory purchase behavior. The one factor solution ($\chi^2 = 86.41$, $p < .01$, 35 df) provided the best fit to the data. The three-factor correlated model was indeterminate; the uncorrelated solution resulted in a χ^2 of 192.81 ($p < .01$, 35 df). In the one factor solution, all indicator estimates were significant; however, several of the individual items did possess low loadings (i.e., below .50). Nine of these same items were used by Joachimsthaler and Lastovicka (1984) to operationalize innovativeness in their reevaluation of Raju's general explanation of the role of optimum stimulation level (OSL). Their measurement model results indicated that split-half combinations of the items provided reliable indicators of innovativeness.²

Subjective Norms and Attitudes. Multiple indicators for social norms and attitudes provided the opportunity to also assess their reliability. These estimates along

²Data from a two-state consumer panel study ($n=218$) were also available regarding the Raju innovativeness items, the Needham, Harper, and Steers measures and dogmatism scale. The coefficient alpha estimates were .81, .71, and .79, respectively. Similar validating correlations between innovativeness and the Needham scale ($r = .59$, $p < .01$) and the dogmatism measure ($r = -.06$, n.s.) were found.

with average brand/construct correlations are provided in Table 1. The average internal consistency reliability estimates are shown in the diagonal. These high reliability estimates are undoubtedly due to the similarity in measurement methods across indicators (e.g., bipolar semantic differentials following an attitude statement).

TABLE 1

Aact AND SN BRAND INTERCORRELATIONS

		Toothpaste		Luxury Autos	
		SN	Aact	SN	Aact
<u>Toothpaste</u>					
SN:	Paired Brands	(.92) ^a			
	Across Brands	[.18] ^b			
Aact:	Paired Brands	<u>.62^c</u>	(.92)		
	Across Brands	<u>.18</u>	[.23]		
<u>Luxury Autos</u>					
SN:	Paired Brands	--	--	(.94)	
	Across Brands	.03	.01	[.25]	
Aact:	Paired Brands	--	--	<u>.64</u>	(.91)
	Across Brands	.04	.05	<u>.23</u>	[.34]

^aFigures in parentheses average internal consistency estimates.

^bBracketed entries reflect average within construct/ across brand intercorrelations (e.g., Aact₁-Aact₂).

^cUnderlined correlations represent average SN-Aact correlations across nine brands (e.g., Aact₁-SN₁).

Given the large number of brands addressed and the length of the survey, the potential for methods variance was present. Some evidence regarding the discriminant validity of the SN and Aact measures and the intercorrelation among predictors is provided by examining the remaining correlations presented in Table 1. The bracketed entries suggest only moderate correlations between the SN and Aact measures within construct and product category (i.e., correlations among the SN measures for toothpaste). The low across product and construct correlations give additional evidence of the discriminant validity of the SN and Aact measures for the different brands and products. However, the underlined table entries suggest considerable intercorrelation among the two predictors in the behavioral intention equation of the theory of reasoned action.

Product Perceptions. Manipulation checks were included to verify respondent perceptions of the two types of products studied. These manipulation checks were designed to assess perceptions regarding the conspicuousness dimensions (i.e., public-private and luxury-necessity) underlying the reference group hypotheses of Bourne (1957) and Bearden and Etzel (1982). Definitions of each conspicuousness dimension were provided prior to seven-place scales for each product labeled "a public product-a private product" and "a necessity-a luxury." The resulting paired t-test values were 24.42 ($p < .01$) and 37.27 ($p < .01$) for the public-private and luxury-necessity dimensions, respectively. These significant values and the relative mean scores indicate that the two product categories were perceived as intended.

Results

Analyses were first conducted across subjects for both the behavioral intention equation and for the hypothesized crossover effects. The aggregate tests of the behavioral intention equation are presented in Table 2 for both an

overall analysis (i.e., across the nine brands for each product) and averaged across brands.³ In general, the resulting pattern among the Aact and SN weights were similar for the overall and averaged models and for the correlated and uncorrelated results. The effects of allowing the two predictors of behavioral intention to be correlated resulted in improved fit as estimated by the chi-square statistic and some reduction in the absolute value of the standardized beta coefficients.

TABLE 2

AGGREGATE ANALYSIS OF BEHAVIORAL INTENTION MODEL^a

	Uncorrelated		Correlated				p-level	AGFI
	Aact	SN	Aact	SN	ϕ	χ^2		
Toothpaste								
Overall: High	.42	.53	.37	.43	.84	20.0	.00	.97
Low	.31	.39	.27	.36	.73	25.9	.00	.96
Average: High	.39	.43	.35	.38	.74	8.1	.38	.89
Low	.22	.31	.20	.28	.55	10.1	.38	.86
Automobiles								
Overall: High	.36	.60	.32	.51	.75	10.8	.15	.98
Low	.26	.59	.21	.55	.73	44.2	.00	.93
Average: High	.35	.54	.31	.47	.70	9.3	.41	.80
Low	.18	.59	.12	.60	.67	12.3	.28	.85

^aBased upon regressions for each of nine brands, each regression using 71 and 68 subjects as data points for the innovative and noninnovative groups, respectively.

The nonsignificant chi-square values for the individual brand models suggest that the correlated model provides an adequate fit to the data. This conclusion is supported by the relatively high adjusted goodness-of-fit indices.

Examination of the relative sizes of the beta coefficients supports the hypothesis of higher relative normative influence for noninnovators for the luxury automobiles. Similar (but slight) differences in weights for the private necessity product (i.e., the product for which reference group influence was not hypothesized) were also found. The differences between the Aact and SN weights for the averaged results regarding the public luxury product were .16 and .48 for the innovators and noninnovators, respectively. It is interesting to note, however, that much of this differential results from the lower Aact weight for the noninnovators.

Differences in crossover effects from normative structure to attitudes (cf., Shimp and Kavas 1984) were also posited for innovators and noninnovators. The model tested in these analyses is shown in Figure A. The corresponding results are summarized in Table 3 for both correlated and uncorrelated versions of the model. Due to the limited number of indicators and exogenous constructs, bicausal paths between Aact and SN could not be estimated simultaneously. Consequently, an alternative model allowing the construct error terms for Aact and SN to be correlated was tested. The principal differences between the correlated and uncorrelated models were associated largely with model fit. No significant changes in structural path coefficients were found between the correlated and uncorrelated models.

³Ryan (1982, p. 269) reported similar weights (Aact beta = .25 and SN beta = .53) in his pooled regression results regarding behavioral intention prediction for a fictitious toothpaste brand and a .60 intercorrelation between Aact and SN.

FIGURE A
CROSSOVER EFFECTS CAUSAL MODEL

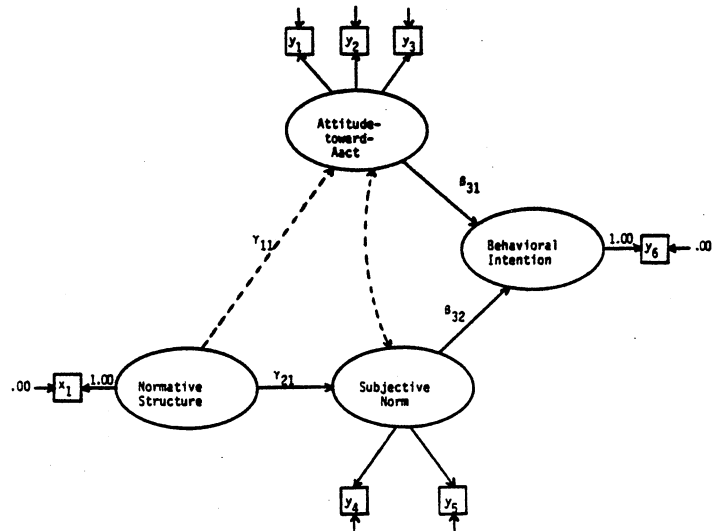


TABLE 3

AGGREGATE ANALYSIS OF NORMATIVE CROSSOVER EFFECTS^a

Product/Group	Average Structural Coefficients				χ^2	AGF	P-level
	γ_{11}	γ_{21}	β_{31}	β_{32}			
Toothpaste							
High: Correlated ^b	.42	.41	.32	.42	19.24	.83	.14
Uncorrelated	.44	.39	.33	.46	48.94	.67	.00
Low: Correlated	.38	.51	.12	.36	18.03	.83	.20
Uncorrelated	.37	.51	.14	.36	30.55	.76	.07
Automobiles							
High: Correlated	.55	.54	.30	.48	18.29	.84	.25
Uncorrelated	.53	.56	.33	.51	40.43	.73	.03
Low: Correlated	.37	.51	.03	.65	26.92	.78	.03
Uncorrelated	.35	.51	.08	.64	43.08	.75	.01

^aBased upon regressions averaged across nine brands, each regression using 71 and 68 subjects as data points for the innovative and noninnovative groups, respectively.

^bSN and Aact were allowed to be correlated through freeing the ψ_{11} (2,1) element. Degrees of freedom were 11 and 12 for correlated and uncorrelated models, respectively.

As shown in Table 3, significant crossover effects were found for both groups and for both products. However, the largest crossover effects were found for the innovators in the automobile analyses. This finding is contrary to the hypothesized effects anticipated. It is interesting to note that the pattern of relative weights for attitudes and subjective norms was consistent with the results presented in Table 2 (i.e., prior to introducing the summated normative belief construct).

An additional set of aggregate brand analyses were run to test the hypotheses reflecting informational versus normative influences on subjective norms for innovators and noninnovators. These results are depicted in Table 4. Again, the estimates represent averages across nine brands with each regression using 71 and 68 subjects as data points for the innovative and noninnovative groups, respectively.

TABLE 4
 AGGREGATE ANALYSIS OF INFORMATIONAL AND NORMATIVE
 PREDICTION OF SUBJECTIVE NORMS^a

Product	Average Beta Coeff.		Adj. R-Square ^b
	NORM	INFO	
<u>Toothpaste</u>			
High	.27	.29	.21
Low	.41	.26	.31
<u>Automobile</u>			
High	.50	.17	.32
Low	.41	.19	.29

^aBased upon regressions averaged across nine brands, each regression using 71 and 68 subjects as data points for the innovative and noninnovative groups, respectively.

^bAll brand regression equations resulted in significant overall F-values ($p < .01$).

The hypothesized pattern of expected greater relative normative influence for noninnovators was observed only for the toothpaste brands. For the luxury automobiles, normative expectations were more highly correlated with subjective norms (in comparison to informational influence) for both innovators and noninnovators. The interpretation of these regressions was also confirmed by examination of predictor usefulness -- defined as the amount of decrease in explained variance when a variable is dropped from an equation (Draper and Smith 1966). For both groups and across brands, measures of variable usefulness were consistent with the relative beta coefficient sizes.

Discussion

This exploratory effort attempted to examine the role of interpersonal influences in Fishbein and Ajzen's theory of reasoned action across two groups of respondents partitioned into innovators and noninnovators. The study was designed as an initial effort to examine the role of interpersonal influence perceptions across individuals differing along a general measure of innovativeness, and as such, represents only a limited test of Midgley and Dowling's (1978) innovativeness definition. The study also suffers from a number of limitations. Caveats are in order regarding the use of existing brands and student subjects. To maintain a reasonable sample size, a median sample split was used. However, innovators are typically described as only the first few number (i.e., 2, 5, or 10 percent) of purchasers. Further, innovativeness was measured using scale items taken from another study. While the scale did appear to be reliable, the need remains for the formal development of an innovativeness scale using sound psychometric scale development procedures. Lastly, while substantial time was provided for the respondents and careful monitoring of the actual data collection effort was insured, the task required of the subjects was lengthy.

With these limitations in mind, this exploratory study does provide some implications regarding interpersonal influences on innovative behavior and supports recent tests of the theory of reasoned action. Regarding the latter, social norms and attitudes were correlated with intentions at both the aggregate and individual levels. Some evidence was also provided that the Aact and SN weights reflected differences for the two products (i.e., the public luxury and private necessity) as predicted by the theory. However, significant multicollinearity among the predictors of intentions and crossover effects from normative

structure were found. These results reiterate the conclusions of Ryan (1982, p.274) and Shimp and Kavas (1984, p. 807) that behavioral intentions are not a function of parallel, independent sets of inseparable attitudinal and normative variables, but of a complex set of interdependencies.

Crude measures of informational reference group influence were found correlated with subjective norms and did explain (at least, for one product) some unique variance beyond that accounted for by the traditional normative-expectation-based predictor of subjective norms. This very tentative finding lends credence to the arguments of Miniard and Cohen (1981, 1983) and the growing recognition that the social influence variables are under-developed.

The results of this study also provide some mixed support for Midgley and Dowling's conceptual view of innovativeness. On the positive side, the relative weights derived from aggregate tests of the behavioral intention equation of the theory of reasoned action and the prediction of subjective norms by the normative and informational measures are somewhat consistent with that predicted by Midgley and Dowling's arguments. First, for both the correlated and uncorrelated models, the relative pattern among the Aact and SN weights varied as anticipated for the public luxury and private necessity products. (It was noted, however, that the subjective norm coefficients were high for both innovators and noninnovators.) Second, highest normative weights (compared to the informational weights) were found for the product hypothesized to involve greater reference group influence. In contrast, the results of the crossover effects were not directly supportive of the hypothesized reference group paths. For both products (and particularly the luxury automobiles), the crossover effects were unexpectedly highest for the innovators.

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THE SELF-MONITORING CONCEPT: A CONSUMER BEHAVIOR PERSPECTIVE¹

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Abstract

The impact of the self-monitoring construct on the attitude-behavior relationship was examined under conditions of social pressure in a student setting. The experimental results, consistent with those in social psychology, suggest an explanation for variations in attitude-behavior consistency across consumers in the presence of situational cues.

Introduction

Beginning with Lapiere's (1934) classic article, the use of the attitude construct to explain and predict behavior has been under constant attack in both the psychological and marketing literature (Bettman 1981). In an extensive review of this literature, Wicker (1969) reported that the majority of studies linking attitudes to behavior showed correlation coefficients only in the order of .30. He concluded that "... as a whole, these studies suggest that it is considerably more likely that attitudes will be unrelated or only slightly related to overt behaviors than that attitudes will be closely related to actions" (1969, p. 65).

In marketing, the use of the attitude construct has been influenced by Fishbein's (1967) conceptualization which has generated an important stream of research. The research ranges from theoretical and measurement issues (Bennett and Harrell 1975, Bettman, Capon, and Lutz 1975, Mazis, Ahtola, and Klippel 1975, Ryan and Bonfield 1975) to more practical issues such as advertising (Dover and Olson 1977, Smith and Swinyard 1983). Overall, the Fishbein model has been of most interest for marketing and consumer behavior researchers mainly because product evaluation is frequently viewed as a multiattribute decision process (Wilkie and Pessimer 1973).

While Fishbein's extended model can offer satisfactory insights about how attitudes might influence behavioral intentions, it still suffers somewhat from an inability to adequately predict behavior (Songer-Nocks 1976a, 1976b). In fact, closing the 1976 *JESP* debate (a total of four articles and replies), Azjen and Fishbein (1976a, 1976b) themselves concluded:

"... consistent with our theory, the prediction of behavior from attitudinal and normative components was limited only by the strength of the intention-behavior relationship. Clearly then what does need to be further specified are those factors that limit the prediction of behavior from intentions." (1976b, p. 593).

Several of these moderating variables have since been identified (for a comprehensive summary see Zanna and Olson 1982; and Zanna and Fazio 1982), and one of the most important was found to be the manner in which the attitude was initially formed. Fazio and Zanna (1981) proposed that when attitudes are formed on the basis of previous behaviors, the attitude-behavior relationship should show greater consistency than when they were not. This relationship has been previously tested in a consumer behavior context (Smith and Swinyard 1983). However, a second factor proposed by Snyder and Tanke (1976), self-monitoring, has thus far been overlooked as a possible moderator for the attitude-behavior relationship. Our objectives are, therefore: to review the self-monitoring construct

and to test for its mediating role in both the attitude-behavior intention and the behavioral intention-behavior relationships.

Background

Snyder (1974) suggests that self-monitoring represents the degree to which individuals have the ability to be sensitive to the situational cues which guide their behavior in a variety of situations. Using as a theoretical basis the human need for social appropriateness which had been shown by Ash (1946, 1951, 1956) to have an impact on behavior, his intention was to provide an adequate operationalization for the construct.

The construct itself is defined as follows:

"The self-monitoring individual (read high self-monitor) is one who, out of a concern for social appropriateness, is particularly sensitive to the expression and self-presentation of others in a social situation and uses these cues as guidelines for monitoring his own self-presentation" (Snyder 1974, p. 528).

In the same vein,

"Non self-monitoring individuals (read low self-monitors) have less concern for the appropriateness of their social behavior and attend less to situational cues as guides to their social behavior" (Snyder and Monson 1975, p. 637).

These definitions suggest that the attitude-behavior intention as well as the behavioral intention-behavior relationships may be moderated by the extent to which individuals use social cues as guides to behavior and that the self-monitoring construct can be used to categorize individuals according to their degree of sensitivity to those cues.

Our interest in the self-monitoring concept itself stems from the partial explanation it has provided for the typically low correlation observed between attitudes and behavior in other contexts (see, for example, Fazio and Zanna 1981; Snyder 1974; 1982; Snyder and Tanke 1976; Zanna and Olson 1982; and Zanna and Fazio 1982). In a recent article, Azjen, Timko and White (1982) measured subjects' attitudes toward smoking marijuana, as well as their perception of the social norms concerning that activity. The results, which were integrated using Fishbein's extended model, revealed a significantly greater amount of consistency between the attitudes and behaviors of low self-monitors than for the high self-monitors--providing support for previous findings.

Hypotheses

In the past, marketing studies have produced conflicting results in the use of Fishbein's extended model:

$$B \approx BI = (A \text{ act}) w_0 + (NB.MC) w_1 \quad (1)$$

where B = Behavior; BI = Behavior intention; A act = Attitude toward the act; NB = Normative belief (that is, the degree of belief that others expect or do not expect the individual to perform a specific act); MC = Motivation to comply or not comply with the expectations of others; and w_0 and w_1 are weights to be generated by a regression.

In a review of 35 marketing studies using Fishbein's extended model, Ryan and Bonfield (1975) found multiple correlation coefficients varying between .24 and .81 and beta

¹The authors are grateful to Richard Olshavsky, Robert Smith, and Russel Fazio for their helpful comments.

weights varying between .03 and .68. These authors suggest that the efficiency of the fishbein model, and more specifically the social norm component, might well be a function of the products studied as well as of the degree of attitude centrality (Ryan and Bonfield 1975; see also: Glassman and Fitzhenry 1976). Based on the self-monitoring perspective, a third factor could be added to the ones proposed by Ryan and Bonfield. That is, if high self-monitors are more sensitive to their external environment, then their behavioral intentions should be affected to a greater degree by their social norms than the behavioral intentions of the low self-monitors.

Consistent with our position, it could be argued that the attitude towards a behavior would predict the intentions of high self-monitors as well as those of low self-monitors, assuming that the behavioral relevance of such attitudes is apparent to both types of people.

Finally, given that an individual has formed a behavior intention, if the situation is to be performed in the presence of social pressure (situational cues), we would expect that the degree of consistency between BI and B would be greater for low than for high self-monitors. From the preceding discussion the following formal hypotheses can be stated:

- H₁: The impact of social norms (SN) on behavioral intentions (BI) should be greater for high than for low self-monitoring individuals.
- H₂: There should be no significant difference in the impact of attitudes on behavioral intentions between the high and low self-monitoring individuals.
- H₃: Under conditions of social pressure, low self-monitoring individuals will show a greater degree of consistency between their behavioral intentions and their behavior than high self-monitoring individuals.

Methodology

Ninety-four undergraduate students from Indiana University participated in the study. About three weeks prior to the experiment, subjects were asked to complete the Snyder self-monitoring scale. The initial questionnaire was presented by the principal investigator as part of a study whose objective was to assess the reliability of the 25-item scale (and provide tracking information). Three weeks later the same subjects were probed via a follow-up questionnaire regarding their attitudes, perceptions of social norms and their behavioral intentions towards the purchase of the Time-Life musical collection (presented in the form of an advertisement).

After collecting the questionnaires, the students were told that, in order to thank them for their cooperation, they would have the opportunity to purchase the music collection at a discount of \$2 off the regular price (\$29.96). To take advantage of the opportunity, the interested students had to raise their hands and ask for a special form to be used to send them a \$2 coupon applicable to the purchase of the Time-Life music collection.

Following a pre-test of four products, the music collection was retained as the target product. The criterion used to select the target product was that no more than 30% of the pre-test sample (N=30) should indicate a favorable attitude towards it. The purpose of using such a product towards which the majority of subjects were to have an unfavorable attitude, was to generate a sufficient level of social pressure for those individuals who would be forced to display a public interest in acquiring the product. That is, since the experiment was to be conducted in a classroom setting, it was assumed that if the majority of the students were not to raise their hands, indicating their lack of interest for the product, it

would generate a certain degree of social pressure for the minority of subjects who might be interested in buying the product. Our decision to use students in a classroom setting was based on the earlier work of Park and Lessig (1977) who found that students--particularly in a classroom setting--were extremely sensitive to their reference group. Too, such a procedure implies that the subjects are "forced" to participate, and in our design it was crucial to avoid using only "volunteer" subjects since they would seem more likely to be low self-monitoring individuals (Rosenthal and Rosnow 1979). Thus it was important to control for the strength of the situational cues that the experiment was to generate, and we felt that if at least 70% of the participants were not to raise their hands it would result in a situation such that those high self-monitoring subjects who might otherwise have been interested in "buying" the product would probably refrain from doing so because of the situational cues provided by their environment. Conversely, it was assumed that those same situational cues would not affect the behavior of the low-self-monitoring individuals who intended to acquire the music collection.

Experiment

The experimental questionnaire contained three main sections, with the first measuring subject attitudes using a multi-attribute expectancy-value model. Belief strength (E), and attribute evaluation (V) were collected for each of five attributes selected on the basis of pre-test relevance ratings. Consistent with previous operationalizations (Fishbein and Azjen 1975; Smith and Swinyard 1983), belief strength (E) was measured on a 7-point scale which asked subjects to indicate, "How likely do you think it is that the Time-Life musical collection is (product attribute i)?" Attribute evaluations (V) were measured on 7-point scale (from "extremely bad" to "extremely good") by asking subjects "If you were considering buying a musical collection, how would you evaluate one that offers (product attribute i)?" In order to obtain an estimate of the subject's attitude ($\sum EV$) toward the target product, his/her scale values were multiplied and summed over all five attributes.

In order to test our hypotheses, a conceptually parsimonious measurement of the subjects' motivation to comply to social norms was necessary. As initially specified in Fishbein's extended model (Equation 1), the tendency to comply to normative pressures is (SN) = NB*MC, where NB is the normative belief component and MC is the motivation to comply. In order to operationalize the SN construct, Glassman and Fitzhenry (1977) tested different measurement approaches by varying the level of specificity of the different components. Their results indicate that the use of a single question such as "most of the people whose opinion is important to me would think that the (behavior) is _____," is quite acceptable. In fact, this is consistent with Fishbein's (1973) position that the MC component may not improve predictability as only positive evaluated others tend to be elicited. Thus, we elected to measure subjects' social norms by using a 7-point adjectival scale (ranging from "extremely bad" to "extremely good") as response categories to the question "most of the people whose opinion is important to me would think that the purchase of the Time-Life musical collection is _____."

Behavioral intentions were measured as responses on a 7-point likelihood scale (ranging from "zero-likelihood" to "certain") to the question "How likely or unlikely is it that you would buy the Time-Life musical collection?" Finally, the completed forms that subjects had to ask for and return in order to receive the \$2 discount coupon were used as the measure of behavior.

Analyses and results

The following analyses are based on 94 usable sets of data representing subjects who had completed and signed both questionnaires. Subjects' self-monitoring scores varied

from 5 (low self-monitoring) to 21 (high self-monitoring) out of a possible range from 0 to 25, with a mean of 12.46 and a standard deviation of 3.52. Following Snyder (1974), subjects with a self-monitoring score greater than or equal to 15 (N=28, 29.7%) were classified as being high self-monitors, and those with a score less than or equal to 10 (N=30, 32%) were classified as being low self-monitors.

We first tested for any differences in the reported attitudes toward the musical collection *per se* between the two types of self-monitors, that is, whether the target product had more appeal for one group than for another. This seemed crucial since any initial differences between the attitudes held by the two kinds of self-monitors could confound the rest of the analyses. A one-way ANOVA was performed testing for differences in attitude scores (EV) between the high and the low self-monitors, and this analysis revealed that the extent to which an individual is a self-monitor had no apparent effect on his/her attitude toward the musical collection (H.S.M. \bar{x} =2.1, N=28; L.S.M. \bar{x} =1.9, N=30), $F(1,56)=0.57$, $p=.811$.

Next, in order to test the first two hypotheses, subjects' attitudes (EV) and social norms (SN) were combined using Fishbein's extended model and were used to generate an overall regression equation. Two similar regression equations were then generated, the first using only the scores of the 30 low self-monitors and the second using only the scores of the 28 high self-monitors. The results presented in Table 1 show some support for our use of the Fishbein's extended model.

TABLE 1

PREDICTIONS OF BEHAVIORAL INTENTIONS (BI FROM ATTITUDES (ATT) AND SUBJECTIVE NORMS (SN)

	Correlations		Regression Weights				R ²
	Att-BI	SN-BI	Att-BI	p	SN-BI	p	
Total Sample (N=94)	.41	.35	.26	.001	.37	.003	.25
Low Self-Monitors (N=28)	.48	.14	.47	.01	.09	.602	.23
High Self-Monitors (N=30)	.40	.45	.40	.04	.35	.026	.32

While both components of the model contributed significantly to the explanation of behavioral intentions when using the total sample, of somewhat more interest is the comparison between the low and the high self-monitoring regressions. Here the social norm component (SN) was significant only for the high self-monitoring subjects (H.S.M., $p=.026$; L.S.M., $p=.602$) suggesting that situational cues (normative pressures) have an impact on the formation of behavioral intentions only for high self-monitors. While this doesn't mean that only the high self-monitors perceive social norms, it does mean that only the high self-monitors use them as guides for their behavior. This last point is an important one since use of an ANOVA revealed no differences in the reporting of social norms between the low and the high self-monitoring subjects (H.S.M. \bar{x} =.22; L.S.M. \bar{x} =.17), $F(1,56)=.1$, $p=.970$ - a finding quite similar to that of Azjen, Timko and White (1982). Thus the first hypothesis predicted that the impact of social norms (SN) on behavioral intentions would be greater for high than for low self-monitoring individuals, and our results failed to disconfirm this hypothesis.

Our position has consistently been that high and low self-monitors differ in the degree to which they use situational cues rather than in the degree to which they use attitudes to guide their behaviors. However, the beta weights for the attitude component in Table 1 suggest that the low self-monitoring subjects might be more likely to use their attitudes in forming their behavioral intentions than do the high self-monitoring subjects (L.S.M. $\beta=.47$; H.S.M. $\beta=.40$). The difference was tested by comparing the partial correlations between Att and BI using Fisher's r to Z transformation for independent samples. The finding of no difference between the two coefficients (even at the .10 level) suggests that the two types of individuals do not differ in their propensity to use their attitudes to guide their behaviors, again replicating the findings of Azjen, Timko and White (1982). Thus, the second hypothesis of no significant differences in the impact of attitudes on behavioral intentions between the high and the low self-monitoring individuals could not be disconfirmed.

Out of 94 subjects, only 20% (N=18) indicated a favorable behavioral intention towards obtaining the target product. These results were consistent with those of the pre-test and were deemed necessary in order to generate a sufficient amount of situational pressure on those who were favorably inclined toward product "purchase." Only 5 subjects requested the discount coupon by raising their hands. Fortunately, none of these subjects had indicated an unfavorable behavioral intention toward buying the product, thus minimizing the possibility that an individual could ask to receive the coupon in order to resell it or to give it to someone else. Under these conditions, since the majority of the subjects indicated an unfavorable behavioral intention and acted consistently by not "buying" the product, a simple correlation between behavioral intention and behavior would be meaningless. Of greater interest is the behavior of those individuals who had a favorable behavioral intention towards product purchase. Our third hypothesis predicted that in the presence of social pressure, low self-monitoring individuals would show a greater degree of consistency between their behavior and their behavioral intentions than high self-monitoring individuals. In order to test this hypothesis, a chi square analysis was performed using the 18 subjects who had indicated a positive behavioral intention toward the purchase of the Time-Life collection. Table 2 shows the configuration of the analytical design. The result offer strong support for the third hypothesis ($\chi^2=6.978$, $df=1$, $p<.010$).

TABLE 2

THE REPARTITION OF THE 18 SUBJECTS WHO HAD A FAVORABLE BEHAVIORAL INTENTION

	Bought	Did not buy
Low self-monitors	5	0
High self-monitors	4	9

Implications, limitations, and futur research

With some exceptions, the self-monitoring concept doesn't seem to have been extensively used in consumer behavior. Becherer and Richard (1978) found personality to have a greater impact on behavior among low self-monitors than among high self-monitors. Becherer, Morgan, and Richard (1980) found that low self-monitors were more subject to reference groups' influence than were high self-monitors. Our research is conceptually closer to Snyder's work. The self-monitoring construct is presented here as a variable which can moderate the impact of attitudes. The relationships presented in this paper could be of some theoretical interest for the area of consumer research. Since attitude is one of the central constructs proposed in most

consumer behavior models a closer look at the factors which can mediate the attitude-behavior relationships seems important. In a recent publication, Smith and Swinyard (1983) have proposed several such mediating variables and have urged for more research along these lines. From a more practical standpoint the present research might also have some relevance. For marketing managers and marketing researchers, interpreting the results of pre-tests of advertisements, products and product concepts that use behavioral intentions as the dependent variables should be made with greater care if a sufficient number of subjects are found to be high self-monitoring individuals.

Although the present paper offers some interesting implications several limitations are worth mentioning. First, in recent years, the self-monitoring scale has come under close scrutiny by many researchers (Briggs, Cheeks, and Buss 1980, Gabrenya and Arkin 1980). These authors suggest that the self-monitoring scale is a multidimensional rather than an unidimensional scale and that further research is needed in order to fully understand the exact nature of the constructs it taps. Along these lines, Lennox and Wolfe (1984) have suggested a revised version of the scale. Second, the SN and BI components of our equation were measured using only one item scales. Although the measures were based on other studies, the use of single measures in the present study is weak from a construct validity standpoint. Finally, the strategy of placing every one in a social pressure condition where non-behavior supports the hypothesis, although an original one, could have been better if the social pressure condition would have been manipulated.

The main objective of the present research was to generate some interest for the self-monitoring construct. At this point, future research could and should be considered. Very little has been done concerning the sociometric dimensions of the self-monitoring construct. Also, the concept could be of some interest for the researchers interested in the diffusion of innovations. That is, given a certain amount of interest in a product, its adoption could still be jeopardized if there were too few individuals actualizing their intentions and failing to provide favorable situational cues for others in the marketplace. It could also be that those individuals labeled as "innovators" are much more likely to be low self-monitoring individuals, though this remains an empirical question. It is our hope that our findings will sensitize marketing researchers to the use of the self-monitoring concept and generate additional research on its use in consumer behavior.

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THE CONCEPT OF CONSUMER MARKET EFFICIENCY:
TOWARD EVALUATING THE SOCIAL EFFICIENCY OF CONSUMER MARKETING

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Abstract

This paper develops a concept of market efficiency from the consumer's perspective, that is, value received from consumption of a product category relative to the cost of consumption. After conceptual specification, an initial suggestion for operationalizing the construct is offered. The purpose of these efforts is to develop an ability to appraise various product markets in terms of how well they are performing the basic task of delivering satisfaction to consumers efficiently.

Introduction: The Issue and the Literature

Considering the recognized importance of such issues as consumerism, the social responsibility of business, and ethical standards in marketing, development of an objective method for evaluating the net contribution of consumer marketing to human welfare would be useful and significant. There have been occasional exhortations in the marketing literature for analysis of the "social efficiency of marketing," as this concept may be designated, as well as suggestions for possible measures. Some representative illustrations of these views follow.

Expression of the "net" social contribution of marketing implies a comparison of marketing's costs with its benefits, in other words, an imput/output-type measure of efficiency. Some initial appraisals have been concerned with the efficient intra-firm performance of marketing functions, with societal benefits implicit upon aggregation (Barger 1955; Beckman 1957; Bucklin 1970; Stewart and Dewhurst 1938), for example, estimates of distribution efficiency. Hollander (1961) observed that labor hours and monetary costs are the "only two measures by which we can evaluate the total inputs into the total marketing system." Regarding outputs, sales or consumer "votes in the market place" were offered as the appropriate index. This is intuitively appealing since purchase prices should approximately reflect value, or at least anticipated value, in perhaps all cases except attainment of extreme bargains and, possibly, monopoly. (Even in monopoly situations with artificially high prices, consumers have the option of declining purchase. Monopolies are only permitted to exist where society has decided their benefits surpass these additional costs.) However, Hollander also has identified a potential problem in that profits, or the difference between sales and costs, are generally such a small percentage of the total that "input and output will always be roughly equal." This complicates the task of determining efficiency. The same criticism can be applied to suggestions of value-added as a measure of marketing output (Beckman 1957; Hollander 1961).

Profit, itself, is an attractive surrogate for marketing's net social contribution. This assertion is supported by the free-enterprise axiom that the producers which most efficiently provide the goods and services that people desire the most will be the most successful. In the words of Czepiel and Rosenberg, "the cash register and profit-and-loss statement generate powerful feedback for . . . society about the satisfaction resulting from a given product/service" (1976). It is conceivable, of course, that higher profits will not always translate into greater social welfare, e.g., price increases without comparable increases in value. So profit, although attractive, appears an imperfect indicant of marketing efficiency.

A parallel argument has been presented by Balderston (1964), who suggests that "one criterion of the efficiency of marketing organization may be the maximization of total net revenues of all market participants other than final buyers," to which Preston and Collins (1966) protest that

this "specifically neglects the welfare of consumer participants." Total revenue appears to be a better approximation of marketing input than output.

The Market Perspective

Perhaps a more analytically promising way to assess the concept of consumer marketing efficiency would be by isolating the performance of individual markets. Since markets can be considered components of the marketing system, and the function of marketing is to actualize potential exchanges in markets for the purpose of satisfying human needs and wants (Kotler 1976, p. 5), this approach would seem to have merit. However, prevailing descriptions of "market efficiency" tend to restrict the scope of the issue to a level far beneath a full consideration of social consequences. Stigler (1961) has adopted the position that since "the basic function a market serves is to bring buyers and sellers together," existence, continuity, and stability are necessary conditions for market efficiency. He adds: "A market is efficient when cost changes are readily reflected in price changes, demand changes reflected in volume changes, and random instability not associated with fundamental readjustments is at a minimum." Preston and Collins define market efficiency as "the facility and effectiveness with which the potential exchanges are accomplished," while acknowledging their neglect of "the specific character or quality of goods or services subject to exchange" (1966). Finally, the economic concept of pareto-optimality, or the condition by which no market participant can gain without a loss to another (Henderson and Quandt 1971, pp. 255-8), while conceptually impeccable, does not consider the welfare gains of innovation and variety associated with market imperfections (Lundstrom and Lamont 1976).

From the preceding discussion it can be posited that there is an implicit, qualitative aspect to marketing output that is far more difficult to specify than the inputs to the marketing system which may be subject to monetary measurement. It is advocated here that the proper specification of this elusive construct is utility, in the strict economic usage, or the term's marketing-language translation: satisfaction. Justification for applying this interpretation to the question of social efficiency comes from marketing's ultimate purpose of consumer satisfaction (Czepiel and Rosenberg 1976; Kotler 1976). Obviously, a sizable measurement problem has just been created.

Some Measurement Background

There have been relatively few efforts to empirically measure customer or consumer satisfaction in this general context. Among representative examples, Cardozo (1965), in attempting to isolate the influence of effort and expectation on customer satisfaction, operationalized the construct as a product rating on a scale of zero to 100, representing "very inferior" to "vastly superior" in comparison to other products. Swan and Combs (1976), designating consumer satisfaction as a function of the expectation-product performance relationship, merely asked respondents to state instances of satisfaction and dissatisfaction, and "what happened to make you satisfied (dissatisfied) with this item?"

Some have found it convenient to focus entirely on consumer dissatisfaction, defined by Anderson as "the degree of disparity between expectations and perceived product performance" (1973). In his study of the effects of disconfirmed expectancy, Anderson developed a quasi-monetary measure of satisfaction by having subjects estimate the cost (worth) of ballpoint pens they had been

given. Lundstrom and Lamont, on the other hand, took a more global view in their 82-item, six-point Likert-type "Consumer Discontent Scale," designed to measure the general state of consumer attitudes toward business (1976). Sample statements from the scale include "Business profits are too high"; "All business really wants to do is to make the most money it can"; and "The consumer is usually the least important consideration to most companies." Of course, there is an entire literature on the subject of consumer satisfaction/dissatisfaction, but not on the subject precisely as interpreted here.

Some preliminary ponderings on how to measure marketing's contribution to the "quality of life" are found in Reynolds and Barksdale (1978): Andraesen (1978) discusses shortcomings of indices such as sales, repeat purchasing, and expressions of consumer satisfaction as measures of health care quality, and recommends actual reports of problems as a preferable indicator. Bechtel (1978) explicates a life-quality satisfaction scale ("never" to "always satisfied") with respect to a number of product categories and marketing functions.

While the measurement attempts described above are intriguing and productive, there does appear to be considerable potential for improvement in quantifying the output side of consumer marketing efficiency. Product quality evaluations do not necessarily capture satisfaction experienced, and overall sentiment toward business, or even marketing, may be subject to invidious social biases. Surely a concept such as satisfaction, or utility, can be assigned a more precise valuation. This premise provides the basis for the following discussion.

Conceptualization of a Measure

The case for a measure of marketing's social efficiency rests on these tenets, which have been stated or implied:

- (1) Measurement of marketing efficiency constitutes an input-output, or cost-benefit, analysis.
- (2) Marketing input is comparatively quantifiable. Total sales or revenues are acceptable measures for this (from the consumer perspective), reflecting all costs of the marketing system including return to the entrepreneur, i.e., profit.
- (3) Since the objective of marketing is customer satisfaction, this specifies the system's output. Quantification of this dimension, when compared with the input, would yield an objective efficiency ratio highly consistent with the concept of social benefits in relation to costs. (The advantage of such an input-output comparison over traditional satisfaction measures, therefore, is that it considers consumer satisfaction in relation to an objective standard, rather than in isolation.)
- (4) Given the ambitiousness of such a measurement project, the most realistic procedure may be to examine the efficiency of the components of marketing, or individual markets.

The present discussion, therefore, will be limited to the efficiency of markets, specifically consumer product markets. At this time, to establish a reference analog, it may be instructive to consider a measure of market efficiency already developed and widely accepted in another context.

In the field of finance, the concept of market efficiency is applied to capital markets and manifested in the Efficient Market Hypothesis (EMH). According to the EMH, a capital market is efficient only if prices fully reflect available information; that is, there exists no trading system based on available information by which a return could be earned in excess of the equilibrium expected return of the market portfolio or an individual security (Fama and Miller 1972). Furthermore, it has been suggested, tested, and supported that, with few exceptions, the actual capital markets in existence are efficient (Fama

1970).

This framework can be adapted to consumer marketing. While capital market efficiency is expressed as a comparison of investment returns to an absolute standard, consumer market efficiency would involve a relative comparison of consumption spending returns in various markets. Consumption spending return can be defined as the benefit/cost ratio in each particular market and will necessarily be relative because of the apparent absence of a limiting value to satisfaction, which would serve as the numerator. The measure of return in consumer markets, therefore, appears:

$$\begin{array}{l} \frac{\text{Benefits}}{\text{Costs}} \\ \text{or} \\ \frac{\text{Output}}{\text{Input}} \\ \text{or} \\ \frac{\text{Satisfaction (Utility)}}{\text{Expenditure (Total Sales)}} \\ \text{or} \\ \frac{\text{"Return"}}{\text{Investment}} \end{array}$$

Taking the view of marketing's social purpose, consumer satisfaction/expenditure seems a valid expression of the concept, and is analogous to the financial measure of discounted net present value of cash flows/initial investment (Van Horne 1971, p. 60), i.e., the "profitability index." With the marketing measure, satisfaction and expenditure flows would simply be expected to occur in the same period.¹ More precisely,

$$\frac{\text{Benefits} - \text{Costs}}{\text{Costs}} \text{ or } \frac{\text{Satisfaction} - \text{Expenditure}}{\text{Expenditure}} \text{ would be the}$$

proper measure of return in consumer markets, as can be illustrated by the following discussion of the consumer exchange process.

Typically, a consumer purchase involves an amount of money exchanged for a product (good or service). For the exchange to occur, the consumer must value the product more than the money. That is, unless a greater value is attached to the object of purchase than is represented by its price, or the amount of money that must be given up for it, there is no incentive for the consumer to make the exchange. Symbolically,

$$V(P) > V(\$)$$

with $V(P)$ = value of the product

and $V(\$)$ = value of the money.

For the purpose of defining a market efficiency measure, the amount of difference between $V(P)$ and $V(\$)$ is of importance. The algebraic difference $V(P) - V(\$)$ represents value, or benefit, provided by the product in excess of its cost. (This is a micro-representation of the concept known in economics as "consumer surplus.") Identification of what this value is for any given exchange may be accomplished with the assistance of the consumer involved. Theoretically, a consumer would be willing to pay an amount approaching $V(P) - V(\$)$ for the privilege of obtaining $V(P)$ worth of value for only $V(\$)$. For example, if a consumer buys a product for \$10, he or she must value this product more than s/he values having the \$10. Say the subjective valuation of the object of purchase is \$15. Therefore, s/he should be willing to pay an amount very near \$5 to be able to exchange \$10 for \$15 in value. Provided consumers can make accurate estimates of such

¹Products of long purchase-cycle, such as consumer durables, would pose only a slight conceptual problem here. Either a "discounted net present value of future satisfaction" would have to be determined to define the numerator, or the "period" would have to conform to the purchase- or product life-cycle. The denominator would then include all life-cycle costs, a la Hutton and Wilkie (1980), rather than just initial expenditure.

maximum acceptable transaction "fees," the ratio

$\frac{V(P) - V(\$)}{V(\$)}$ would represent excess benefit, or excess

satisfaction, in relation to expenditure (analogous to return on investment), and $V(P)/V(\$)$ would reflect total satisfaction per unit of expenditure, or an efficiency ratio of output/input. Aggregated across all transactions within a product class, an overall measure of market efficiency for that product would be derived. The relative efficiencies of different product markets could then be compared. All that remains now is to generate an accurate monetary measure of consumer satisfaction in specific product markets to be compared with expenditure. This, of course, will be no small task.

A Tentative Step toward Operationalization

As indicated, the fundamental purpose of this discussion is to develop a procedure for comparing the social efficiency of various product markets on the basis of the inputs and outputs described in the previous section. This will involve estimating consumer satisfaction and expenditure associated with different products. As this is done, a means will be provided for the testing of the following hypothesis.

- H: There are significant differences between different consumer product markets in terms of social efficiency provided (expressed as the monetized value of satisfaction relative to expenditure).

Confirmation of this hypothesis would actually be trivial. However, the rank ordering of different product markets on the basis of efficiency ratings could be highly revealing. Failure to confirm the hypothesis might be the most meaningful finding of all, suggestive of a kind of unanticipated equilibrium level of satisfaction per dollar across all product categories.

The principal problem to overcome in any such research effort remains the development of a means of establishing quantified or monetized values corresponding to consumer satisfaction. One imperfect suggestion for accomplishing this is summarized in the remainder of this section.

First, a representative sample of consumers must be selected. Perhaps the ideal approach would be to interest one of the national polling organizations in the project and utilize their resources to obtain an adequate sampling of the consumer population. Given the importance and relevance of the issue, this hope may not be too unrealistic. Failing that, another possibility would be to purchase commercial market research. The samples employed by the MRCA consumer panel, National Family Opinion, and Market Facts, Inc. would be highly suited to the purpose. In the event that such assistance cannot be obtained, then a less ambitious sampling plan could be designed, such as telephone sampling or use of commercial mailing lists.

Regardless of which sampling procedure were to be used, the intention is to assign a value to the amount of satisfaction derived from a given market for a specified period. This value might be estimated by consumer subjects' responses to a hypothetical situation statement similar to the one that follows, presented to them in personal interview context:

I want you to think about an imaginary situation. Suppose I am the all-powerful ruler of the United States, or some supreme world authority, and that I have the power to do anything I want. Suppose I am a very capricious ruler and that, for no reason at all, I decide to prevent you from buying (product) for an entire month. Not only do I prevent you from buying _____, but I also prevent you from having your family or friends get it for you--in other words, I prevent you from obtaining _____ in any way for a period of one month. I won't even let you use the _____ you already have. Remember, since

I am all-powerful, I can do this.

But imagine that, even though I rule the world, I am still very fond of money. In fact, if you pay me enough money, I will agree not to deprive you of _____ for the one-month period. That is, I will let you purchase the right to continue buying _____.

Now think about what it would be like to do without _____ for a whole month, and think about whether it would be unpleasant or difficult, or not so bad. What I want to know is: How much would you pay me not to keep you from having any _____ for a whole month?

Accurate answers to this question, if attainable, should represent a true valuation of the excess utility or satisfaction which consumers derive from the specified product market for the stated period, in this case, one month. In other words, consumers would be expected to pay the "supreme authority" an amount up to, but not exceeding, their valuation of anticipated surplus benefit from participating in the market. (It would be emphasized to the subjects that the answer given should be the maximum amount, rather than an initial bargaining position.) As long as the question is understood and the responses genuine, a monetary expression of excess consumer satisfaction for a product market should result, which can then be compared with expenditure. This latter figure could be obtained simply by asking subjects how much they spend per month on the given product (which would be done subsequent to the satisfaction measurement to avoid any possibility of influencing that rather delicate response). This procedure would be repeated for other products in order to generate values for several product markets. Relative market efficiency can be determined (for each consumer) by comparing measures of return:

$$\frac{V(P)_x - V(\$)_x}{V(\$)_x} \geq \frac{V(P)_y - V(\$)_y}{V(\$)_y}$$

with subscripts indicating markets.

Since utility is not comparable across individuals (Henderson and Quandt 1971, p. 255), intra-subject rankings would have to be averaged for each product market to compute an aggregate measure of relative market efficiency. That is, differences between markets are to be determined by comparing median ranking (across consumers) for each product market.

Although the hypothetical scenario measure may appear unrealistic and operationally intractable at first (and possibly thereafter), a similar approach was demonstrated by Marquardt, et al. (1972) who, essentially, asked consumers the question, "How much would you be willing to sell your camper for?" Marquardt, et al. simply attempted to identify the value necessary to receive before deprivation of a product would be accepted, instead of the price willing to be paid to avoid deprivation. Naturally, the measure suggested in this paper (which is only intended as a conceptual starting point) could be recast in similar fashion. Consumers could be asked, in effect, "How much would I have to pay you to do without (product) for one month?"

The same idea, i.e., excess value received from consumption, is also illustrated by the quasi-experiment reported in the Exhibit.

Validation

The kind of market efficiency/consumer return measure which has been suggested may be meaningful or it may be totally specious, but this cannot be known until its validity is assessed. To accomplish this, a more conventional psychological scale should be constructed to measure consumer attitudes toward the applicable markets. A five-point Likert scale, incorporating items such as those shown in the Table, could be developed to capture the conceptual domain designated as "value received in relation to cost."

93 TV 'addicts' spurn offer for a \$500 turnoff

DETROIT (AP)—A Detroit newspaper thought it had an offer few could reject—\$500 if a family agreed to turn off its television set for one month.

The Detroit Free Press approached 129 families with the offer. And 93 turned it down.

The paper said it was trying to study "television addiction."

Only 27 of the families that were approached agreed to exchange their TV viewing for the \$500, the paper reported in its Sunday editions.

A TYPICAL response came from a suburban Romulus woman who said: "My husband would never do it. He comes home from work and sits down in front of the TV. He gets up twice—once to eat and once to go to bed."

The newspaper selected five families that agreed to accept money in ex-

change for television and sent TV repairmen into their homes on Sept. 19 and 20 to disconnect their sets.

The paper reported these results:

- One couple stopped talking. Six days into the project, the husband ducked behind a newspaper and never came out. "I think he's suffering from withdrawal," his wife said.

- Two people started smoking heavily—one going from 1 to 2½ packs a day.

- All the subjects said they saw more movies, read more, visited friends and relatives more often, and took more weekend trips.

- While some children played together peacefully, others became cranky, bored, and begged to have the set turned back on. Most of the fathers said they got to know their children better, and four families said they were drawn closer by the experience.

Source: Chicago Tribune, c. 1977.

It appears these consumers attach a high monetary value to the "excess satisfaction" obtained from television viewing. This must be a highly socially-efficient consumer product market.

Assuming measures are taken for multiple product classes across multiple consumer subjects, convergent validity can then be determined by at least two methods: (1) The "efficiency" of the various product markets can be ranked according to each of the two measures, and the within-subject rank correlations computed. (2) After intra-subject ranks for each product are determined by the two methods, simple correlations between the ranks yielded by each method can be calculated for each product across subjects.

Potential Difficulties

At this point, some unanswered questions should be addressed. First of all, is total consumer monetary expenditure the appropriate measure of marketing input? It can be argued that the consumer's time and effort should also be included in the investment base (Hollander 1961). So, might the market efficiency ratio be inflated by not including non-monetary expenditure in the denominator?

In response to this, it will be acknowledged that there is, indeed, a non-monetary aspect to marketing input. However, this time and effort expenditure can be regarded either favorably or unfavorably by consumers, i.e., as either a benefit or a cost, because, for instance, some people like to shop (Hollander 1961). Therefore, it is suggested that, depending on whether this aspect is evaluated positively or negatively, it will be manifested in the proposed efficiency measure as an implicit addition to or deduction from the satisfaction value.

Another potential objection concerns the impact of effort on expectancy and, in turn, satisfaction. For example, increased effort, financial or otherwise, may raise expectations and, therefore, influence product evaluation (satisfaction) upward or downward upon disconfirmation,

I get good value for my money when I buy (product).

The people who sell _____ are rip-off artists.

_____ costs too much.

The price I pay for _____ is about the same as the quality I receive.

I generally get what I expect when I buy _____.

Buying _____ is often a foolish waste of money.

_____ companies make too much money compared to what they do for consumers.

Most of the _____ I buy is overpriced.

_____ prices are reasonable given the high cost of doing business.

_____ companies take advantage of consumers by charging higher than normal prices.

I usually get my money's worth from _____.

(Some items adapted from Lundstrom and Lamont 1976.)

depending on the operative psychological model: assimilation, contrast, generalized negativity, etc. (Anderson 1973; Cardozo 1965). Will such a condition confound the relationship between the components of the market efficiency ratio? Possibly, but it should be recognized that the relationship of interest is between actual marketing costs and actual benefits. The measure assumes that expenditure level affects satisfaction. (For example, an extremely high or exorbitant monthly expenditure level would certainly decrease the amount a consumer would be willing to pay for the privilege of continuing to spend that money. In other words, excessively high prices impact upon satisfaction. This does allow a two-fold, or magnified, effect on the market efficiency ratio, which simply makes the measure volatile with respect to price changes.) If these costs also influence satisfaction through the intermediation of expectancy, this is simply another manner in which marketing input impinges upon consumer well-being, accounted for by the measure, but unnecessary to control.

More fundamentally, it is acknowledged that a restrictive interpretation of "social efficiency" has been employed here. Efficiency has been defined only from the perspective of the customers in a particular market, ignoring the clear possibility of externalities, positive or negative, impacting on the larger society. (For instance, producers of goods which satisfy their customers very efficiently might also be discharging pollution into the environment.) Since the nature of externalities may be so difficult to assess, the approach in this paper is offered as a substantial enough starting point. But a reasonable working assumption may be that the democratic process, manifested primarily in government regulation, will attend adequately to the externality problem, ever controlling externalities at a tolerable, and roughly equal, base-line level relative to market benefits across industries.

Regarding the hypothetical scenario statement, the classes of products selected for subject consideration may also be significant. A comparison between vital necessities, or products which are required for basic physiological survival, with discretionary products, for example, may not be valid. It could be argued that urgently needed products would be deserving of the enormous satisfaction values they

would be expected to receive because of the priceless needs they fulfill at finite costs, but for purposes of realistic comparison it appears prudent to consider only non-essential, although valued, products. Consumer convenience goods would seem to be potential candidates.

Related to this, it is conceivable that a consumer's income level could artificially limit the stated $V(P) - V(\$)$ amount, removing it from a true expression of excess utility. Restricting the chosen product categories to discretionary and/or low-priced items may be useful for circumventing this potential problem also. In such a situation it seems unlikely that $V(P) - V(\$)$ would be significant enough relative to consumer income to abort the validity of the analysis.

The one-month time frame may also be a problem. Anticipation of a relatively imminent lifting of the "authority's" prohibition might cause understatement of the satisfaction-valuation assessment. Perhaps an open-ended scenario, requiring payment of a monthly or annual stipend, would provide for greater accuracy.²

Concerning the question of comprehensibility, it would appear that there is nothing contained in the presentation to violate this requirement. Although the imaginary situation is highly unrealistic, the essential proposition is quite simple and straightforward. Final resolution of these issues will only be determined by empirical test, of course, and this is to be the subject of a forthcoming paper.

Conclusion

The preceding has

- described how the issue of the social contribution of marketing activity can be reduced (at least at a product/market level) to one of value delivered to consumers relative to product cost;
- developed a symbolic specification of this construct;
- suggested two approaches, one primary and one validation, to initial operationalization of the construct;
- advocated the potential significance of determining the comparative social "efficiencies" of different product markets; and
- addressed some potential difficulties associated with the procedure.

Considering the significance of the issue to many audiences--marketing researchers and practitioners, consumer researchers and advocates, consumers themselves, and public policy makers--and the relative scarcity of attention it has received, the modest aim of this paper, itself a precursor of an empirical study, has been to regenerate conceptual and empirical interest in this vital matter. A foreseeable outcome of this type of project might be the more accurate targeting of public policy and consumer lobby efforts, that is, the focusing of attention on less efficient markets. Actually, it may not be at all extreme to suggest that identifying the social performance of marketing, in the sense of individual product markets (i.e., industries) delivering value to consumers efficiently, may be one of the highest aims of marketing and consumer research.

²This would also be pertinent to the concern expressed in footnote 1 about products with a long purchase-cycle. Approximation of "discounted net present value of future satisfaction" might be achieved by asking how much would be paid to avoid the hypothetical prohibition over the consumer's entire life-cycle.

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DEFINING AND EVALUATING QUALITY:
THE CONSUMER'S VIEW

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Abstract

Market conditions are causing marketers to re-examine quality of products and services as a means of achieving a competitive advantage. Despite extensive research, however, relatively little is known about consumers' perceptions and evaluation of quality. Therefore, a research project has been undertaken to investigate the role of "quality" in consumer purchase and consumption activities. This paper describes the initial findings from focus group interviews, which reveal interesting, if tentative, insights into the meaning of "quality" and how quality of products and services is evaluated before and after purchase/consumption.

Introduction

Unstable economic conditions, combined with intense foreign competition and changes in consumer demand, have forced many American businesses to reconsider their strategic focus. The competitive potential of quality, for example, is receiving considerable attention as evidenced by both the academic and popular press (e.g., Garvin 1984; Phillips, Chang, and Buzzell 1983; Reich 1980).

By maintaining a high degree of quality or implementing a program to increase the relative quality of the product or service, many firms have positioned themselves in a profitable strategic niche. Several reasons for the success of such a strategy can be cited. For one, producing "higher quality" goods and services allows a firm to compete more effectively against foreign competition (Blum 1981; Gale 1983). In addition, demand for "high quality" goods and services increases among some consumer segments during unstable economic times (Reich 1980; Bohr 1980), and changes in consumer values are being reflected in a greater focus on quality ("Social Changes..." 1984).

Given this renewed interest in quality, there is considerable discussion-cum-debate as to just what "quality" means, as well as what role quality plays in gaining a strategic advantage (Garvin 1984). This situation notwithstanding, relatively little research to date has directly addressed issues related to quality from the consumer's perspective. Therefore, the purpose of this paper is to present the initial findings from a research project that reopens and reinvestigates the meaning of quality in consumer purchase and consumption activities.

Purpose of the Study

The purpose of the first (exploratory) stage of the research project was to investigate (1) the meaning of "quality" from the consumer's perspective and (2) consumers' evaluation of quality before and after purchase takes place. Because of the nature of the inquiry, no particular definition of "quality" was assumed. "Quality" was simply viewed as a hypothetical construct that plays an instrumental role in consumers' efforts to minimize perceived risks (i.e., financial, social, psychological, physiological, and/or time) in the purchase of goods and services. In other words, quality, per se, is not the ultimate concern in the evaluation of products and services, except perhaps in cases of "conspicuous consumption." Rather, prepurchase evaluation of "quality" is a means by which consumers make judgments about the likelihood of a product or service fulfilling some perceived need, and postpurchase evaluation of quality is the means by which consumers assess whether their

expectations have been met or exceeded. However, there was no a priori assumption that (conscious) evaluation of quality takes place either before or after a purchase, since consumers may pursue alternative means of reducing perceived risks before a purchase (e.g., obtaining recommendations from others) or simply feel satisfied and not make an explicit evaluation of quality after a purchase.

Since little research to date has directly explored consumer perceptions and evaluation of quality, the specific objectives of this preliminary investigation were:

- o To determine, in general, what the word "quality" means to consumers;
- o To determine if consumers' definitions of quality vary across product/service categories;
- o To determine if consumers evaluate quality before purchasing, and if so, how;
- o For those consumers who do not evaluate quality before purchasing, to determine what, if any, alternative prepurchase behavior replaces explicit consideration/evaluation of quality;
- o To determine if consumers evaluate quality after purchase/consumption, and if so, how;
- o To determine if perceptions and evaluation of quality appear to vary across subjects.

Review of the Literature

Given the importance of the topic, it is not surprising that a great deal has been written about quality. Because space limitations preclude a comprehensive review (see Castleberry 1985), only the literature that is germane to the objectives of this exploratory study will be discussed here.

Unlike the approach taken in this paper, many authors have offered definitions of quality. For example, Crosby (1979) defined it as "conformance to requirements," while Kotler (1983) defined it as "the rated ability of the brand to perform its functions." Others have highlighted aesthetic considerations. Thus, Bohr (1980) notes that quality "...also means aesthetic and sensuous pleasure as well...it is timeless style, simple elegance and a sensation that makes people feel comfortable and satisfied to be near it." Garvin (1984), however, concedes that the definition of quality "remains a source of confusion." He states that quality often is equated with conformance to tight manufacturing standards but that there are many other dimensions of quality as well, to wit: performance, durability, reliability, serviceability, the "bells and whistles," and aesthetic elements. In a similar vein, Gronroos (1984) acknowledges the need to define quality of services in terms of consumer perceptions and suggests that service quality may be a function of a number of variables, i.e., consumer expectations, technical and functional characteristics, and image.

After classifying definitions of quality that have appeared in marketing and other disciplines, Holbrook and Corfman (1985) developed a definition of quality within the framework of value theory, specifically: quality is the "extrinsic, self-oriented, passive value." An empirical test of their conceptual definition was only marginally successful and the authors concluded that they had provided only a partial answer to the question of the meaning of quality. Years ago Wittgenstein (1953) stated that to understand quality from the consumer's standpoint (which is one of the

objectives of the current study), one must be concerned with the everyday use of the word. However, as evidenced by examples from the literature, researchers generally have not adopted this approach. Moreover, no study was found which explored the extent to which consumers' definitions of quality depend upon the product or service being considered.

Another line of inquiry in the current study is whether consumers evaluate quality before and/or after purchasing a product or service and, if so, how. Economists, who probably have contributed most to this topic, are divided into two groups. Wilde (1981) represents those who feel quality is a search attribute (i.e., quality perceptions are formed before purchase). Others (e.g., Hey and McKenna 1981), however, feel that perceptions of quality are formed only after purchase and hence quality is an experience attribute. Thus, the current study can provide additional insight into this controversy.

Of the many issues relating to quality, consumer researchers seem to be most interested in how consumers evaluate quality. Most work has explored the effects of various cues and cue combinations on perceptions and evaluation of quality (see Olson 1972, Olson 1977, and Monroe and Krishnan 1985 for reviews). Recently, Gronroos (1984) and Parasuramen, et al. (1984) have developed conceptual models of service quality and have identified possible determinants of perceived service quality. The fact that these are service quality models suggests that the evaluation, as well as the definition, of quality is likely to be context-bound. Gronroos, however, has only tested his model with a sample of service business executives, and the Parasuramen, et al. model is now being tested empirically. Therefore, considerable work must be done before a better understanding of the meaning and role of quality from the consumer's perspective is achieved.

Methodology

As the first step in the study of consumers' perceptions and evaluation of quality, semi-structured focus group interviews were conducted. Four such interviews--each lasting approximately 90 minutes--were completed, with a total of 36 subjects. Two groups comprised white-collar and professional persons recruited from a church organization; one group comprised a cross-section of graduate student volunteers; and the fourth group constituted volunteers from an undergraduate marketing class.

Questions directed to the groups related to three main topics: (1) the meaning of the word "quality" for four product and service categories, specifically laundry detergents, physicians, refrigerators, and restaurants; (2) whether "quality" is evaluated before and/or after a purchase, and if so, how, for banks, (over-the-counter) cold medicines, automobiles, and hairdressers/barbers; and (3) the meaning of "quality" in general. Particular products and services were selected so as to represent a sampling from a tangibility-intangibility continuum, where a refrigerator exemplifies a tangible (and very functional) product and a hair style is more of an intangible (and sensory) service. In addition, a series of questions was asked about the meaning of "quality," in general, in order to encourage subjects to provide other examples of what "quality" means and if/how quality is evaluated. Content analyses of these (tape-recorded) interviews were then performed. The results are presented in some detail in the following section.

Results and Discussion

Because only qualitative research has been conducted so far, the findings must be considered preliminary and tentative. This situation notwithstanding, the initial findings have been illuminating and suggest the viability of exploring the concept of quality from the perspective of consumer risk reduction. At the same time, the findings suggest the complexity of the research questions.

The Meaning of Quality

With respect to the general meaning of the word, "quality" appears to relate to performance, to how well something "does what it's supposed to do." This situation is true even in the case of a haircut, which is supposed to look good and to make the consumer feel more attractive. "Quality" also appears to be perceived as a property or inherent characteristic of a good or service (which is consistent with the definition in The American Heritage Dictionary, if not that of other researchers--e.g., see Monroe and Krishnan 1985), along with attributes such as style, color, and size. In addition, subjects indicated that they judged quality along a continuum from low to high quality.

Subjects suggested that "no quality" meant that the product or service simply did not perform the function for which the product or service was intended. Similarly, "high quality" meant that the product or service did what it was supposed to do very well, and "low quality" meant that the product or service performance was marginal, or barely adequate.

Not surprisingly, subjects tended to describe or define quality of products in terms of construction, durability, and performance; in contrast, "quality," as it related to more intangible services, typically was defined in terms of the person(s) rendering the service. With respect to the particular products and services investigated, subjects defined quality in laundry detergents as "it gets the job done; it cleans," for physicians as "he/she shows concern, is trustworthy, is knowledgeable," in refrigerators as "well-made, has a warranty, is maintenance-free," and for restaurants as "attentive service, pleasant ambience." In short, while subjects could offer conceptual definitions of quality, quality was equated to specific components or characteristics when subjects were provided a product or service context.

Evaluation of Quality

It became clear in the interviews that the subjects did not always (consciously) evaluate quality before, or even after, a purchase, which is consistent with Wilde's (1981) findings. Situations in which quality was not explicitly considered included the purchase of a specific designer label (a specialty good) and the purchase of products perceived to be commodity goods, e.g., milk.

In other cases quality was evaluated indirectly through the use of surrogate indicators, e.g., brand name (or other extrinsic cues) and recommendations of significant others. Less often, quality was directly assessed through inspection or examination of the product or through an evaluation of the results of services rendered to others, i.e., through the use of intrinsic cues.

For the particular set of goods and services investigated, subjects indicated that they primarily evaluated quality in banks on the basis of service (courteousness, expediency, and accuracy), cold medicines on the basis of efficacy and/or brand name, automobiles on the basis of reputation of the manufacturer and workmanship, and a hairdresser/barber on the basis of concern for the customer, conscientiousness, and advice on proper style and care. However, it was clear that different subjects used different means to evaluate quality before a purchase. To illustrate the complexity of quality evaluation, across the four groups subjects mentioned the following considerations in evaluating the quality of automobiles: reputation of the manufacturer (one component being the number of recalls), duration and terms of warranty, gas mileage, construction and workmanship (e.g., how much plastic was used and how "solid" the automobile appeared to be), performance, reliability, design/style, and trade-in value. Obviously, some of these characteristics could only be evaluated after purchase or consumption, suggesting the difficulty--but not necessarily the absence of--prepurchase evaluation of quality.

Indeed, some subjects explicitly referred to the difficulty of evaluating the quality of services before purchase, one person stating, "it's really hard to tell [about the quality] until you have tried them [banking services]." That consumers may perceive prepurchase evaluation of services to be more elusive is not too surprising, considering (1) the lack of meaningful--or familiar--quality-connoting cues such as brand name, (2) the inability to inspect most services beforehand, and (3) the person rendering the service possibly changing from one purchase to the next. However, subjects did say that they often evaluate the quality of services after purchase/consumption.

One important observation was that subjects would sometimes form an affective rather than quality judgement after purchase or consumption. That is, persons were "pleased with" or "liked" the results emanating from the consumption act, though subjects were not always cognizant of an assessment of the "quality" of the product or service. Clearly the perceptions and evaluation of quality were dependent upon the product or service category. In other words, although "quality" generally related to overall performance (or "excellence") of a product or service, specific mention of a product or service category evoked particular associations (see Exhibit I), as might be expected. While there was considerable agreement among subjects, the meaning and assessment of quality did vary somewhat. That is, typically there was a consensus among participants with respect to attributes associated with "quality" for a particular product or service, while differences across respondents represented more a matter of emphasis than debate. These situations suggest that definitions, perceptions, and evaluation of quality are likely to be somewhat product/service-specific and person-specific.

EXHIBIT I
THE MEANING OF QUALITY FOR FOUR PRODUCT/SERVICE
CATEGORIES: RESULTS FROM FOCUS GROUPS INTERVIEWS

PRODUCT/SERVICE CATEGORY	RESPONSES EVOKED
Laundry detergents	"gets the job done" "does what it's supposed to do" "not harsh, not irritating" "leaves clothes soft, fresh-smelling" "good price"
Family physicians	"shows concern for patient" "communicates with patient" "honest" "is sensitive, compassionate" "not 'out to get my money'" "trustworthy" "knowledgeable, up-to-date" "available" "good reputation" "reasonable fees" "efficient office personnel"
Refrigerators	"well-made, durable" "comes with warranty or guarantee" "good after-sale service" "maintenance-free" "energy-efficient" "availability of extra features" "well-known brand name"
Restaurants (dining out)	"treated special" "friendly, unobtrusive service" "presence of little 'extras'" "efficient, consistent service" "positive attitude of service personnel" "elegant, comfortable" "pleasing atmosphere" "not like at home" "food cooked properly" "fresh ingredients"

Lest the inference be drawn that future research on consumers' perceptions and evaluation of quality may be intractable, there was sufficient similarity across product groups, service groups, and individual subjects to suggest that additional research can contribute to a better understanding of quality from the consumer's perspective.

Price and Quality

In the majority of cases, subjects appeared to employ some implicit reference point, such as price, when discussing and defining quality. That is, there appeared to be some set of expectations evoked by a reference point and "quality" seemed inextricably linked with whether the product or service exceeded, met, or fell short of those expectations. Nevertheless, subjects did seem to have a notion of a quality continuum across a product or service category, e.g., Rolls-Royce representing "high quality" among automobiles.

Although subjects rarely made explicit reference to a price-quality relationship, they appeared to use a price-quality heuristic when discussing purchases. As an illustration, one subject explained that she would on occasion intentionally buy a product that she perceived to be of "lower" quality because she restricted herself to a certain (low-end) price range, e.g., in buying faddish clothing.

That the price-quality relationship becomes a preoccupation with consumers, marketers, and researchers might be explained by the fact that price so often is the first delimiter, or evaluative criterion, in the purchase decision process. It follows that if quality is a considered criterion then quality likely is evaluated relative to the price. Moreover, in the absence of (other) quality-connoting cues, it seems reasonable to assume that price will be viewed as a quality indicator (Enis and Stafford 1969; Jacoby, Olson, and Haddock 1971). While these points were not specifically explored in the interviews, such behavioral patterns could reasonably be inferred from the discussions.

A theme that permeated the group discussions was that of getting value for the money, of getting "your money's worth" [which suggests that Holbrook and Corfman's (1985) approach has considerable merit]. Here again, the implication appears to be that quality is evaluated relative to the price, which, in turn, influences consumers' expectations. However, subjects stressed that the product or service must possess some "quality," since "no quality" was equated to "junk" and to inadequate performance.

Evaluative criteria employed and the relative importance of same were not directly investigated; however, it became apparent that price was often the primary criterion in delimiting the range of options considered and then some attempt at maximizing quality for the acceptable price point/range was made. However, other criteria sometimes were considered to be relatively more important than price or perceived quality, based on the primacy, emphasis, and frequency of evaluative criteria mentioned by the subjects. That is, subjects were willing to trade some perceived quality for some other attribute they considered more salient. For example, in general subjects related quality of banks to various service dimensions (e.g., courtesy, speed, accuracy). But some subjects deemed convenience and accessibility to be most important in their current choice of banks, while complaining about the "lousy" service!

Quality and Risk Reduction

When subjects were queried as to why "quality" is important, why they evaluate quality, responses typically related to one or more types of risk that might be incurred in making a purchase. Comments such as "I don't want to get a lemon [automobile]" suggested the perception of financial risk. "I want the [hair] cut to

look good; I don't want to be embarrassed by it" implies social and psychological risk. The notion of perceived physiological risk was conveyed through remarks such as "there shouldn't be any harmful side effects [from cold medicines]" and that safety features were important in evaluating an automobile. Although the time risk is less often cited in scholarly discussions of perceived risks, several subjects expressed a concern about the amount of time that might be "wasted," especially in the consumption of services. For example, speed of teller service and transaction processing was important in the evaluation of the quality of banking services. In addition, subjects indirectly referred to the time risk when they talked of not wanting to "waste two hours watching a bad movie" or having to wait a week or more for a bad haircut to grow out. However, "quality" was not the only means of trying to reduce risk, e.g., buying a particular designer label because it was "the thing to do" (read: reducing/avoiding social and psychological risks).

Other Insights

Two additional questions led to enlightening discussions with respect to consumers' perceptions and evaluation of quality. When asked if they believed and were influenced by the claims of quality in advertising, virtually every subject responded that he/she generally attached little believability to such claims, particularly if unsupported. However, although claims of quality appeared to have little impact on subjects' evaluation of quality, the fact that a brand was highly advertised did seem to positively influence the assessment of quality (to quote one subject, "they couldn't advertise it if it were a really bad product"). Another line of questioning pertained to perceived quality in generically branded goods, i.e., how "quality" was assessed in the absence of brand-name surrogates. There was consensus that quality was highly variable across product categories, based on beliefs and actual experience, and that trial was the primary means of evaluating quality of generic or store (house) brands.

Future Research

It is obvious that this exploratory study has only begun to address important questions regarding consumer perceptions and evaluation of quality. For one, even though the findings suggest that quality is not always consciously evaluated before a purchase [which is consistent with Olshavsky and Granbois' (1979) contention that a cognitive decision process does not necessarily precede a purchase], it is important--both to theoreticians and practitioners--to identify those types of purchases, and possibly consumers, for which explicit prepurchase evaluation of quality does not take place. Some possibilities include: when there are no alternatives (e.g., in the purchase of emergency goods or services); in routine or habitual purchases; in the purchase of low-involvement (read: low-risk) goods and services; when trial is intended or forced by the lack of relevant evaluative information; and when one purchase is tied to another and therefore is nondiscretionary (e.g., the tires on a new automobile).

A myriad of other questions and issues need to be addressed as well. For research to be actionable, it will be necessary to investigate the more specific meaning and evaluation of quality for particular product/service categories. This study clearly indicated that quality cannot meaningfully be judged without considering specific tangible or intangible characteristics of a product or service. That is, "quality" is an abstract notion that must be operationalized in some way and that appears to be multidimensional. If this is true, then considerable research to date has yielded rather vacuous results, e.g., perceptual maps of products using "quality" and some other dimension. Certainly there are--perhaps somewhat disturbing--implications for marketers who attempt to differentiate offerings on the basis of quality and for advertisers who tout quality without

equating the term to those product and service characteristics consumers use in evaluating quality. Soon a cross-sectional consumer survey will be undertaken in order to test hypotheses formulated on the basis of findings from the first stage of this research. While somewhat speculative at this point, it is likely that hypotheses will represent more refined statements of the following (tentative) propositions:

- consumers do not always evaluate quality of a product or service before purchase;
- quality is more likely to be evaluated through the use of surrogate indicators, i.e., indirectly, than directly through inspection;
- the process by which quality is evaluated will vary across product and service categories;
- prepurchase assessment of quality is a means by which consumers attempt to reduce or avoid perceived risks in a purchase/consumption act;
- the types and levels of perceived risk will vary across different demographic and/or psychographic groups;
- the process by which quality is evaluated will vary across different demographic and/or psychographic groups.

Investigating these propositions should contribute to a better understanding of the importance and role of quality in consumer decision-making and, in turn, contribute to theory development in consumer behavior. The most significant contributions are likely to emanate from investigating these and other propositions from a particular theoretical or conceptual perspective, such as Holbrook and Hirschman's (1982) "experiential consumption" view.

Further research on consumer's perceptions and evaluation of quality should also result in important implications for marketing managers. That is, an awareness of the relative importance of quality and the manner in which quality is evaluated over a range of goods and services can help direct the practitioner in the design, pricing, and promotion of a particular marketing offering. It is likely that findings from future research also will provide valuable insights into more effective market segmentation. Moreover, it is anticipated that additional research will lend clarity to some conflicting and inconclusive findings from previous research relating to quality, in particular, the price-quality relationship.

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MARKETING AS AN AGENT OF CHANGE IN
SUBSISTENCE CULTURES: SOME DYSFUNCTIONAL CONSUMPTION CONSEQUENCES

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Abstract

This paper argues that several dysfunctional consequences may arise for consumers in subsistence cultures when modern marketing practices and products are introduced into their social system. Empirical examples of these dysfunctions are provided and a plea is made for higher ethical standards among multinational marketers in Third World countries.

Introduction

Despite assumptions within the marketing literature that subsistence cultures are better-off if transformed into developed societies with modern consumption values (cf, Meyer 1965; Dunn 1976; Michell 1979); there is evidence that this may not be so. The evidence falls into two categories--first, there are several instances in which the consumption values and behaviors of subsistence societies have served as adaptive responses to their environments. Second, there are several examples of destructive and dysfunctional consequences arising in subsistence cultures when modern consumption values and behaviors have been introduced. The first set of evidence is examined below.

Adaptive Response in Subsistence Societies

Current investigations of one of the world's most undeveloped countries--New Guinea--have revealed a highly adaptive and effective set of exchange relationships between productive resources and consumption demands. Brown (1978, p.265) states, "...we are beginning to see the processes whereby the indigenous population has developed intensive techniques of agriculture and animal husbandry. With this has come increased food and livestock production, [and] larger settlements...None of these could have occurred without the creative use of local resources and development of the land's potential. The expansion of productive capacity has kept pace with population increases; the two variables are interdependent." Thus, instead of being inefficient and static, as they are often depicted, the New Guinean consumption system has shown adequate potential for change and the potential for constructive adaptation consistent with environmental requirements.

Similarly, Dyson-Hudson and Dyson-Hudson (1980, p.34) report that native livestock practices in West Africa, labeled as irrational by earlier Western observers, are in fact, highly adaptive to the local environment. For instance, earlier change agents, guided by modern agricultural norms, had condemned the tribal practice of maintaining very large herds as economically inefficient and had encouraged the market sale of "excess" animals. However, these earlier change agents had failed to take into account the longer lead time required to rebuild herd size in the African climate in the event of a natural disaster (e.g., drought, fire). Mathematical simulations by the Dyson-Hudson's (1980) indicated that the traditional tribal animal husbandry patterns were, in fact, environmentally optimal, and that the adoption of modern practices would have led to an unacceptably high risk of herd devastation. The Dyson-Hudsons reviewed several other studies of pastoral practices in subsistence settings--the Peruvian Andes, Arab Tunisia, Peloponnesia--and concluded that in almost all instances a very high level of energy efficiency, appropriate degree of labor specialization, and production-consumption equilibrium were present.

With regard to another subsistence consumer population--Arctic Inuit (Eskimos)--Moran (1981) cites several exam-

ples of adaptive consumption practices. First, Inuit apparel permits rapid adjustment to temperature changes and precipitation. Second, Inuit snow shelters (igloos) and seal oil lamps work synergistically to provide a tightly-insulated, well-heated internal environment, requiring minimal energy expenditure. Third, Inuit family members generally sleep nestled together, which conserves body heat and enhances affiliative bonding.

The Inuit, like many subsistence peoples, have a non-economic exchange system based on social reciprocity, which creates durable inter-familial social bonds. Food, apparel and shelter are consumed on a communal basis, with resource reciprocity serving to form an integrated social network. Hospitality and sharing are the currency of exchange; hence, more formalized financial institutions are largely superfluous.

Findings such as these, Hoben (1982, p. 368) notes, "have undermined the deep-seated ethnocentric assumptions that 'non-Western' people's behavior is more tradition-bound than our own and that their production systems are poorly adjusted to their natural and economic environment... In-depth studies have shown that many small-scale farming systems are sensitively adjusted to local ecological, economic, and political conditions... If developmental programs are to succeed, they must take account of the strengths of existing institutions and recognize that they persist because they meet real needs... New technologies and organizational forms will be accepted only if they meet those needs more effectively without introducing additional costs and risks."

Dysfunctional Consequences of Marketing Development

The latter part of Hoben's statement is relevant to the incremental costs and risks incurred when modern marketing technologies, consumption values, and products are introduced to subsistence cultures. In specific instances, dysfunctional consequences have resulted from the introduction of such innovations. These fall into several categories: (1) the creation of economic dependency, (2) the stimulation of unnecessary/harmful demand, (3) population displacement and unemployment, and (4) the intensification of social stratification and economic disparities.

Creation of Economic Dependency

Of the several types of dysfunctional consequences resulting from the modernization of subsistence cultures, one of the most common is the creation of economic dependency (Wallerstein 1975; 1976; 1980). Zaltman and Duncan (1977, p. 327) describe such dependency effects as a function of change agent motivation: "Is the change agent really concerned about the welfare of the target system, or does change activity satisfy (the agent's) own needs for power and control? If the latter motives are operating, this might cause the change agent to be more manipulative in dealing with the target system... (The change agent) may not allow the target system to develop its own capabilities for dealing with the problem situation. As a result, the target system becomes overly dependent on the change agent."

Several Latin American scholars argue that the introduction of modern production and consumption practices has created a condition of dependency upon the more developed countries, particularly the United States (Nash 1981). Dos Santos (1973, p. 76) states, "dependence is a conditioning situation in which the economies of one group of countries (the undeveloped) are conditioned by the expansion of others (the developed)... Some coun-

tries expand through self-emulation while others, being in a dependent condition, can only expand as a reflection of the dominant countries".

One of the primary vehicles for the creation of economic dependency in a subsistence culture is to induce its adoption of technological innovations produced by modern countries (Nash 1981). Once traditional production techniques have been replaced by modern machinery and systems imported from developed countries, the undeveloped country becomes dependent upon the supplier-country to acquire replacement parts and trained personnel to keep the new technology operative. The more thoroughly modernized its production sector becomes, the more dependent the client country is on the multinational corporations supplying the technology. Thus, the supplier-country soon comes to exert great influence over the economic welfare of the client-country (Nash 1981), and this dependence relationship may become irreversible as traditional production technologies are forgotten or disintegrate. In some instances, the marketing literature has not only recognized, but advocated the creation of such dependency effects within developing countries (e.g., Freedman 1969, Michell 1979, Weber 1974).

The creation of economic dependency can also be accomplished by altering traditional production and consumption practices, without the necessity of introducing novel technology. In the African Sahel region, Swift (1977, p.473) described the traditional practices of tribal herders versus the commercial orientation advocated by external change agents: "Traditional production is characterized by mixed (goat and camel) herds to spread risk..., by the use of non-market forms of livestock exchange (i.e., social reciprocity and redistribution), and by the sale of only excess male livestock. In contrast, commercial production is characterized by the production of cattle and sheep, and the market sale of more animals, rather than their use for non-market transactions or as security in the pastoralist's own herd."

The shift from traditional to commercial production practices has had profound effects on Sahelian pastoral societies. Swift (1977, p.473) reports, "Sahelian markets have become unstable, and the pastoralists have no control over fluctuations in the prices of what they sell and what they buy. As a result, they have become increasingly vulnerable to both long-term changes in terms of trade for their products and also to short-term fluctuations... Their situation is made worse if they have modified their herd composition toward cattle and sheep, since these species are less resistant to drought than camels and goats... This is especially dangerous in drought years when the market is flooded with animals, pushing their prices down to derisory levels." He also notes that since the commercialization of livestock production in the Sahel, traditional redistributive practices, which provided resources to community members in dire need, have disintegrated. As a result, many people have died of starvation.

Moran (1981) has detected the creation of similar dependency effects among the Inuit. In order to purchase and repair the rifles and snowmobiles that have replaced their traditional hunting equipment, Eskimos must take low-paying, menial jobs or rely on welfare subsidies; whereas prior to modernization they were economically self-sufficient. Similarly, Laplanders who converted to snowmobiles from reindeer-sledding for herd management, now must sell up to one-third of their animals annually to maintain their equipment. The result has been a serious depletion of herd size and a decline in economic worth (Moran 1981).

A final example is provided by Adams (1968) in his discussion of trading posts established on Indian reservations in the United States. Like many of the people residing in subsistence cultures, reservation Indians find it necessary to depend upon commercial agents (e.g., trading post operators) to conduct transactions via credit or currency. These agents are in a powerful position vis a

vis their clients and sometimes abuse this power to gain financial resources for themselves. One common practice is to extend credit to an Indian totaling his/her entire annual earning potential, "thereby insuring that whatever cash came into the community is encumbered in advance... (Adams 1968, p.142)." "Trading post operators frequently refuse to cash checks for their Indian customers, unless a certain percentage (usually 50%) is used to purchase merchandise at the store. [Further], the trader uses his position and influence... in other ways. He discourages or impedes mobility on the part of his clientele. He would not loan them money to buy cars, or furnish credit references to car dealers in town. Although obliged by his operating license to sell gasoline, he is often 'temporarily out' (Adams 1968, p.144).

Stimulation of Unnecessary and/or Harmful Demand

Production processes operant in modern societies typically require continual market expansion to maintain profitability (Ayal and Ziff 1979). Expansion and growth, which have come to signify progress in advanced economic systems, are premised upon increasing levels of both production and consumption (Nash 1981; Wallerstein 1976). To achieve this objective, marketers in advanced societies may turn to undeveloped societies as sources of novel demand, when their home markets become saturated (Nash 1981). Much recent literature has been devoted to techniques, technologies, and strategies for initiating and enhancing the demand for products manufactured in advanced countries by consumers in undeveloped countries (c.f., Ayal and Ziff 1979; Michelle 1979). Rarely, however, do these treatises consider the direct and indirect negative consequences which the stimulation of such demand may have on the consuming population. Instead, products are generally depicted as contributing positively to the life style of the consumer (e.g., Freedman 1969), or only evaluated by profitability criteria relevant to the firm (Ayal and Ziff 1979).

Products from modern societies which are introduced and promoted within subsistence cultures may have two primary types of dysfunctional demand consequences. First, they may stimulate demand which is "unnecessary"—that is, which diverts consumers' resources from more critical to less critical products. Also belonging to this category are novel products which replace traditional products, but are more costly and/or less effective. A second category contains products introduced that are a priori known to be harmful and/or destructive to consumers.

UNNECESSARY DEMAND The stimulation of unnecessary demand was recognized early in the literature. Robinson (1961, p.19), stated, "The stimulation of non-existing demands for new consumer goods or demand based on brand name, style obsolescence, or new packaging may well cause an unjustified waste of scarce materials and skills, or an unnecessary commitment of them." He then cites as an example a technologically-sophisticated pesticide spreader introduced in Africa by a U.S. firm. The spreader was intended to replace a coarser, less-efficient pesticide spreader then in use. However, the new spreader not only cost substantially more than the older model, but its technical complexity caused it to incur more repair and maintenance expenses. Hence, even though the advanced model was superior in technological efficiency, it was economically inferior for use in that social system (Robinson 1961).

Moran (1981, pp.11,15) cites several examples of dysfunctional demand that have occurred among the Inuit as a result of modernization: "Concentration in villages has led to abandonment of traditional housing and adoption of less healthy shelter. Instead of sod and snow igloos, the Inuit now live in plywood shacks or government-built prefabricated homes heated by coal stoves. Air is not properly humidified and the population is more susceptible to respiratory infections and deafness... Vitamin C is in greater scarcity as a result of changes in cooking patterns. Anemia is now a frequent nutritional problem. Obesity is found with greater frequency. Hypercholester-

olemia is increasing, particularly in the aged. Increased opportunity to obtain sweets and less frequent use of the teeth as tools have led to a rapid increase in periodontal diseases."

Another example, and perhaps the most disturbing within this category, is the marketing of infant formula in subsistence cultures. Although this undesirable practice has already been cited within the marketing literature (Fox and Kotler 1980), it bears reiteration within the present discussion. Infant formula is a cows' milk derivation chemically structured to approximate maternal breast milk. The particular brands of infant formula most closely resembling human milk in nutritional value are also the most expensive (Post and Baer 1981). Companies producing brands such as Lactogen, Similac and Enfamil have actively marketed these formulas in undeveloped countries via advertising, health personnel employed by the company, and free samples. The result has been that many new mothers switched from breast-feeding their infants to feeding them commercial formula.

Once this switch is made, the mother ceases to lactate, and she and the baby are effectively bound to use of the infant formula. Several dysfunctional consequences have resulted from this shift in consumption. First, formula must be mixed with local water which is often contaminated—resulting in illness and even death for the baby. Second, because of the expense of the formula, many mothers overdilute it resulting in malnutrition and mental retardation for the infant. Third, the affected mothers suffer emotional trauma as they find themselves unable to properly feed their babies. Finally, government health officials are placed in ethically compromised positions by payments from formula marketers to permit continuation of the practice. Despite the fact that this marketing practice has been widely condemned, it currently continues (Post and Baer 1981, Higgins 1984).

Stimulation of Harmful Demand

The marketing of infant formula in subsistence cultures lies on the borderline between stimulation of unnecessary demand and stimulation of harmful demand. Although the infant formula product is safe when used correctly, it is difficult to safeguard its proper use in such societies. Two examples will now be cited, however, of marketers who have a priori knowledge of their products' harmful effects on consumers, yet continue to encourage their purchase and use.

The first example is the attempt to increase tobacco consumption in subsistence cultures. Although tobacco products have been declared health hazards in the United States and are currently subject to demarketing via governmental public policy efforts (e.g., the cigarette package warning label), such normative restrictions have not been applied to tobacco products distributed in many subsistence societies (Huebner 1982). In fact, tobacco products are included as nutritional subsidies in the Food For Peace program sponsored by the Department of Agriculture.

Huebner (1982, p.52) reports that "since 1955, more than \$700 million worth of tobacco products have been sent to South Vietnam, the Philippines, Cambodia, Egypt and other Third World Countries." As a result of this effort and company-sponsored promotional programs, tobacco product usage has risen 33 percent in Africa, 24 percent in Latin America, and 23 percent in Asia during the period 1969 to 1980 (Huebner 1982). Given the causal linkage between cigarette smoking and several major illnesses (cancer, emphysema, heart disease) and the relatively expensive cost of tobacco products, it is difficult to justify the introduction of such products into subsistence societies as improvements to the quality of life.

A final example is the case of Lomotil (Medawar and Freese 1981). Lomotil, produced by Searle, Inc., is an anti-diarrheal drug currently being marketed in several subsistence societies as a diarrhea treatment for young

children. (In many of these countries, diarrhea is the primary cause of death in children under 3). Despite the fact that Lomotil is dangerous when administered to young children and is therefore prohibited by the FDA for administration to children under age two in the U.S., it is currently promoted for medicating infants aged three months to six months in Hong Kong, Thailand, and the Philippines (Medawar and Freese 1981).

Population Displacement and Unemployment

A third dysfunction caused by the introduction of modern consumption practices and products into subsistence cultures can be population displacement and unemployment. This commonly results when labor is shifted from agriculture to technological modes of production, or when farming practices are modernized via the use of mechanically sophisticated equipment, e.g., tractors, harvesters, hullers (Barlett 1980; Slater 1968). Such alterations are advocated because the modernized production systems are more capital efficient than their predecessors. However, as Currie (1968) has noted, the resulting displacement and underutilization of labor within the modernized production system may more than offset the increased rate of return to capital investment.

Dawson (1980) cites as an example of this phenomenon the introduction of mechanical rice hullers into Indonesia by several companies during the 1970's. Although the mechanized hullers were substantially more efficient than the traditional hand-hulling method, they acted to eliminate the jobs of several thousand laborers. Subsequent rioting by these unemployed workers caused the Indonesian government to severely restrict the future importation of technological innovations.

In those countries where the importation of agricultural technology is unrestricted, farmers who were once economically self-sufficient may be placed in an easily exploitable situation vis a vis those who are supplying the novel technology. Nash (1981, p. 403) proposes that "technological innovations reinforce the costs of production and... the centralization of control over the means of production." As a result, the power and independence of the indigenous laborer is diminished.

By causing the displacement and unemployment of certain segments of the population (e.g., farmers, harvesters), although simultaneously creating jobs for other segments (e.g., factory workers), the introduction of modern methods of production may result in a net reduction of the total jobs available. Native laborers and their traditional modes of production may be replaced by outside laborers and modern methods of production. Displaced from their now obsolete jobs and unqualified for positions within the modern production setting, such laborers may become permanently un- or under-employed.

Two examples of this are the Alaskan Inuit and the aboriginal population of Australia. Discussing the Inuit, Moran (1981, p.16) states, "Despite the boom conditions in Alaska, most jobs have gone to skilled outsiders. The result has been an annual unemployment rate of 70% for Eskimo workers." The majority of Inuit now are dependent upon multiple forms of government assistance, including food stamps, subsidized housing, welfare payments, and unemployment benefits (Moran 1981).

Even more marked has been the effect of modern production technology and purposeful economic exclusion upon the Aboriginal population of Australia. Yengoyan (1979, p.409, 410) states, "...the European impact on Aboriginals culture can only be described as devastating... The best example of this is the modernized cattle industry of Northern Australia where Aboriginals are not only underpaid to a marked degree, but also suffer chronic unemployment, underemployment, and deliberate social and personal abuse." Hence, rather than improving the economic welfare of the native populace, some modernization programs may actually reduce these consumers' earning potential and employment opportunities.

The Intensification of Social Stratification

A final dysfunctional consequence of modernization can be the intensification of social class differences between poor and affluent consumers. The exacerbation of social stratification has occurred on two levels-- international and intranational. Nash (1981, p. 407) states, "The widening gap between core and peripheral regions, and between rich and poor classes, is becoming increasingly apparent... A decade of development focusing on import substitution, industrialization, and Green Revolution agriculture not only failed to improve the position of Third World populations, but has contributed to trade imbalances, increasing debt, and impoverishment as revealed in indices of infant mortality and life expectancy."

In many instances, the majority of consumers in subsistence countries have been left in more economically impoverished conditions subsequent to modernization, than prior to its arrival (Nash 1981). One primary reason for this appears to be a corporate strategy of rapid repatriation of profits by multinational marketers from their foreign subsidiaries (Nash 1981)--a strategy advocated by some authors in the marketing literature (Holton 1970; Weber 1974).

The exacerbation of social class differences as a result of modernization may also occur on an intranational basis. In this instance, a small segment of consumers become the primary beneficiaries of modernization programs, while the majority of the population receives no benefits or has its standard of living reduced (Nash 1981). Michell (1979, p. 92) notes that with the introduction of modern marketing systems "...a dual society usually emerges in developing countries; an elitist segment demands the products of the industrialized economy, while the vast majority continue their present subsistence economy." Schwartz (1978, p. 249) states this position more forcefully, "Several studies demonstrate that externally introduced resources--technical, economic, political, social service--are distributed along lines of existing inequality and thus reinforce it..."

Some writings in the marketing literature seem to encourage the exploitation of this widening gap within subsistence societies (cf. Freedman 1969). Strategies are advocated which will enhance the consumption opportunities of those in the modern, elite segment of consumers, while ignoring or even further reducing those in the subsistence sector (cf. Dichter 1965). As Surkel (1972, p. 519) concludes "...Access to the means and benefits of development is selective; rather than spreading them, the process tends to insure a self-reinforcing accumulation of privilege for special groups, as well as the continued existence of a marginal class."

Ethics And Consumer Welfare

The material presented provides disquieting evidence that some marketing practices may result in dysfunctional consequences for consumers in subsistence cultures. This possibility raises several ethical issues; perhaps the foremost of these is whether or not marketers should concern themselves with the dysfunctional consequences of their actions. In other words, is one's responsibility limited only to devising successful marketing programs or does moral culpability extend as well to the negative consequences which occur when those marketing programs are implemented?

The current literature appears divided on this issue. Sheth and Frazier (1982) for example, provide detailed prescriptions for achieving change agent objectives, even in the face of attitudinal and behavioral resistance on the part of the target system. In contrast to this strategic stance are articles by Fox and Kotler (1980) and Lacznia, Lusch and Murphy (1979) which argue for the consideration of ethical responsibilities prior to the implementation of any social change marketing program. Lacznia *et al* (1979, p. 34) state, "Marketing practitioners have a responsibility to carefully consider the

ramifications of their social marketing campaign" and that "by venturing into the wholesale development of social marketing, marketing professionals may acquire considerable social power without prudently assessing the resulting responsibility that they necessarily must bear." Similarly, Fox and Kotler (1980) advocate the use of counter-marketing experts by governments in undeveloped countries to overcome campaigns by multinational marketers which promote harmful products. However, they do not address the pragmatic issue of how such countermarketing efforts are to be mounted, given the large budgets of the MNC's and the potential for corruption of local regulatory officials.

In the original article on marketing and planned social change (Kotler and Zaltman 1971), the authors explicitly called for a consumer sovereignty orientation in the implementation of such programs "...Most of the effort [should] be spent on discovering the wants of a target audience and then creating the goods and services to satisfy them... In social terms, it is held that this marketing philosophy restores consumer sovereignty in the determination of the society's product mix and the use of national resources (p. 5)." The consumer sovereignty viewpoint--that the existing values of consumers should be attended to by marketers and not altered to create demand for the marketers' current inventory of products--has been extended to the realm of multinational marketing by several authors (cf., Sheth 1972; Wind, Douglas, and Perlmutter 1977). These authors, however, have also detected a certain reluctance on the part of multinational marketers to act in accordance with the consumer sovereignty principle. Wind *et al* (1973, p. 21), for example, argue for the explicit recognition of consumers' interests in the formulation of international marketing policies, but note that "the relative lack of information available regarding international customer characteristics... may imply a low degree of marketing [i.e., consumer] orientation [on the part of multinational marketers]... Emphasis on the production and distribution savings associated with a standardized marketing strategy may result in a tendency to ignore differences among world customers."

What may result from such an orientation on the part of multinational marketers is the purposeful alteration of the production and consumption systems in subsistence cultures to create markets for the MNC's current inventories of unsold products. The dysfunctional consumption consequences which come about as a result of such market modernization efforts do not appear to be given adequate consideration. As Warwick and Kelman cautioned over a decade ago (1973, p. 395), "There is more than a real possibility that change agents will view the problem from the perspective of their own group and set goals that will... accrue to the benefit of their group at the expense of the target population... There are sound reasons for believing that [developmental] programs will end up serving the purposes of the advantaged group at the expense of the disadvantaged."

In the several instances cited previously and in others not reviewed in detail here (cf., Davis 1969; Hoskins 1971), it appears that some marketing modernization programs may act more as instruments of social control than as stimulants to societal development. The primary benefits of their implementation may accrue to multinational corporations and not to the consumers they are said to be serving. Given this, it perhaps time for marketers to re-examine their goals and priorities in developmental programs. Marketing strategies and implementation have varied effects upon the consumption environment. Where these effects have been beneficial and positive, we have been eager to take the credit. Where these effects have been dysfunctional and negative, can we be any less willing to accept the blame?

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THE EFFECTS OF TIME COMPRESSED ADVERTISING
ON BRAND ATTITUDE JUDGMENTS¹

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Abstract

Three models of time compression effects on brand attitudes are presented and contrasted. A previous study which competitively evaluated the three theories is replicated and potential shortcomings in the design are corrected. The results of the present study support the earlier conclusion that time compression affects advertising by interfering with message processing. However, the increased attention to non-message cues reported in the prior investigation was not replicated.

Introduction

Recently, time compression has gained increasing acceptance among advertisers as a method of reducing media costs by placing more copy into promotional spots (*Advertising Age* November 19, 1979; *USA Today* November 19, 1984). The principal difference between compressed and normal speed ads is that the speaking rate in compressed ads is faster; typically, an ad is recorded at a normal speaking rate (i.e., 140 to 160 words per minute) and electronically processed to achieve a faster presentation without distorting sound quality. While most advertisers only compress ads between 105% and 130% of normal speed to minimize the likelihood that consumers will detect the fast speaking rate, some commercials have been compressed by as much as 160% (e.g., from 48 seconds to 30 seconds in length).

The purpose of this paper is to report one experiment in a program of research designed to evaluate the effect of compressed ads on consumers' attitude toward the advertised brand. Two classes of models are tested: 1) perceptual/evaluative models and 2) a cognitive elaboration model. The mediating processes postulated by these models are summarized in Figure A to facilitate discussion.

Models of Time Compression Effects

Perceptual/Evaluative Models

Perceptual/Evaluative models assume that the effect of compressed ads on brand attitude is mediated by consumers' perceptions of the advertisement or source. Specifically, these models predict that time compression enhances the favorability of brand attitude judgments because consumers react more favorably to compressed presentations or because fast speakers are perceived to be more knowledgeable about the subject matter.

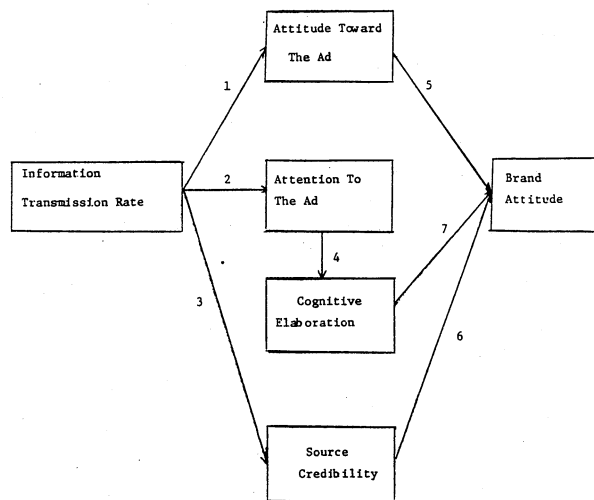
The Preference Hypothesis. MacLachlan and his associates (LaBarbera and MacLachlan 1978; MacLachlan 1982; MacLachlan and Siegel 1980) have proposed that consumers prefer ads compressed between 120% and 130% of normal-speed. They postulate an optimal information transmission rate and find evidence from paired comparison tests that consumers rate moderately compressed ads more favorably than normal speed and highly compressed ads. This suggests that compression effects on brand attitude may be mediated by affective reactions to the ad. Furthermore, brand attitude judgments should be curvilinearly related to time compression; compression rates between 120% and 130% are predicted to generate the most favorable brand attitude judgments. In Figure A, the processes hypothesized by MacLachlan's preference model are depicted by links 1 and 5.

Source Credibility Hypothesis. A second evaluative mechanism that may enhance the effectiveness of compressed presentations has been postulated by MacLachlan (1982) and Miller, Maruyama, Beaver, and Valone (1976). MacLachlan hypothesized that consumers may use speaking rate as an index of the source's confidence because confident speakers tend to talk faster and pause less frequently. This conjecture is supported by person perception studies that show that fast speakers are judged as more competent, truthful, fluent, and persuasive than slow speakers (Apple, Streeter, and Krauss 1979; Smith et al. 1975). In addition, Miller et al. (1976) found that fast speakers were more persuasive when delivering messages about "the dangers of caffeine" and "hydroponic gardening". A simple interpretation of these findings is that the effects of compressed ads on brand attitude judgments are mediated by evaluative reactions to the source (links 3 and 6 in Figure A).

A Cognitive Elaboration Model of Time Compression Effects

Moore, Hausknecht, and Kalaiarasi (forthcoming) noted that time compression is likely to affect the way consumers process advertising information. According to their model, fast presentation rates disrupt cognitive elaboration; that is, consumers generate fewer associations between advertising information and information contained in memory. If so, then time compression may either enhance or reduce persuasion by reducing the number of favorable or unfavorable associations to the brand. Moore et al.'s formulation is consistent with a

FIGURE A
MODELS OF TIME COMPRESSION EFFECTS



Preference Model: Links 1 & 5
Source Credibility Model: Links 3 & 6
Cognitive Elaboration Model: Links 2, 4 & 7

¹The authors wish to thank Kanchana Kalaiarasi for her assistance in the early phases of this research. We are also grateful for the support received from the University of Florida Center for Consumer Research.

TABLE 1

SUMMARY OF TIME COMPRESSED ADVERTISING RESEARCH					
Study	Listening Condition	Medium	Speeds	Attitude Measures	Significant Effects of Compression Reported
MacLachlan & LaBarbera 1978	Laboratory	TV	100,125	Rated Interest	2/6 ^a Higher Interest 1/6 Lower Interest
LaBarbera & MacLachlan 1979	Laboratory	Radio	100,130	Rated Interest	3/6 Higher Interest
MacLachlan 1982	Laboratory	Radio	100,125	Ratings of	1/4 More Knowledgeable 2/4 More Enthusiastic 3/4 More Energetic
Stephens 1982	Laboratory	TV	100,120	No Attitude Measures	
Moore et al. forthcoming (Exp't 3)	Laboratory	Radio	100,130, 160	Cognitive Responses; Attitude toward Brands, Ad; Ratings of source credibility to Speaker	Speed affects target of cognitive response; Speed interacts with argument strength and affect brand attitude
MacLachlan & Siegel 1980	Field	TV	100,125	No Attitude Measures	
Lautman & Dean 1983	Field	TV	100,115	Commercial Ratings; Buying Intention	1/4 Improved Rating
Riter et al. 1983	Field	TV	100,125	Motivation to Buy	No tests
Schlinger et al. 1983	Field	TV	100,120	Viewer Response Buying Intention	6/52 (measures) were "worse" for response profile

^a Results are reported to indicate: Number of Commercials (measures) for which the significant finding was reported relative to the total number of Commercials (measures) evaluated.

variant of Petty and Cacioppo's (1981) Elaboration Likelihood Model (ELM) and Kisielius and Sternthal's (1984) availability-valence hypothesis.

The ELM interpretation predicts that consumers' attitude judgments are determined by cognitive responses to both message-related (or "central") and nonmessage (or "peripheral") factors. In advertising contexts, message-related thoughts represent inferences about message claims or product features. Nonmessage thoughts, in contrast, include evaluations of the source and ad, and are assumed to require fewer cognitive resources. Moore et al. proposed that fast presentation rates draw attention to nonmessage elements of the ad and distract attention from the central, message cues by inhibiting subjects' ability to process the ad fully (Petty and Cacioppo 1981 -- Consumer behavior researchers may be more familiar with motivational operationalizations of the ELM, such as found in Petty, Cacioppo and Schumann 1983). Thus, for compressed ads: 1) the relative impact of nonmessage cues on subsequent attitudinal judgments should increase, 2) the relative persuasive impact of messages evoking counterarguments should increase, and 3) messages that generate favorable reactions should be less persuasive.

In comparison with the perceptual/evaluative models, the ELM interpretation does not predict changes in the valence of affective reactions to the ad or source; instead, the relative weight that consumers give to the ad or source when evaluating the brand should increase for compressed ads because message and product information is processed less elaborately. In Figure A links 2, 4, and 7 depict the processes implied by the cognitive elaboration model.

Empirical Research on Time Compression

To conserve space, an overview of time compression research is given in Table 1. The discussion in this section is limited to a brief description of the major findings related to the processes depicted in Figure A. The link between time compression and affective reactions (#1 in Figure A) to the ad has received the most attention in previous research. MacLachlan and LaBarbera (1978) and LaBarbera and MacLachlan (1979) found that ads compressed to 120%-130% of normal speed are rated as more interesting than normal-speed presentations. However, Schlinger et al. (1983) reported that compressed ads are

rated as more patronizing and less personal. Finally, Moore et al. (forthcoming) found no difference between compressed and normal speed ads on a set of semantic differential scales designed to measure attitude toward the ad. Thus, the prediction that time compression affects consumers' attitude toward the ad has received only marginal support.

Only one study has examined the relationship between time compression, attention processes and cognitive response (#2 and #4 in Figure A). Moore et al. (forthcoming) found that compressed ads capture less attention. They also reported that consumers generate fewer cognitive responses to advertising claims and the product and more cognitive responses to ad execution factors when ads are compressed beyond 130% of normal-speed.

The evidence that time compression influences consumers' judgments of source credibility in advertising settings (#3 in Figure A) is mixed. MacLachlan (1982) found that spokespersons are rated as more enthusiastic and energetic when ads are compressed to 125% of normal. However, no significant compression effects on source attractiveness and expertise scales were reported in the Moore et al. study. Thus, even though person perception research suggests that fast speakers are rated as more confident, fluent, and persuasive, this does not appear to occur in advertising contexts.

With respect to the prediction that time compression influences brand attitude judgments, Wheelless (1971) and Lautman and Dean (1983) found no significant compression effects. However, other studies have shown that product ratings are more favorable for compressed versions of some ads, but normal-speed versions of other ads evoke more favorable reactions to the product (Riter et al. 1982; Schlinger et al. 1983). Moore et al. (forthcoming) demonstrated that time compression generates more favorable brand reactions for ads containing weak, unpersuasive arguments; they also found a small decline in the favorability of brand attitude when ads containing strong, persuasive arguments were compressed.

In short, the pattern of evidence from previous research provides little support for the predictions of the preference and source credibility hypotheses. Time compression does not appear to exert strong effects on affective reactions to the ad nor does it appear to enhance source credibility. Furthermore, time compres-

sion does not simply enhance brand attitude judgments. Instead, the evidence suggests that compression interacts with advertising characteristics to produce an effect on brand attitude, favoring the cognitive elaboration model.

Overview of the Present Study

The experiment reported in this paper was designed to test further the predictions of the three models. At present, the only explicit competitive test of these models was conducted by Moore et al. (forthcoming). In their research, consumers listened to a series of ads with a critical test ad occupying the middle position. Following each ad cognitive responses were collected. This procedure has two potential shortcomings. First, the experimental setting bears little resemblance to natural communication settings. When ads are embedded in a program and when consumers are engaged in distracting activities, compressed ads may be preferred because consumers view advertising as an unpleasant interruption in the program. Second, collecting cognitive responses to the ad forces consumers to focus their attention on message arguments, spokespersons, and ad execution. Thus, the observed effects in Moore et al.'s study may not replicate when cognitive responses are not collected.

To overcome these problems, we attempted to replicate Moore et al.'s findings in a more natural listening setting. Several versions of a radio ad were created by manipulating source credibility, argument strength, and time compression - factors identical to those used in the Moore et al. study. The message reception environment was modified by: 1) embedding commercials within a radio program, 2) instructing consumers that their task was to evaluate the radio program rather than the ads, 3) providing a concurrent distractor task, and 4) eliminating the cognitive response measures. Thus, the critical problem addressed in our study is whether the cognitive elaboration model provides an adequate account of time compression effects when attention is not focused on advertising material. More important, the experimental design permitted a further competitive test of hypotheses examined in the Moore et al. study.

- H1: The Preference Hypothesis: Moderate increases in presentation rate (i.e., 130%) produce more favorable reactions to the ad and brand than slow or fast presentation rates.
- H2: The Source Credibility Hypothesis: Compressed ads enhance the perceived credibility of the spokesperson and produce more favorable reactions to the brand.
- H3: The Cognitive Elaboration Hypothesis: Time compression reduces consumers' ability to process message assertions. This reduces the impact of message arguments and enhances the impact of source credibility on brand attitude judgments.

Method

Subjects

Students in an introductory Marketing class participated in the experiment for course credit. Of the 254 participants, data from 11 were discarded due to item non-response leaving results from 101 women and 142 men for subsequent analysis.

Design

Subjects listened to one of 24 radio commercials generated from a 2 x 2 x 2 x 3 between-subjects factorial design. The factors in the experiment were Product Class (Calculators or Razors), Argument Strength (Strong versus Weak), Source Credibility (High versus Low), and Message Exposure Rate (100%, 130%, and 160%). The between-subjects manipulation was chosen to control for demand

effects which may arise from within-subjects manipulations of presentation speed.

Materials and Stimuli

The stimulus commercials used were identical to those used by Moore et al. (forthcoming), as were the non-critical commercials used to simulate clutter. A thirty minute segment of a syndicated rock and roll program provided by a local radio station constituted the main tape in which commercials were embedded at logical breaks. Five "puzzles" (maze, wordsearch, etc.) were photocopied and provided the distractor task.

Procedures

The experiment was conducted in a language laboratory that seated 24 subjects at individual booths, each containing a tape recorder and a set of headphones. Subjects participated in groups ranging in size from 11 to 22. At the beginning of the experiment, instructions were read that explained the use of the tape recorder and indicated that the purpose of the experiment was to evaluate the appropriateness of a radio program for the local, predominantly student market. Subjects were also instructed to work on distractor tasks while listening to the radio program. The use of the distractor tasks was explained as necessary since, "[people] usually read or go about their normal routine when listening to the radio..we'd like everyone to work on these puzzles so that all of you are doing similar activities during the program".

The critical ad appeared midway through the program (third in a total of five ads presented during the thirty minutes). The calculator commercials contained a testimonial communicated by either a "Princeton Professor" (High Credibility) or a "high school student" (Low Credibility). The "strong arguments" version listed such reasons to buy as, "provides an ideal combination of financial and statistical capabilities needed in college courses" and "performed computations with the speed and accuracy of a computer". The "weak arguments" version relied on reasons like, "comes with a case that can be attached to your belt" or "does not provide a warranty, but I don't believe that you'll need one".

The razor commercials provided endorsements from either professional athletes (High Credibility) or citizens of a southern city (Low Credibility). Sample strong arguments are, "designed with a new advanced honing method that creates unsurpassed sharpness" and "special chemical coating eliminates nicks and cuts". Weak arguments included, "designed for beauty" and "can only be used once". The razor commercials were based on ads used in previous investigations of the elaboration likelihood model (Petty et al. 1983).

At the end of the program segment, subjects were instructed to complete a questionnaire that could be found in an envelope in the booth. The questionnaire first asked for ratings of the program (both to provide an intervening task and to justify the stated purpose of the study) and then probed for recall of products and brands advertised. Finally, copy point recall, brand attitude, attitude toward the ad and various manipulation checks relevant to the critical ad were collected.

Dependent Measures

The primary dependent measures were: 1) unaided recall of the brand name; 2) copy point recall; 3) brand attitude ratings; 4) ratings of the critical ad; 5) ratings of the product endorsers; and 6) ratings of argument strength. Recall measures were dummy-coded mentioned/not mentioned and ratings were collected on seven point semantic differential scales.

Results

Ratings of Argument Strength

Three semantic differential scales were used to assess perceptions of the message arguments: 1) strong-weak, 2) persuasive-unpersuasive, and 3) important-unimportant. These items loaded on the same factor and were summed for subsequent analyses (Cronbach's $\alpha = .89$).

Three significant effects were revealed in the analysis: 1) a main effect for Argument Strength, $F(1, 217) = 6.58$, $p < .02$, 2) an Argument Strength x Exposure Rate Interaction, $F(2, 217) = 3.03$, $p < .03$, and 3) a Source Credibility x Argument Strength interaction, $F(1, 217) = 4.77$, $p < .03$.

Although the Argument Strength effect indicated that subjects rated strong arguments as more persuasive ($M=11.67$) than weak arguments ($M=10.33$), this difference was not constant across Exposure Rate and Source Credibility conditions. Figure B shows the pattern of means for the strong and weak argument conditions within each exposure rate condition. As this Figure shows, subjects did not discriminate between the strong and weak arguments in the 160% condition, but argument strength significantly affected ratings in the 100% and 130% conditions. This result is consistent with the Cognitive Elaboration Model (H3) and suggests that message cues were not considered carefully in the fast exposure rate condition.

Simple main effect tests on the Source Credibility x Argument Strength interaction revealed that strong arguments were rated as more persuasive than weak arguments in the high credibility condition ($p < .05$) but not in the low credibility condition ($F < 1$). This pattern is not unusual in persuasion research and suggests that subjects' interpretation of argument strength was influenced by source cues (cf. Norman 1976).

Attitude Toward the Ad

The Preference Hypothesis (H1) predicts that consumers react more favorably to ads played at 130% of normal speed. Responses to a set of eight semantic differential scales about the ad were used to test this hypothesis. Preliminary factor analyses of these scales revealed three underlying dimensions. To conserve space, these factors will be referred to as "ad affect", "ad credibility", and "speed of speech".

Ad Affect. Analyses of five summed ad affect scales (Cronbach's $\alpha = .87$) revealed a significant effect for Product Class, $F(1, 218) = 5.26$, $p < .03$. Subjects reacted more favorably to the razor ads ($M=18.54$) than the calculator ads ($M=16.69$). No additional effects were significant.

The failure to find a significant effect of Exposure Rate on ad affect is damaging to the Preference Hypothesis. Inspection of the means for the Exposure Rate conditions indicated a pattern consistent with the Preference Hypothesis. The 130% condition evoked the most favorable reactions ($M=18.46$) followed by the 100% ($M=17.95$) and the 160% ($M=16.47$) conditions. However, the difference among these means did not reach a conventional level of statistical significance, $F(2, 218) = 2.22$, $p < .12$.

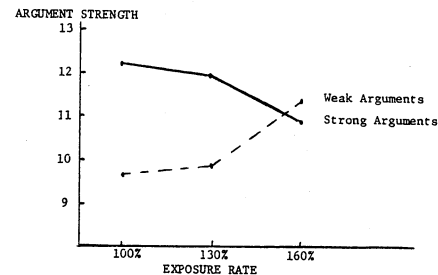
Ad Credibility. The analysis of summed ratings for the two ad credibility scales (Cronbach's $\alpha = .74$) indicated a main effect for Product Class, $F(1, 216) = 5.60$, $p < .02$. The razor ads were rated as more believable and truthful ($M=8.93$) than the calculator ads ($M=8.16$). All remaining main effects and interactions were not statistically significant.

Speed of Speech. An interesting issue for practitioners concerns whether or not consumers notice that ads are compressed. In previous research this issue has been examined with open-ended questions that probe for aware-

ness of time compression (e.g., MacLachlan & Siegel 1979). In the present study awareness of the time compression manipulation was examined by comparing

FIGURE B

ARGUMENT STRENGTH RATINGS FOR THE ARGUMENT STRENGTH X EXPOSURE RATE INTERACTION



ratings of the commercials on a semantic differential scale ranging from slow to fast. A significant Exposure Rate effect, $F(2, 217) = 28.32$, $p < .0001$ and interactions between Product Class and Argument Strength, $F(1, 217) = 6.54$, $p < .02$, and Product Class and Exposure Rate, $F(2, 217) = 4.35$, $p < .02$, were uncovered in the analysis. The most important of these effects was the Product Class x Exposure Rate effect. Table 2 shows the mean ratings for each Exposure Rate condition by Product Class. Comparisons of the speed ratings within each Product Class indicated similar trends. No significant differences were detected for comparisons between the 100% and 130% condition; however, the 160% condition was rated as significantly faster for both the razor and calculator ads. Thus, subjects did not report significant increments in speed until the compression rate surpassed 130%.

TABLE 2

EFFECT OF EXPOSURE RATE ON PERCEIVED SPEED OF ADS WITHIN EACH PRODUCT CLASS

Product Class	Exposure Rate		
	100%	130%	160%
Calculator Ads ^{a,b}	3.0A	3.6A	5.5B
Razor Ads	3.5A	3.2A	4.6B

^a The scale ranges from 1=slow to 7=fast.

^b Within each row of Table 2, numbers followed by the same letter are not significantly different at $\alpha = .05$ using Tukey's HSD test.

Perceptions of the Product Endorsers

According to the Source Credibility Hypothesis (H2), time compression should enhance the perceived credibility of the product endorsers. Nine semantic differential scales were included to test this hypothesis. We expected these scales to reflect an attractiveness dimension and expertise dimension (cf. Moore et al. forthcoming). However, a factor analysis yielded only one factor. Therefore, in our analyses all nine scales were summed (Cronbach's $\alpha = .95$).

Three significant effects emerged from the analysis. First, high credibility endorsers were perceived to be more credible ($M=38.38$) than low credibility endorsers ($M=29.03$), $F(1, 217) = 49.27$, $p < .0001$. This effect was qualified by a Product Class x Source Credibility inter-

action, $F(1, 217) = 5.73, p < .02$. Simple main effect tests of this interaction indicated a significant product effect for the high credibility conditions ($M's = 41.13$ and 35.74 for the calculator and razor ads respectively), $p < .05$; the product effect was not significant in the low credibility conditions ($M's = 28.52$ and 29.52 for the calculator and razor ads respectively). Thus, subjects generally rated the "Princeton Professor" in the calculator ads as a more credible source than the "professional athletes" used in the razor ads, but the other sources were perceived as equally credible.

The third significant effect in the analysis of source ratings was an Argument Strength x Exposure Rate interaction, $F(2, 217) = 4.32, p < .02$. Table 3 shows the relevant mean ratings for this interaction. This Table indicates that product endorsers were not simply given higher ratings as exposure rate increased (Hypothesis H2). Instead, when strong persuasive arguments were given, the endorsers were rated lower in the 160% condition than in the 100% and 130% conditions. However, consistent with Hypothesis H2, fast speakers were perceived as more credible when weak message arguments were given. One plausible interpretation of this finding is that subjects used argument strength as a cue for their ratings of source credibility. When the exposure rate reached a point where subjects did not respond to message quality, the suppressing effect of weak arguments was reduced. This interpretation is clearly at odds with the simple process postulated by the Source Credibility Hypothesis (H2).

TABLE 3

EFFECT OF EXPOSURE RATE ON PERCEIVED CREDIBILITY OF PRODUCT ENDORSERS IN THE STRONG AND WEAK ARGUMENT CONDITIONS

Argument Strength	Exposure Rate		
	100%	130%	160%
Strong Arguments ^a	34.93A	35.25A	31.95B
Weak Arguments	31.54A	32.02A	36.93B

^a Within each row of Table 2, numbers followed by the same letter are not significantly different at $\alpha = .05$ using Tukey's HSD test.

Brand Attitude Judgments

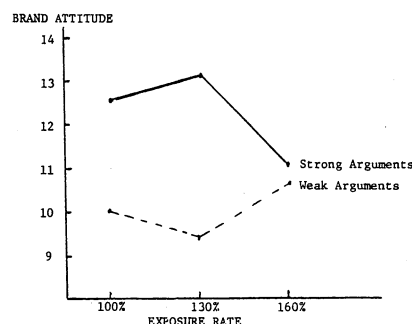
Analysis of three summed brand attitude scales (Cronbach's $\alpha = .90$) provided the critical test of the hypotheses. Both the Preference Hypothesis (H1) and the Source Credibility Hypothesis (H2) predict a main effect for Exposure Rate. The Cognitive Elaboration Hypothesis (H3), in contrast, predicts that message arguments should exert less impact and source credibility should exert more impact on brand attitude judgments as exposure rate increases; if so, then an interaction among Argument Strength, Exposure Rate, and Source Credibility should occur (cf. Moore et al. forthcoming).

The analysis provided little support for H1 and H2; Exposure Rate did not exert a significant main effect on brand attitude judgments, $F < 1$. However, a significant Argument Strength x Exposure Rate interaction emerged, $F(2, 218) = 3.20, p < .05$. Figure C shows the pattern of brand attitude judgments for this interaction. Follow-up tests revealed that strong arguments evoked more favorable judgments than weak arguments in both the 100% and 130% conditions ($p < .05$). For the 160% condition, the Argument Strength effect did not approach significance. This pattern is consistent with the Cognitive Elaboration Model and suggests that fast exposure rates reduce the impact of message quality on attitudinal judgments. However, the expected Argument Strength x Source Credibility

x Argument Strength interaction was not significant; this suggests that a decrease in the utilization of message cues is not necessarily accompanied by an increase in the use of source clues.

FIGURE C

BRAND ATTITUDE RATINGS FOR THE ARGUMENT STRENGTH X EXPOSURE RATE INTERACTION



The Argument Strength main effect and the Source Credibility x Argument Strength interaction were also significant. These effects were in the expected direction (e.g., strong arguments delivered by a high credibility source elicited the highest brand evaluations), and since they are not critical to the hypotheses, they will not be discussed further.

Brand Name and Copy Point Recall

The attitude results suggest that subjects may have ignored test ads when the compression rate surpassed 160%. The recall data support this interpretation. As Table 4 indicates, recall of the brand name and copy points was significantly lower in the 160% condition.

TABLE 4

EFFECT OF EXPOSURE RATE ON BRAND NAME AND COPY POINT RECALL

	Exposure Rate			F(2, 219)
	100%	130%	160%	
Brand Name ^a	.56A	.59A	.40B	3.89
Copy Point ^b	2.16A	2.15A	1.48B	6.65

^a Proportion recalling brand name for the test ad.

^b Average number of copy points recalled out of nine.

Note. Numbers in the same row followed by the same letter are not significantly different ($\alpha = .05$).

Discussion

The data collected in the present study consistently indicated that message quality effects diminish when compression rates surpass 130%. This finding appeared in the analyses of argument strength ratings, source credibility ratings, and brand attitude judgments.

There are two plausible accounts of the observed data pattern. First, high levels of time compression may cause consumers to ignore advertising information. If so, then one would expect lowered recall and reduced message quality effects. A second process that could account for our data is that the fast speaking rate distracted attention from processing message claims and product information and focused attention on executional components of the ad. Although this latter interpreta-

tion is consistent with the conclusions of Moore et al. (forthcoming), there are some discrepancies between our findings and the results reported in their research. Moore et al. found that high levels of compression are associated with reductions in the impact of argument strength cues and increased effects of source credibility cues on brand attitude judgments. In the present study we found the reduction in argument strength effects on brand attitude judgments, but source credibility effects did not increase in the high compression rate conditions. This difference could be attributed to procedural differences between our study and the Moore et al. study. That is, when consumers were not specifically instructed to generate cognitive responses to the ads, source credibility did not play a major role in brand attitude judgment. Since this could be due to a number of factors we feel that it will be more constructive to focus the discussion on consistencies; that is, why time compression reduced the effects of message quality cues in both the present study and Moore et al.'s study.

Neither the Preference Hypothesis nor the Source Credibility Hypothesis predicts an interaction between time compression and advertising characteristics. Thus, it is difficult to account for the observed data with perceptual/evaluative mechanisms. This points to cognitive elaboration models as the most promising account of time compression effects. The diminished effect of message quality is predicted by both the Elaboration Likelihood Model and Kisielius and Sternthal's (1984) availability-valence hypothesis. The key distinguishing characteristic between these models is that the ELM predicts that peripheral cues exert more impact on attitude change when cognitive elaboration is limited whereas the availability-valence model is mute on this point. Both models can account for our findings.

Perhaps the major conclusion that can be drawn from both our findings and Moore et al.'s data is that there are clear limits to the use of time compression in advertising settings; rates exceeding 130% seem to interfere with message reception. Note that the 130% rate is not offered as a maximum level for advertisers, or even a theoretically critical level. The present data reveal that time compression affects learning and attitude change processes at relatively low compression levels even though comprehension may be unaffected (up to rates of 200% - see, for example, Fairbanks, Guttman and Miron 1957). Thus optimal speeds are dependent on message and non-message aspects of each specific ad. More important, since we have ignored more subtle effects such as alterations in the consumers' interpretations of advertising claims, future applied research is likely to provide additional insights by incorporating measures of comprehension and acceptance as well as brand attitude.

Finally, the cognitive elaboration investigations of time compression have been limited to radio advertising, whereas much of the previous work dealt with television (Table 1). It is conceivable that compression may affect visual information processing differently than verbal. Relatively modest compressions can result in unintentionally humorous "Keystone Cop" movements that can detract from the impact of a commercial by creating new execution related cues.

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EMOTION-ELICITING ADVERTISING: EFFECTS ON LONG TERM
MEMORY AND JUDGMENT

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Abstract

Six to eight weeks after a single viewing of emotional and neutral advertising messages, subjects were phoned and given memory and judgment questions about the messages and brands. The original viewing had involved two encoding instructions, one that encouraged episodic processing; the other, semantic processing of the messages. Results showed stronger memory and more positive judgments associated with emotional messages. Memory was stronger with episodic processing, while judgment was more positive with semantic processing. Emotion and encoding instructions showed some interaction. The findings are discussed in terms of the viewing conditions under which emotional messages will enhance memory and judgment.

Introduction

The study reported here is part of a research program that explores the role of emotion in memory and judgment about advertising messages. One objective of the study was to test memory and attitudinal differences for emotional and neutral messages after an extensive delay (six to eight weeks). The second objective was an examination of the effects of encoding instructions designed to initiate either episodic or semantic processing of the messages. The third objective was to see if emotion operates differently in episodic and semantic memory.

Emotion's Role in the Processing of Commercials

Attempts to understand and define human emotion have a long history (e.g., Darwin 1872/1965; James 1890/1950; Canon 1914; Arnold 1968). In this paper, emotion will be treated as a process that occurs over time, varies in intensity (Simon 1982) and valence (Russell 1980), and exhibits a variety of concomitant indices: conscious appraisals of internal states and physiological changes in heart rate, blood pressure, and adrenalin levels. Emotion's ability to redirect attention and produce arousal distinguishes it from the concept of mood (Simon 1982). Finally, emotion is assumed to be a powerful influence on memory and judgment for at least three important reasons: emotion's developmental primacy (Mandler 1984), its evolutionary importance (Plutchik 1980), and the general pervasiveness of its impact on human functioning (Lazarus 1980).

A review of emotion in the marketing and advertising literature is not feasible here (see Kreschel, 1984, for a good introduction). It should be noted, however, that in marketing and consumer behavior, emotion has typically been defined in four ways. First, emotion has been treated as a type of appeal that is opposite from appeals emphasizing factual attributes of products (Preston 1968; McEwen and Leavitt 1976). Second, emotion has been defined as how much viewers like a commercial (Mitchell and Olson 1981; MacKenzie and Lutz 1982; Moore and Hutchinson 1983). Third, emotion has been defined as mood state during the viewing of commercials (Srull 1983). And fourth, emotion has been identified in the structure of cognitive responses that people make about commercials (Wright 1973; Leavitt 1968; Stout and Leckenby 1984).

Unfortunately, none of these definitions capture three critical attributes of emotion: the fact that it resides in individuals rather than in commercial message structure, that it is intense enough to elicit "feelings experienced," and that it fluctuates over time. Under the present approach, an "emotional message" refers to a vehicle that creates over-time flow of feelings that people report as emotional experience. It is not the type

of information in the message, the mood of the viewer, or how much the viewer can articulate liking the ad.

The paper turns now to an episodic-semantic model of consumer memory that incorporates this conceptualization and measurement of emotion.

Episodic and Semantic Memory and Consumers

Endel Tulving (1972) first suggested that a distinction should be made between memory that stores information about specific events experienced by a person, and memory that stores general knowledge about the world in a logical and categorized way. The first kind of memory he termed episodic, and the second, semantic. All incoming experience is stored initially as episodic information. In this system, associations between events are generally in terms of their contiguity in time. Semantic information must be derived by performing mental operations on information in episodes. When episodes are categorized, judged, evaluated, generalized, compared or in some other way acted upon by mental operations that information then becomes part of semantic store.

When people watch commercials, there is episodic processing of the audio and video events in the ads. There is also simultaneous processing of events in the viewing context (e.g., other people in the room, a doorbell ringing) and internal events such as physiological states (hunger, pain), thoughts, and feelings. Episodic traces of commercials contain all of this information. Furthermore, the traces vary in strength as a function of various parameters such as the intensity of the experience, subjective importance and meaningfulness of the experience, and the individual's ability to understand the message. One of the most important determinants of the strength of the episodic trace is emotion. In fact, there is extensive evidence that episodes experienced while people are emotionally aroused leave much stronger episodic traces than those experienced without arousal (Meltzer 1930, Postman 1947; Pillemer 1984).

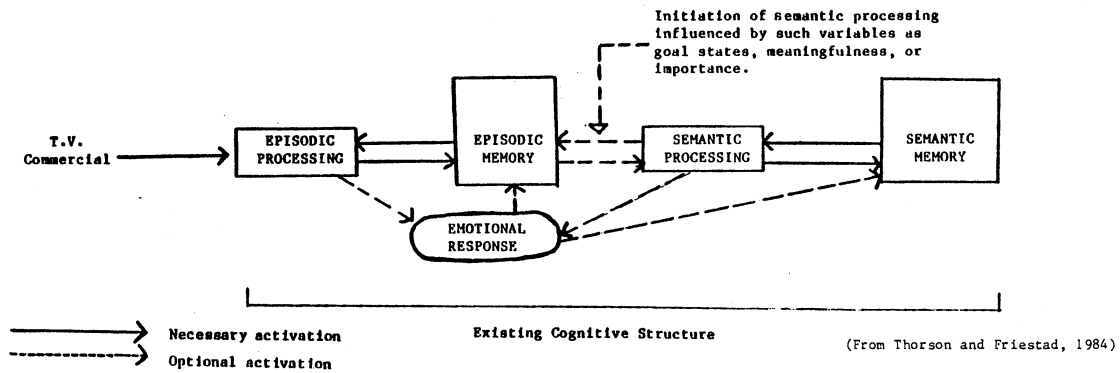
While marketers like to think of consumers carefully operating on advertising episodes to enter product-related information into semantic memory, such operations may not occur, or they may occur only at some time after the episode is experienced. There are factors that increase the probability such operations will occur. These include relevance of episodes to the individual's goal states, the meaningfulness or importance of the message, and whether the episode arouses emotion. It seems reasonable to assume that under ordinary low-involvement viewing of television (Krugman 1965), primarily episodic memory traces are created. On the other hand, if subjects are instructed to make judgments as they view, both episodic and semantic traces should be created.

As can be seen, then, it is important to consider two kinds of memory structure that can result in response to advertising messages. It can also be seen that emotion is relevant to the structure of both memories, as well as to the likelihood that mental operations will create semantic information from episodic traces. These relations are represented in a flow diagram of memory processes shown in Figure 1.

This model suggests that emotion experienced while viewing a commercial will strengthen the episodic memory trace for that message. The model does not assume, as do many involvement theorists (Mitchell and Olson 1981; Batra and Ray 1983; Lutz, Mackenzie, and Belch 1983; Moore and

FIGURE 1

EPISODIC AND SEMANTIC MEMORY PROCESSING OF TELEVISION COMMERCIALS



Hutchinson 1983; Petty, Cacioppo, and Schumann 1983; Park and Young 1984), that low-involvement processing is based on emotional processing and high involvement is cognition-based; but rather that an emotional response may be present in both high and low involvement situations. The model also differs from the distinction (Gardner, Mitchell, and Russo 1985; between brand and non-brand processing. Certainly brand processing would be largely semantic, but non-brand processing (e.g., evaluating an ad) could also be semantic. The approach closest to the present one is the distinction between retrieval and computational processing (Srull, 1983). Retrieval instructions would produce episodic processing. Computational instructions would demand semantic memory.

The paper turns now to a study that explores the predictive use of the episodic-semantic model for messages that differ in their ability to generate emotional responses in viewers.

Experimental Design and Hypotheses

The present design is a subcomponent of a larger study that manipulated subjects' encoding and retrieval processes (episodic/semantic) and type of message (emotional/neutral). Subjects were exposed to a series of television program segments and promotional messages. In the episodic processing condition, the viewers were simply told to watch all of the material carefully. Subjects' processing of the stimuli was, therefore, unstructured by any imposed task. Subjects in the semantic processing condition were instructed to watch all of the messages and evaluate them in terms of their ability to "influence your thoughts, opinions, and beliefs." These instructions imposed a semantic processing task on the subjects' encoding of the stimulus material.

Immediately after viewing, subjects were tested on their recall of the commercials, products, and brands, as well as their attitudes about the messages. These data are still being analyzed and not included in this paper. After a delay of approximately two months, the subjects were telephoned, reminded of their participation in the study, and again tested on memory for and judgments about the commercials (primarily an episodic task).

Hypotheses

Both the theoretical importance of emotion in strengthening episodic and semantic memory traces, and previous empirical findings that emotional commercials are more strongly remembered under short term memory conditions (Batra 1985; Friestad and Thorson 1985) led to the expectation that for long term recall:

- H1: Commercials that produce strong emotional responses during viewing will be more likely to be recalled, and recalled in more detail

than commercials that produce little or no emotional response during viewing.

Expectations about the effects of encoding instructions were more exploratory. It could be that episodic encoders, although they had also developed semantic traces during the immediate testing conditions, retained strong episodic traces and therefore when the long term memory task (primarily episodic in nature) was given, would perform better. This notion leads to the expectation that:

- H2a: Memory performance for viewers who encode episodically will be better than memory performance for those subjects who encode the messages semantically.

On the other hand, since all commercial information must first be recorded episodically, the semantic encoders would, during viewing, lay down structures in both memory systems (double trace strength) and hence, remain at an advantage even for the long-term episodic task. This alternative conception leads to the expectation that:

- H2b: Memory performance for viewers who encode semantically will be better than memory performance for those subjects who encode the messages episodically.

It should be noted that more complex recall conditions had been used in the immediate recall condition, but these differing recall conditions were evenly distributed between the two encoding groups.

A second set of exploratory hypotheses concerned whether there exist independent or interactive relationships between message type and encoding instructions. Because emotional experience may be stored in both episodic and semantic memory, equally strong operations of emotion in both encoding conditions (i.e., no interaction) seemed a reasonable possibility. However, a theoretical case for expecting greater impact of emotional messages in either episodic or semantic encoding could be made. For example, it might be that because episodic encoders presumably do not lay down semantic information during viewing, emotion creates greater strength differences between emotional and neutral message traces. This notion would lead to the expectation that:

- H3a: Emotion will show greater recall enhancement effects for episodic encoders.

But it might also be that because semantic encoders must share processing capacity between episodic and semantic trace production, their episodic traces are generally weaker, and enjoy greater benefit of the presence of emotion than do those of episodic encoders. Hence:

- H3b: Emotion will show greater recall enhancement effects for semantic encoders.

Finally, although the model of episodic and semantic memory shown in Figure 1 does not have theoretical representations of message liking and judgments of influence, there is empirical support in short-term memory tasks that emotional commercials receive more positive responses than do neutral ones (Stout and Leckenby 1985; Batra 1985; Friestad and Thorson 1985), therefore:

- H4: Emotional messages will be better liked and produce more positive effects on judgments of influence than neutral messages.

In addition, there is evidence consistent with the idea that semantic processing involves making product and commercial evaluations (Srull 1984). In the present study, the semantic encoders would be more likely to have these responses available, even long after the experience. The episodic encoders would have to retrieve the relevant episodic trace and then make judgments. Given the weakened state of the trace, more neutral judgments would be expected. Hence:

- H5: Semantic encoding would lead to more positive message liking and perceived message influence for both emotional and neutral messages.

Method

Emotional and Neutral Commercials

Target messages were selected to create two levels of emotional response in subjects: strong emotional, and neutral. The messages were chosen on the basis of previous research (Friestad and Thorson 1985) in which subjects turned a dial up from a neutral point as they experienced positive feelings, and down as they experienced negative feelings. The resultant dial-reading patterns were averaged over each 30-second message. The five emotional messages had produced the largest mean divergence ($X = 28.1$) from the neutral dial reading, and the five neutral messages had produced the least mean divergence ($X = 15.4$).

Because of the complexity of finished commercials it is difficult, if not impossible, to control all sources of variation. A number of steps were taken to minimize this problem. First, a variety of production techniques and executional styles were represented in both message types. Second, while many advertising and consumer behavior studies have used only one or two commercials to represent a particular category, in this study, a total of five messages in each message type were used. The specific messages in each category were as follows: Neutral: a) a home economics teacher and students, in a classroom setting, comparing a smoked sausage product to other cuts of meat; b) an off-camera spokesman describing an air freshener in strip form; c) a small child drawing on a chalkboard and asking for understanding rather than pity for disabled people; d) a slow-paced close-up of a light beer product with voice-over; and e) an on-screen woman presenting a new combination tomato sauce/tomato paste product. Emotional: a) children watching a Punch & Judy puppet show with a male voice-over talking about child abuse; b) a family reunion scene promoting a soft drink product; c) a series of outdoor scenes presented in a slow-paced manner with musical accompaniment sponsored by a bank; d) a young couple in a romantic setting with a male voice-over stating the woman had been killed by a drunk driver; and d) a series of family scenes with voice-over and jingle promoting house paint. It should also be noted that the commercials and public service announcements used in the study are similar to those used by other researchers examining emotion in advertising (Batra 1985; Aaker, Stayman, and Hagerty 1985).

Finally, because familiarity has been associated with increased memorability, it was important to have the two message types as comparable as possible on this dimension. Information from a separate group of subjects (also college students) was used to establish ratings of the "familiarity" of the brands or organizations sponsoring

each of the messages. On a ten-point scale, (10=high) mean familiarity of emotional messages was 4.59, and mean familiarity for neutrals was 5.18 (n.s.d.).

Programming and Buffer Commercials

Subjects viewed the ten target commercials embedded in an environment of program segments and buffer commercials. This procedure was used to control for primacy and recency effects, as well as to provide a more naturalistic viewing context. The program segments used were five- to six-minute "human interest" stories similar to what might appear on "PM Magazine." Each subject saw four buffer commercials, a program segment, five target commercials, a second program segment, five target commercials, a third program segment, and four buffer commercials. The order of the program segments and buffer commercials remained constant across the three counterbalanced orders of target commercials.

Subjects

The subjects in this study were undergraduate students who had participated in a laboratory experiment for course credit during the previous semester. Ninety-four of the original 170 participants were telephoned and interviewed for this study. No reward was given for participation in the phone interview. The length of delay between the initial laboratory session in which the advertisements were viewed, and the telephone contact ranged from 48 to 71 days (mean delay = 61 days).

Procedures

In the initial experimental session, subjects were told the purpose of the study was to "aid in the understanding of how viewers watch TV," and that they would be watching both programming and commercials. There were two encoding conditions: episodic and semantic. Instructions for the episodic encoding conditions were simply to watch the programs and commercial messages carefully, thereby encouraging an unstructured processing situation. The instructions for the semantic encoding conditions were to think about the programs and commercial messages in terms of their effectiveness in shaping thoughts, opinions, and beliefs. These instructions imposed an evaluative task on the subjects' processing of the messages. After viewing, subjects were asked to retrieve everything they could about the viewed commercials, and then answer additional questions about each of the target and buffer commercials. The laboratory study took an average of 75 minutes.

Six to eight weeks later, interviewers telephoned subjects and identified themselves as calling on behalf of the Wisconsin Department of Journalism and Mass Communication. Subjects were reminded of their participation in the original study, and asked to answer some additional questions. If they agreed to participate, they were given a free recall test, product recognition questions, and finally asked for some judgments.

Dependent Measures

There were five kinds of dependent measures: free recall, additional free recall, recognition, liking for the messages, and judgment of how influential the messages were.

Free recall was measured by asking respondents to remember all they could about messages presented during the initial test study. This question produced six recall measures: Number of messages recalled, total information in the recall protocols, and numbers of executional, product category, claim, and brand names contained in the protocols. After respondents were able to recall no more messages, they were given an additional recall prompt: "Are there any other images, thoughts, or events you can recall from the messages you saw?"

Both free and additional recall responses were transcribed word for word, and later coded into the four categories of executional elements, product category, claims, and brand

name. Three coders performed these tasks, and their intercoder reliabilities were: executional elements (.92), product category (.98), claims (.98), and brand name (.98).

Next, respondents were given product categories and asked whether they remembered an ad for each one (Recognition). Subjects were asked to rate on seven-point scales how much they liked each message (Liking) and how much it had influenced them (Influence). Finally, because syndicated delayed memory scores are often a combination of free recall and recognition (e.g., Bruzzone) or cued recall (e.g., Burke), the number of messages generated by a combination of the two methods (Recall Plus Recognition) was used.

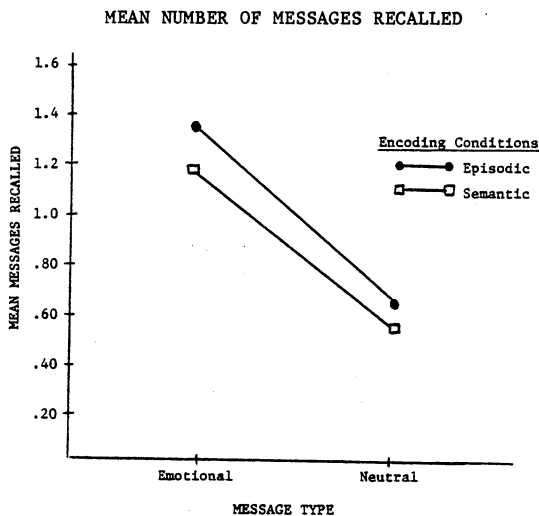
Results

Each of the dependent measures was subjected to a 2 (Message Type) X 2 (Encoding Condition) analysis of variance (anova) with message type a within-subjects variable, and encoding a between-subjects variable. Occasional differences in number of subjects per analysis are attributable to missing data.

Free Recall

The anova for the number of messages recalled showed a significant main effect of message type ($F(1,90)=35.29, p < .0000$). Encoding had no effect and there was no interaction. As can be in Figure 2, Hypothesis 1 was supported, in that emotional messages were more likely to be recalled than neutral messages.

FIGURE 2



Free recall of executional elements, product category, and brand name mentions showed the same pattern of results, with emotional messages producing significantly higher response levels than neutral messages. As in number of messages recalled, episodic coding was always higher than semantic coding, but not significantly. Only free recall of claim (no significant differences) failed to show this pattern, presumably because claim scores were so low.

It is interesting to note that although the means for brand name recall were quite low, there was a marginally significant main effect for encoding condition ($F(1,90) = 3.9, p < .08$), with the episodic mean ($\bar{X} = .36$) higher than the semantic ($\bar{X} = .10$). This main effect provides marginal support for Hypothesis H2a. The levels of brand recall in this study ranged from .10 to .46, and are very similar to levels of delayed recall (28 days) reported by Craig, Sternthal, & Leavitt (1976) in their study of long-term repetition effects.

Total Amount of Information in Free Recall

A sum of the number of executional elements, product category references, product claims, and brand names recalled was calculated for the two message types. Again, in support of Hypothesis 1, there was a significant main effect for message type ($F(1,90) = 4.72, p < .03$). The mean amount of information recalled for emotional messages, collapsed across encoding conditions, was 3.17. The mean for neutral messages was 1.60.

Additional Free Recall

After the respondents had spontaneously recalled as many commercials as possible, they were prompted with a request for any other images, thoughts or events that came to mind. These responses were coded in the same way as the initial free recall responses. For this variable, there was a main effect for message type ($F(1,91)=15.61, p < .001$). The mean number of additional emotional messages recalled was .42; the mean for neutral messages was .10.

A sum of the four different types of information (execution, product category, claim, and brand) was also analyzed for these additional messages. In this case there was a main effect for encoding ($F(1,91)=4.49, p < .03$), with episodic subjects recalling more information ($X = 2.0$) than semantic subjects ($X = .33$).

Although encoding effects were generally weak in the memory data, there was a consistent direction in the differences. Episodic encoding always produced more recall than semantic encoding. This result, together with the two instances of marginal or significant differences, provides preliminary support for H2a, namely that episodic encoding will produce stronger memory than semantic encoding.

Recognition

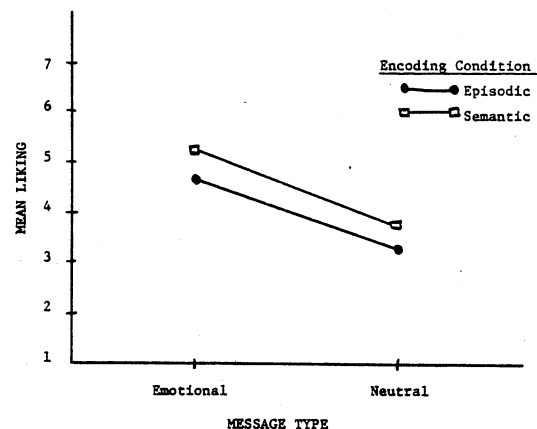
The number of commercials not recalled but correctly recognized was next analyzed. In this anova, there were no significant effects.

Liking and Influence

Figure 3 shows the results of respondents' rating of how much they liked each message. Here, message type produced a significant main effect ($F(1,86)=47.42, p < .0000$), with emotional messages better liked. There was no interaction, but encoding had a marginally significant effect ($F(1,86)=3.02, p < .09$), with semantic encoding producing more positive liking than episodic.

FIGURE 3

MEAN LIKING FOR ALL RECALLED AND RECOGNIZED MESSAGES



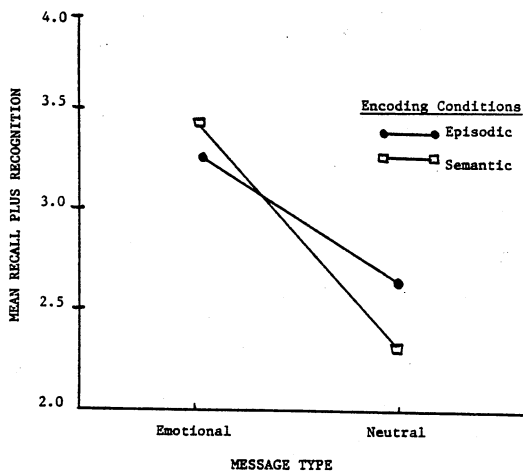
The anova on perceived influence showed a similar pattern. Encoding did not produce a significant effect, but semantic encoding was more positive than episodic. Message type was again significant ($F(1,86)=29.03, p < .0000$). There was no interaction.

The liking and influence results show clear evidence for H4, that emotional messages are responded to more positively than neutral messages. There is weaker evidence for H5, that semantic encoding leads to more positive delayed responses than episodic coding.

Recall Plus Recognition

In this measure, messages free-recalled and those recognized were combined. There was a significant main effect for message type ($F(1,92)=35.53, p < .001$), no effect of encoding, and a marginally significant interaction ($F(1,92)=2.89, p < .09$). Follow-up two-tailed *t*-tests showed a significant ($p < .05$) difference only for neutral messages. As can be seen in Figure 4, contrary to Hypotheses 3a and 3b, emotion did not differentially affect episodic and semantic encoders. Instead, encoding condition affected memory only for neutral ads which showed higher recall under episodic coding.

FIGURE 4
MEAN RECALL PLUS RECOGNITION



Discussion

The most striking aspect of these results is the positive long-term effect of emotional messages on memory. For every dependent variable except free recall of claims, where memory exhibited a floor effect, the emotional messages showed stronger memory than the neutral messages. This finding is in contrast to the popular conception in advertising that emotional ads "don't recall well" (Zielske, 1982), but consistent with recent scientific tests (Choi and Thorson 1983; Thorson and Friestad 1984; Batra 1985).

A second important aspect is the directional support of memory differences as a function of encoding instructions. While the main effect of encoding did not reach statistical significance as often as did message type, the consistency in the direction of the differences make the encoding results worthy of consideration. The fact that episodic encoding consistently showed better memory than semantic encoding lends support to the notion that encoding instructions did lead to differential memory processes. The alteration of this pattern in the judgment tasks adds further credence to the idea that consumers may differentially store information in memory as a function of differing "processing objectives" (Srull, Lichtenstein, and Rothbart 1985).

Finally, there are the findings of interaction between message type and encoding. The only dependent measure that indicated an interaction was the combination measure, Recall Plus Recognition. Here, encoding made no significant difference for emotional messages. However, neutral messages benefited from episodic encoding. Because the encoding effect was weak, interpreting the interaction patterns should await analysis of the data on immediate performance. Nevertheless, some speculation on the delayed performance results are in order. Given that most of the individual recall measures (number of messages recalled, product category, brand name mentions, executional, and claim information) show parallel effects of message type and encoding, the data support the idea that memory trace enhancement from the presence of emotion plays a similar role in both the episodic and the semantic systems. The interaction for Recall Plus Recognition under this interpretation may indicate that when total memory performance is indexed, the enhancing effect of emotion is strong enough to overwhelm encoding effects, and that the advantage of episodic coding can only be observed in neutral messages.

One of the inherent frustrations in the type of research presented here is that the most interesting variables are also those that carry with them significant methodological problems. The limitations of the data reported in this paper are directly tied to: 1) the problems associated with using complex stimuli (commercials), and 2) the difficulty of effectively manipulating the thought processes of individuals (encoding instructions). For example, it is not possible to "know" in a completely objective sense if emotion was the critical difference between the two sets of messages. Nevertheless, the steps taken to control for some of the more likely confounding variables (e.g., familiarity), the use of multiple messages, and the variation in products and executional styles help to address this problem.

Further, the difficulty of determining processing strategies of individuals is a problem for all researchers interested in cognition. In the data presented here, it cannot be unequivocally claimed that the manipulation was successful. With more effective control over strategies and without the immediate testing condition, the differences as a function of encoding condition might have been stronger. It is likely that the short-term performance data will help to clarify this issue.

In general, the long-term delay in this study created a difficult test of the episodic-semantic encoding distinction and the effects of viewer emotion during commercials. After only a single exposure and a long delay, emotional messages nevertheless had a decided advantage over neutral messages. The effects of the episodic-semantic encoding distinction are only suggestive as yet, but they point toward a model of processing that has potential significance to students of consumer behavior.

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THE GENERATION EFFECT IN ADVERTISING APPEALS

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Abstract

When subjects are allowed to generate for themselves semantic responses to experimental stimuli (internally-generated information), memory performance is often better than if they are allowed to be mere passive recipients of the information (externally-presented information). This paper reviews the current research related to this "generation effect", and presents the findings of two experiments. The first demonstrates the role of the degree of elaboration of semantic networks in facilitating a generation effect. The second, using radio broadcast materials, confirms that the generation effect can also be produced in an advertising context. Implications for marketing researchers and directions for future research are discussed.

A large body of recent research in cognitive psychology has demonstrated that retention of experimental verbal material may be more significantly enhanced when subjects are allowed to be active cognitive participants in the learning process rather than mere passive recipients of the experimental stimuli (e.g., Jacoby 1978; Slamecka & Graf 1978; Tyler, Hertel, McCallum, & Ellis 1979). In other words, memory tends to be better when subjects are forced to engage in a greater degree of thinking in order to generate a response to an experimental stimulus or problem (internally-generated information) than when those same subjects are presented all the answers/solutions by the experimenter (externally-presented information). We believe that this phenomenon has significant implications for research involving memory for advertising materials.

Most of the current literature in advertising has focused on memory for perceptual events derived from externally-presented stimuli, ignoring the potential influence of internally-generated information (Edell & Staelin 1983; Kisielius & Sternthal 1984; Saegert 1978; Saegert & Young 1982). There have been a few attempts to examine the role of internal generation on the memorability of advertising stimuli. For example, Heimbach and Jacoby (1969) found better recall of incomplete versions of TV ads compared to complete versions. MacLachlan and Janan (1984) reported better memory for ads that were incomplete or preceded by question prompts. However, there has been an obvious lack of a unified theoretical framework which could give guidance to this area of research. Information processing interpretations (e.g., Craik & Lockhart 1972) are intermingled with drive reduction explanations (e.g., Berlyne 1965; Zeigarnik 1927).

More attention should perhaps be paid to the growing body of research in cognitive psychology that relates to specific, testable issues concerning cognitive generation and memory. A consideration of this literature may provide a basic-process oriented theoretical framework which is more useful in directing the applied research in advertising and marketing communications. For example, a recent line of research in cognitive psychology on the "generation effect" (Slamecka & Graf 1978) may have something very compelling to say about the basic processes underlying cognitive generation.

This paper will review the current research related to the generation effect and then present the results of two experiments. The first demonstrates some of the conditions under which the generation effect is likely to occur. The second demonstrates the generalizability of the generation effect to a broadcast advertising context. The paper concludes with a discussion of the implications

for advertising researchers and practitioners, and directions for future research.

The Generation Effect

The generation effect refers to the greater memorability of internally-generated versus externally-presented stimuli. Slamecka and Graf (1978) conducted a series of experiments with the following basic paradigm. Subjects were presented with a number of complete and incomplete word pairs. Their task was to read the complete pairs, and to read the first word and covertly generate the second word of the incomplete pairs. The complete pairings constituted the externally-presented conditions; the incomplete pairings, the internally-generated conditions. In an external-presentation condition, for example, subjects would read both the stimulus word "rapid," and the response word "fast." In an internal-generation condition, subjects would be shown the word "rapid," but would have to generate the response word given only a first letter cue, "f_____." The generation effect was found with several different encoding rules (e.g., the pairs were synonyms, antonyms, homonyms, and so forth), and, of course, with appropriate counterbalancing of materials across conditions. Free recall and recognition confidence performance were better for the internally-generated words than for the externally-presented words.

Slamecka and colleagues turned to a consideration of possible theoretical explanations for the phenomenon. Several experiments implicated the involvement of semantic memory. McElroy and Slamecka (1982) noted that the effect was not found when subjects generated nonwords. Graf (1982) found the effect for completions of meaningful sentences but not for completions of anomalous sentences. Slamecka and Fevreski (1983) demonstrated that the activation of the correct semantic network that presumably occurs when subjects attempt to generate the correct word, even if they fail to actually generate it, is sufficient for subjects to better remember the correct word compared to a word they read. Additionally, Slamecka and Fevreski looked at incorrect generations and found that the more semantically related the error to the desired correct response, the larger the generation effect. Gardiner and Rowley (1984) have neatly concluded that "any type of item may give rise to the generation effect provided that it activates some existing representation in some knowledge system in semantic memory" (p. 445).

We turn now to a presentation of our experiments. For the first, a more complete account was presented in a recent professional symposium (Reardon & McGahan 1985). However, we felt it important to give a summary here because it confirms the importance of semantics, specifically from the perspective of degree of elaboration of semantic networks, in facilitating a generation effect. In the second, we attempted to extend the generation effect to an advertising message retention problem.

Experiment 1

If, as Slamecka and colleagues have argued, the generation effect rests on the reliance on semantic features compared with surface features, it should have important implications for memory differences between experts and novices. This, in turn, may be an important consideration in advertising communications because expertise defines a dimension on which consumers vary with respect to products (Conover 1981; Marks & Olson 1981). Some

consumers are familiar and involved with a particular class of products, or with a societal problem or need which the class of products proposes to meet. Others are not so familiar. Research on expertise has shown that such differences can be considered in terms of the degree of elaboration of semantic networks in memory.

Experts differ from novices in having a larger knowledge base in the area of expertise that benefits from an efficient chunking of smaller units into larger units based on the meaningful relations among the smaller units (Charness 1976; Chase & Simon 1973; Egan & Schwartz 1979; Newell & Simon 1972). Additionally, the units for experts are connected extensively, and often redundantly, with other units in the domain (Anderson 1976; Hayes-Roth 1977). Experts organize domain-relevant stimuli conceptually, at a deeper more abstract level, whereas novices organize domain-relevant stimuli using surface or syntactic features (Adelson 1981; Chase & Ericsson 1981; Chi, Feltovich, & Glaser 1981). The rich knowledge base of the experts together with the reliance of novices on surface features leads to the expectation that the generation effect should be attenuated for novices in general, and for experts outside of their area of expertise.

One of the primary purposes of Experiment 1 (Reardon & McGahan 1985) was to examine the proposed relationship between the generation effect and expertise. Experts (22 psychology faculty and advanced graduate students) and novices (22 junior-senior level psychology majors; the male-female ratio was the same for both experts and novices) engaged in a task requiring them to generate some words and read others (e.g., Durso, Reardon, & Jolly 1985; Johnson, Raye, & Durso 1980). They saw or generated words in a domain for which only one group was expert (psychology: domain-relevant) and words in a domain for which both groups were comparable (sports/leisure: domain-irrelevant). Recognition memory was then tested by asking subjects to identify words as ones they had read, ones they had generated, or as ones new to the experiment (Johnson & Raye 1981). We expected differences in the magnitude of the generation affect only with materials for which the groups differed in expertise.

Our results showed that superior memory for internally-generated events relative to externally-presented events was greatest for experts dealing with events from their area of expertise (i.e., the critical test, the internal/external source x domain x expert/novice interaction, was significant, $F(1,42)=4.47, p < .05$). Thus, the expectation that experts would show a large generation effect, but only in their area of expertise was confirmed.

Consistent with Slamecka and Fevreski's (1982) contention, experts, who tend to process domain-relevant information semantically, showed a strong generation effect relative to novices, who tend to rely more heavily on surface features. The mechanism underlying the generation effect may be that richly interconnected networks provide multiple access routes to the to-be-retrieved concept. These access routes are needed in order to generate the word initially, but they are not important when the subject simply reads the word presented by the experimenter. The fact that experts and novices differed little in their recognition of externally-presented psychology terms supports the idea that the expertise advantage in memory lies in the experts' ability to utilize the rich knowledge structure. When this knowledge structure is not brought to bear, as when subjects read a terminal word, the expertise advantage is not found.

What do these results suggest for advertising communications? Simply that the generation effect is most likely to occur when the stimulus materials (e.g., an advertising appeal) activate a rich semantic network/knowledge base. That is, a generation effect may occur only when consumers are involved/familiar with a product area and the class of products designed to address that area. Only then can cognitive generation tap, and thus take advantage of an extensive, redundantly connected network.

In the experiment below, we attempted to extend the above findings and theoretical discussion to a commercial message retention problem.

Experiment 2

Method

Subjects. Subjects were 62 undergraduate business administration students who participated for course extra-credit.

Procedure. A sugar-free high-nutritional soft drink was selected as the target product. Informal discussions conducted with other groups of subjects from the same population had revealed that soft drinks were frequently consumed by our population, and that the ingredients of these drinks were often of concern. The product was positioned as a new brand of soft drink just being introduced to the market. A fictitious brand name, Prime Time, was chosen in order to minimize any experimental complications caused by varying degrees of prior familiarity with well-known brands.

In order to minimize possible sources of reactivity within the design and prevent any artificial set to respond unnaturally to the stimulus, the target ad was embedded within a 15 minute excerpt of radio broadcast material containing 10 other advertisements and several songs. The broadcast material (which actually could have been presented on the air) was taped and appropriately edited in the studio of a local radio station, and the target ad was read by a professional radio announcer. Subjects were led to believe that the material was taken directly from a radio broadcast. The target ad itself (almost 70 seconds long) was designed so that the copy was delivered with the same cadence and inflection as many radio ads that use mock "news bulletin" formats. It stressed the following points: (1) Recent findings of medical science have shown that a high intake of sugar (usually found in soft drinks) reduces the body's ability to fight disease. (2) In response to the health needs of consumers, General Foods has developed Prime Time, a new, delicious, sugarless soft drink sweetened with aspartane. (3) Prime Time is fortified with vitamin B complex and vitamin C to help build resistance to disease and infections.

Scripts for both versions of the ad were essentially identical, with the product name being mentioned four times during the course of the ad. The manipulation of the independent variable occurred at the end of the ad. In the external-generation condition, the ad ended with an overt mention of the target product brand name. For the internal-generation condition, the end of the ad was structured so that subjects would covertly generate the brand name. This version ended with the words "Hey, what was the name of that new soft drink again....?"

Two days after the experimental exposure, subjects were surprised with a delayed recognition test. They were presented with a list of 13 brand names. Included in this list, and randomly ordered, were 7 of the brand names heard on the tape, 5 new brand names (foils) that were similar to the names heard, but which were not in fact on the tape, and the target brand name, Prime Time. Using a scale from 1 (not confident at all) to 7 (extremely confident), subjects were asked to indicate the degree to which they were confident that a given brand name was one that was mentioned on the tape they heard. Finally, to confirm the degree of semantic memory engagement, and to ensure that this engagement was comparable for both conditions, subjects were asked to respond to 8 items that assessed their interest and knowledge of health, nutrition, and concern with product ingredients (e.g., frequency of exercise, regularity of vitamin consumption, "junk" food habits, frequency of keeping up with nutritional news, etc.). Subjects responded to these items on 7-point scales, where higher numbers indicated greater familiarity/involvement.

Results and Discussion

Mean recognition confidence for the target product for the external-presentation group was 3.83; for the internal-generation group it was 6.25. These means were significantly different $t(60)=4.42$, $p < .0001$. In contrast, mean confidence responses of the two groups to other products that actually appeared in ads on the tape did not significantly differ (external-presentation: 4.17; internal-generation: 4.74). An examination of false positive responding, i.e., recognition confidence that the foils appeared on the tape, was undertaken to test for a possible recognition response bias on the part of either group. If anything, there was a slightly greater tendency on the part of the external-presentation group to indicate greater confidence that a foil was on the tape, but the difference between groups was not significant (external-presentation: 2.45; internal-generation: 1.96). The recognition confidence results must be considered in light of our postexperimental checks on subject familiarity/involvement. These measures confirmed that our subjects were, in fact, reasonably well-informed and concerned about health and the nutritional value of the foods they consume (both groups' mean scores on these items were above the midpoint of the 7-point scale in the direction of greater familiarity/involvement; external-presentation group: 4.21; internal-generation group: 4.02). Importantly, there were no differences in involvement/familiarity between the two groups. As a precaution, the measures of involvement/familiarity were covaried (individually, and as a sum) from the target recognition scores. The difference between groups remained significant (all $F_s > 15.00$ with 1 and 59 df), and none of the covariates reached significance (all $F_s < 1.00$).

One concern applied researchers have had with basic research in cognitive psychology is that it is conducted in artificial settings with socially impoverished stimuli (cf, Taylor 1981). Therefore, the generalizability of effects produced there are sometimes suspect until they are demonstrated in more ecologically valid settings. In the case of our study, we were able to replicate a finding in basic cognitive psychological research with "real world" materials in an applied context. We took two groups of relatively involved and aware subjects, and with broadcast advertising stimuli, produced a generation effect in the condition in which one was expected with no effect in the other condition. Experiment 2 is, of course, preliminary. By choosing a stimulus domain in which all of our subjects were fairly familiar, we could not test adequately the familiarity/involvement dimension. One should also be cautious about a result that is based on a single ad. We are currently planning more comprehensive tests of the generation effect in the marketing-advertising domain that involve a more systematic manipulation of generation and involvement/familiarity across a number of different types and modes of advertising presentations. Nonetheless, Experiment 2 opened the door on this research direction for us, and hopefully for others in marketing and advertising research who may share our interests.

General Discussion

What does the generation effect literature offer to marketing researchers and practitioners? At a concrete level, it suggests a technique for getting people to better remember certain aspects of an advertising appeal (e.g., brand name). There are boundary conditions on this, however. The audience should have a reasonably extensive knowledge base/semantic network which can be activated by the generation process.

The generation effect literature, at a more general level, offers something important that goes beyond a simple, concrete advertising technique. For example, the theoretical underpinnings associated with the generation effect may contribute something unique to recent studies in persuasive communications based on cognitive response/cognitive structure models (e.g., Olson, & Dover 1982;

Wright 1973; among others). These models have been used to explain how the message recipient's cognitive responses (defined as subvocal spontaneous thoughts generated during exposure to a persuasive message) mediate subsequent attitudinal and behavioral responses. The generation effect posits that elaborate knowledge bases/semantic networks are activated by the generation process. These networks are made up of meanings, relations, rules, images, and so on, but also include evaluative/emotional states and reactions. The generation effect is simply a manifestation of an activation of a semantic network. The cognitive response models may involve the same basic process.

The most extensive model of persuasion that includes cognitive response components is Petty and Cacioppo's (1983) Elaboration Likelihood Model (ELM). Nevertheless, Petty and Cacioppo (1985) admit that the ELM is a particularly simple and general framework, which does not "ultimately indicate why certain variables affect information processing" (p. 86). The generation effect phenomenon can conceivably provide a basic process explanation for that aspect of the ELM that deals with self-generated responses to persuasive appeals. To a limited extent, both the ELM and the generation effect make similar predictions concerning the message recipient's responses to various experimental stimuli. For example, according to the generation effect literature, internal generation leads to better memory performance when the person making the generation is equipped with a rich knowledge base for which the generation is relevant. Similarly, it may be inferred from the ELM that when the motivation and ability to respond to a message is high (as, for example, when a subject has high prior knowledge of or familiarity with the attitude issue) message elements may become more salient in memory, leading to better memory performance. Indeed, Cacioppo, Harkins & Petty (1981) have demonstrated that the advantage of self-generation over passive reception in persuasion settings is more pronounced when message recipients possess some prior knowledge base concerning a given topic, or are equipped with some relevant schema.

Future research will have to be directed toward a confirmation of the linkage of the generation effect to other cognitive response/cognitive activity models. Certain conceptual issues and consistency of terminology will have to be addressed if the two research areas are to be linked successfully. For instance, cognitive response researchers typically make a distinction between memory (defined as recall or recognition of message elements) and cognitive responses (Petty, Ostrom, & Brock 1981). Cognitive psychologists, as we have seen, make no such distinction. For them, message elements and generations are both memorial, but they have different sources (external versus internal; Johnson & Raye 1981; Slamecka & Graf 1978). We think the latter formulation is the more useful, particularly in helping provide a link between marketing research and current thinking in cognitive psychology.

Finally, it might be interesting to establish a linkage with the reality monitoring literature (Johnson & Raye 1981). Reality monitoring deals with the confusions people tend to make between internal and external sources of memories. Johnson and Raye (1981) have demonstrated that individuals make surprisingly many of these confusions. That people often confuse what they think with what they hear and see may have important implications for research on persuasive appeals.

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THE IMPACT OF COMPARATIVE ADVERTISING ON PERCEPTION
FORMATION IN NEW PRODUCT INTRODUCTIONS

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Abstract

The applicability of categorization theory for assessing the effects of comparative advertising is discussed in light of Gorn and Weinberg's (1984) results. Findings of an exploratory study are presented to illustrate the associative and differentiating properties of comparative advertising.

Introduction

Advertisers are making increasing use of comparative advertising in which reference is made to a named or recognizably presented competitor. Concomitant with this use is an increasing number of empirical studies attempting to assess the effectiveness of comparative advertising, particularly in terms of the differential effects of comparative versus noncomparative communications

The majority of these studies suggests that comparative advertising is no more effective than traditional advertising when it comes to believability (Boddewyn and Marton 1978; Prasad 1976; Wilson 1976; Wilson and Mudderrisoglu 1979), recall (Jain and Hackleman 1978), attitude toward the product (Belch 1981; Goodwin and Etgar 1980), purchase intentions (Golden 1976), and actual behavior (Swinyard 1981). In some instances, in fact, comparative advertising was less effective than traditional advertising (Levine 1976; Shimp and Dyer 1978).

A recent study by Gorn and Weinberg (1984, 1983), however, does provide some support for the continued use of comparative advertising. They suggest that the purpose of most comparative advertising is a reduction in the psychological distance between a challenger and the brand leader. Accordingly, the authors focused on perception formation as the critical dependent variable in their relative effectiveness test. It was found that comparative magazine advertising did significantly increase perceived brand leader-challenger similarity as well as the perceived similarity between all brands in a product class. Given these initial and encouraging findings, the authors called for more research focusing on the effectiveness of comparative advertising on perception formation.

In this paper we extend the Gorn and Weinberg effort by suggesting a theoretical framework for their approach and by illustrating this framework within the context of a study on consumer reaction to comparative television launching commercials for a regional premium beer. Specifically, we propose the use of categorization theory as a framework for analyzing the differential effects of comparative advertising.

Review of Literature

The communication effectiveness of comparative advertising has been an issue ever since the Federal Trade Commission encouraged advertisers to name competing brands as an alternative to the then more prevalent "brand X" euphemism (Cohen 1976). Wilkie and Farris (1975) proposed that such comparative advertising should be more effective than more traditional advertising in generating increased attention and recall, increased comprehension of claims, and greater yielding to claims. Of the studies investigating the relative effectiveness of comparative advertising, most were not supportive of these initial propositions. Comparative advertisements were often perceived as more confusing, less believable, and no more persuasive than noncomparative advertisements (Belch 1981; Shimp and Dyer 1978; Swinyard 1981).

More positive findings, however, were recently reported by Gorn and Weinberg (1984, 1983), who tested the relative effectiveness of comparative advertising by focusing on perception-related dependent variables. These authors argue that, in practice, comparative advertising is usually started by a challenger with the objective of placing the challenger in the same league as the brand leader in the mind of the consumer. A favorable result, then, for the challenger's comparative ads would be a reduction in the perceived psychological distance between the two brands.

In their study, Gorn and Weinberg focused on perceived challenger-leader brand similarity as the dominant dependent variable. They manipulated type of ad by the challenger (comparative, noncomparative), context (leader ad present, leader ad absent) and product category (cigarettes, golf balls, toothpastes). They found that greater perceived challenger-leader similarity was obtained with comparative advertising than with noncomparative advertising across the three product categories. Type of ad, however, did not affect attitude toward the product, a finding similar to previous research results. This latter result led these researchers to speculate that attitude may not be the most sensitive dependent measure and that longer term exposure might be necessary to affect attitude since attitude is a higher order response. Cognitive response data did not illuminate possible underlying processes which might have shaped and determined these results. As a result, Gorn and Weinberg called for more theoretical and empirical research on perceived challenger-leader similarity as an indicator of comparative advertising's effectiveness.

One promising theoretical framework for the analysis of perceived brand similarity focuses on the cognitive processes of categorization and prototyping (Rosch 1975, 1978). Casual observation as well as recent research attest to the pervasive human tendency to categorize both objects and persons into groups, types and other categories so that non-identical stimuli can be treated as if they were equivalent (Cantor and Mischel 1979; Rosch, Mervin, Gray, Johnson and Boyes-Braem 1976). Categorization simplifies the individual's processing task of the potentially overwhelming number of stimuli in the environment. Research further indicates that knowledge in a given category is internally structured around a typical (i.e., exemplar) or ideal instance (i.e., prototype) which captures the meaning of the category (Cantor, Mischel and Schwartz 1982). Categorization of a new stimulus under this perspective is accomplished by a prototype-matching process and is a function of the degree of similarity between the new stimulus and the category exemplar or prototype. In this way, categorization influences the processes of attention, integration, storage and retrieval of information.¹

The potential usefulness of the categorization perspective in examining consumer reaction to marketing stimuli was recently demonstrated by Sujana (1985). The results of her study suggest that category-based expectations guide

¹The issue of whether individuals perceive categories based on exemplars or based on prototypes has been debated in the categorization literature (Cantor and Mischel 1979; Medin and Smith 1984). For our purposes, no strong distinction is made between these two approaches. Rather we follow Elio and Anderson (1981) and assume that either the exemplar or the prototype or both provide the consumer with a set of expectations (cf. Sujana 1985).

consumer evaluation processes. In particular, her research suggests that consumers have well-defined categories stored in memory which enable them to perceive and evaluate new products. When applied to an analysis of comparative advertising, Sujan's findings suggest that by making reference to particular comparison brands, the consumer may categorize the new brand as an example of this category and retrieve the affect associated with the activated category. As a result, the categorization perspective is viewed as an interesting paradigm for understanding comparative advertising effects.

Study Hypotheses

The primary objective of the current study was to explore the impact of comparative television advertising on consumer perceptions of a new entry into a product category. Specifically, the goal of the advertising campaign to be reviewed here was to associate a new brand of beer with the leading prototypes in the premium beer segment.² Cast within the categorization framework this campaign goal translates into the following hypotheses:

H1a: Perceived similarity between the new entry and prototype brands will be greater with exposure to a comparative (vs. noncomparative) television commercial.

H1b: Perceived dissimilarity between the new entry and non-prototype brands will be greater with exposure to a comparative (vs. noncomparative) television commercial.

Study Methodology

Experimental Design and Procedure

The part of a larger experimental study examined here can best be represented as a simple two-group comparison of comparative versus noncomparative advertising. The larger study was designed to measure the effectiveness of various types of launching commercials for a new regional premium beer. Since the study was conducted before the actual introduction of the new brand, it permitted a "clean" assessment of comparative advertising's impact, free of the confounding effect of prior brand knowledge.

Upon arrival at the test site, pre-screened subjects were led to a television viewing room ostensibly to evaluate different types of news programming. Subjects were told that they would watch some news programming for about thirty minutes and would be asked some questions following the presentation. In addition, they were informed that the programming would be interrupted periodically so that they could report their thoughts, ideas, and opinions on the segment preceding the interruptions. To overcome the potential inadequacies of the single message exposure noted by Gorn and Weinberg (1984), the experimental commercial was embedded three times within the total news programming effort. Following the television programming subjects responded to the dependent variable measures contained in a questionnaire booklet and then were debriefed and paid.

Experimental Stimuli

Professionally produced 30-second television launching commercials for a new regional premium beer were used as the experimental stimuli in this study. The comparative version of the ad featured implicit comparisons between the new brand and three well known premium brands. In the opening and closing scenes of the ad, the three competitor brand bottles were shown turning and transforming into three bottles of the new beer. These visual comparative cues were accompanied by an audio track stating "Now there is a beer with a taste that will turn you around." To provide a reference point for judging the effects of the comparative ad, a second introductory ad was used. This

²The comparison brands contained desirable or positive features. Therefore, the objective of the comparative advertisement was association rather than differentiation.

"noncomparative" version of the ad, opened with a scene of a glass blower creating a new bottle in his 19th century shop conveying a sense of tradition and quality, followed by close-up shots of the new beer's bottle and label.

The use of actual, professionally developed television commercials precluded the manipulation of the comparative cues exclusively. We recognize that the inability to manipulate the presence or absence of the comparative cues reduces the internal validity of the study results. Additional data collection measures were therefore taken to address alternative explanations.

Dependent Variables

The categorization approach to an association and differentiation strategy of comparative advertising suggested the need for a careful definition of the prototypes against which the new product was to be compared. Discussion with the client's advertising agency personnel revealed that Budweiser, Stroh's, and Miller were perceived to be the relevant exemplars for the new premium beer. A focus group conducted with members of current research population confirmed this belief. Further, the three most frequently mentioned brands constituting the super premium beer category were Michelob, Heineken and Lowenbrau. Accordingly, semantic differential scales employing the anchor points of "low similarity" and "high similarity" were used to measure similarities to each of the premium and super-premium beers. A similarity and dissimilarity score for each category was then derived by averaging responses on the three respective scales.

The cognitive responses reported during the programming and after the test commercials were coded so as to assess the frequency of responses that were comparative in nature.

Subjects

To ensure a minimum ability to categorize beer-related stimuli, study participants were pre-screened for their level of knowledge and experience with the product category of interest. Based on responses to a pre-screening questionnaire covering usage patterns for a variety of product and media habits, non-beer drinkers were excluded from the study. A total of forty student volunteers at a major Northeastern university participated in the study and were paid \$5.00 for their participation.

Results

Perceived Brand Similarity

Subjects exposed to the comparative advertisement perceived the new beer brand to be more similar to premium beers than did subjects exposed to the noncomparative advertisement (4.25 vs. 3.78). Although these means were in the predicted direction, their difference was not statistically significant, ($F(1,38) = 1.13, p = .29$). As predicted, however, similarity to super-premium beers was significantly affected ($F(1,38) = 4.63, p < .03$). Subjects in the comparative advertisement condition perceived the new brand to be less similar to the super-premium brands (2.90 vs. 4.10).

One alternative explanation to the above interpretation of the findings is based on the nonequivalence of the information in the two ads. Because the visual and audio contents of the treatment advertisements were not identical (i.e., beyond the presence or absence of the comparative cue), it is not possible to definitively attribute the brand perception findings exclusively to the brand comparison cues. Hence, to provide more evidence that the visual comparative cues affected consumer's ad processing, additional analyses were performed.

First, to determine if the perception results were influenced by the general visual portion of the advertisement, a control group receiving the audio portion of the ad was conducted. The "radio commercial" was embedded in a news programming environment similar to that experienced by our

treatment groups. Thus, the comparative television commercial (comparative visual cues, other visual cues and audio cues) was compared to a radio ad (audio only, in which the brand comparison was not mentioned). It was hypothesized that exposure to the television (vs. radio) commercial would result in greater perceived similarity between the new brand and premium brands, and less similarity to super-premium brands. As predicted, a significant effort on similarity to premium beer brands ($F(1,38) = 4.75, p < .04$) was observed. Subjects viewing the television advertisement perceived the new beer brand to be more similar to premium beer brands than subjects in the radio condition (4.25 vs. 3.37) (1=low, 7=high similarity). For the super premium category index, the means were in the expected direction, although the difference was not statistically significant ($F(1,38) = 1.65, p=.21$). An examination of the three super premium brands separately revealed significant differences in similarity with Heineken (2.45 (tv) vs. 3.65 (radio), $F(1,38) = 3.76, p=.06$) and Lowenbrau (2.55 (tv) vs. 3.75 (radio), $F(1,38) = 3.24, p=.08$), but not for Michelob (3.80 (tv) vs. 3.60 (radio), $F(1,38) = 0.10, p=.75$). These results suggest that the effects on perceived similarity are attributable to some visual cue(s). Unfortunately, we cannot discern from this analysis if the effects are due specifically to the comparative visual cues.

Secondly, to more clearly identify the role of the comparative visual cues, cognitive responses were analyzed to assess whether the comparative cues captured the viewers' attention. The responses were examined for explicit references to the comparative nature of the premium beer brands. Seventy-five percent of the subjects who viewed the comparative television advertisement reported at least one comparative cognitive response. Only 10% of the subjects in the noncomparative treatment condition recorded one or more comparative thoughts. In combination, these results increase our confidence that the visual comparative cues affected the categorization of the new brand. We recognize that due to the confounding visual cues, however, the effect of the comparative cues cannot be unambiguously determined. Further research is needed to determine specifically whether the surrounding visual cues hindered or enhanced the impact of the comparative visual cues on perception formation.

Discussion and Future Research

In this paper we proposed the potential usefulness of categorization perspective for the analysis of the impact of comparative advertising on perception formation in new product introductions. In such situations, the objective of the attending advertising campaign frequently is to position the new entry in the same league as a named or recognizably presented competitor in the mind of the consumer (Prasad 1976). Under these conditions, the prototype-matching processes suggested by the categorization approach forms an appealing explanation for consumer reactions to this type of advertising.

A study using launching commercials for a new regional premium beer was used as an initial exploration of the proposed categorization framework. In contrast to many earlier studies, the comparisons of the new brand in this study were implicit rather than explicit and involved multiple comparison brands rather than a single market leader brand. The data were found to be generally consistent with the proposed framework and suggest that further tests of the theory are warranted.

Several interesting research areas are highlighted. Comparative advertising has been shown to reduce the psychological distance between the sponsored brand and the brand to which it is compared. What psychological distance are we talking about? What is the nature of this distance? That is, what specific beliefs may be affected? In a challenger/leader comparison, two different psychological processes may result depending on the extent of information evoked by the market leader. If the brand leader is processed as an individual brand not associated with a category, the reduction of psychological distance may be

with respect to the challenger brand and the particular brand leader. If the brand leader is processed as a category exemplar or prototype, however, the reduction in psychological distance is more likely to be between the challenger brand and a product category. The specific beliefs that are generalized to the challenger brand may depend on which type of processing is evoked.

If the psychological distance is reduced between the challenger brand and the leader as processed on an individual brand basis, the features and attributes associated with that particular brand will be generalized to the challenger. If the psychological distance is reduced between the challenger and a product category, the beliefs associated with the product category will be associated with the new brand. The extent to which specific brand beliefs differ from beliefs associated with a product category will determine how differently the new challenger brand will be perceived by the consumer depending on the resulting process. For example, a new car may be compared to a Mercedes Benz. If Mercedes Benz is processed as an individual brand and not as a representative of a "luxury car" product class, the new car may be perceived as an import with high quality, handling, and durability. If the Mercedes Benz is processed as a prototype of the product class luxury cars, however, the new car may be perceived as big, comfortable, smooth ride, and as a gas guzzler. The beliefs associated with the new car would depend on how the comparison brand is processed. The set of beliefs that the advertiser wants to create for the new brand would determine the most appropriate prototype or exemplar selected for comparison.

A second issue concerns the use of multiple brand comparison ads. What is the effect when a challenger is compared to more than one other brand? The consistency/inconsistency within the group of comparison brands may affect the consumer's processing and resulting perceptions of the challenger or sponsored brand. A consistent comparison set is defined here as one that is internally homogeneous and congruent with a consumer's ideas regarding category membership. An inconsistent comparison set is less homogeneous among themselves, but is still representative of the product class category. If the category set of comparison brands is consistent, category based processing is likely to result. The beliefs associated with the new brand will be that of the category. In contrast, if the set of comparison brands is inconsistent, piecemeal processing may result. For example, if a multiple brand comparison group included Heineken, Lowenbrau, and Budweiser, the beliefs about the sponsored brand are not likely to be the result of category based processing but are determined on a piecemeal basis. The reduction of psychological distance that occurs may only be belief specific depending on the degree of inconsistency. If the brands overlap on one attribute, that attribute may be transferred to the challenger brand.

The consistency/inconsistency of the multiple brand category may also mediate the influence of the comparative ad on attitude towards the new brand. If the category is consistent, category based processing may result and the affect associated with that category may be transferred to the challenger brand (cf. Sujan 1985). If the category is inconsistent, piecemeal processing may result. Therefore, attitude towards the new brand may be specific to the processed features or attributes of the comparison brands. The impact of ad type on attitude may also depend on the valence of the attitude toward the activated category. If the attitude towards the category is strongly positive or negative, we may be more likely to see a comparative ad effect on brand attitude than if the subject had a neutral initial attitude toward the category. The effects of consistent/inconsistent categories assumes a certain level of consumer knowledgeability about the advertised product class. It is the consumer who judges the heterogeneity of a product class as well as the consistency of the sub-category is within it. Consumer knowledgeability, then, also may play a role in mediating the impact of comparative advertising.

The third issue concerns several of Gorn and Weinberg's findings regarding psychological distance reduction and the categorization framework. Specifically, Gorn and Weinberg (1984) asked subjects to rate the similarity of the challenger/leader brands. Higher similarity responses were reported by subjects in the comparative (vs. noncomparative) ad conditions. This reduction in psychological distance is consistent with the categorization framework. Subjects were also asked to rate the similarity between two fictitious brands of the same product class (i.e., golfballs, cigarettes, toothpaste) as well as between two brands for unadvertised product categories (i.e., cola and deodorants). One issue is whether exposure to a series of comparative ads leads consumers to view the entire product class as more homogeneous. Secondly, whether this comparative advertisement exposure effect generalizes to perceptions of other unadvertised product classes. Higher similarity responses were reported between the two fictitious brands by subjects in the comparative (vs. noncomparative) ad conditions. It is difficult to explain why two new hypothetical brands would be seen as more similar following comparative ad exposures. Perhaps the comparative advertisement focused attention on the homogeneity of the entire product class rather than on distinctive sub-categories. Also, the advertised product classes may be perceived as homogeneous instead of as a heterogeneous set of sub-categories. Gorn and Weinberg also demonstrated that this effect generalized for "colas" (i.e., cola brand "A" and cola brand "B") but not for deodorants (i.e., brand "A" roll-on and brand "B" aerosol spray deodorant). Perhaps the question's cue context affected these results by priming or directing the level of categorization. That is, colas were perceived as more similar because they were categorized at a more general or inclusive level (Cantor and Mischel 1979). In contrast, the deodorants were perceived as different because the question distinguished the form of the deodorants, forcing categorization at a more specific or exclusive level. If a comparison between diet cola A and caffeine-free cola B, and deodorant "A" and deodorant "B" had been used instead, we suspect that Gorn and Weinberg may have found different results.

An interesting pattern of perceived similarity results presented in table two in Gorn and Weinberg's paper may also be explained by the level of categorization at which the brands were processed. In each case, the two fictitious brands were perceived as being more similar to each other than the challenger/leader brands presented in the advertisement. Respondents had no information about the two fictitious brands besides very general product category information. At the product category level, then, these brands were perceived as similar to each other. Subjects had much more specific information about the challenger and leader brands. The two brands are likely to be similar on some aspects but different on others. This more specific information probably served to differentiate the brands. Consequently, categorization occurred at a more specific level and these brands were perceived as less similar to each other than the fictitious brands.

One important issue underlying this discussion and research is that the accurate determination of the exemplars or prototype that represent a category is essential to assess the impact of comparative advertising in association and differentiation between brand categories. This issue became clear to us when analyzing the data for the super premium brands of beer. Identifying the bases that consumer's use for representing categories (i.e., prototype matching, exemplars, mixed models) is difficult and has not been resolved in the categorization literature. The particular bases used to represent a category, however, may influence the selection of prototypes or exemplars used in the similarity/dissimilarity measures. In this research we used focus group interviews to determine the representative brands in a category. In future research multidimensional scaling techniques and/or clustering (Cantor and Mischel 1979) may be used to more accurately determine consumers' category structure.

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THE QUINTESSENTIAL SNACK FOOD:
MEASUREMENT OF PRODUCT PROTOTYPES¹

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Abstract

A laboratory study was conducted to assess the applicability of family resemblance and prototypicality measures developed by Rosch and Mervis (1975) to product categories. Free recall category member listings, family resemblance scores, and mean prototypicality ratings were rank-ordered and correlated for 16 snack foods and 16 brands of shampoo. Snack food, but not shampoo, data were consistent with earlier findings in categorization research. Possible explanations for these differences, including the level of category abstraction and the use of a visual stimulus, are discussed.

Introduction

The growing prominence in the marketplace of generic products, private labels, and "me-too" products may be one factor which has prompted recent attention to the effects of product typicality and similarity on consumer behavior. Nedungadi and Hutchinson (1984), Troye (1984), Howard (1983), Cohen (1982), and Hirschman (1981) have discussed the effects of "typicality" on issues ranging from the composition of the awareness set to strategic planning. But an important issue that has not been addressed in the consumer behavior literature is what underlying factors determine whether a product is judged more or less typical of a product category.

According to Rosch and Mervis (1975), objects within natural categories vary in their typicality because they vary in their degree of family resemblance to one another. Rosch defines the degree of a category member's family resemblance to other category members as the degree to which it has attributes in common with the other members. More typical category members have a greater degree of family resemblance, i.e. have more attributes characteristic of other members of the category. Around this core of prototypical members radiate less typical items that share progressively fewer characteristics of other category members as the fringes of the category are approached. So typicality effects are a function of the relation of a category member to the attribute structure of a category. Rosch and Mervis (1975) demonstrate that family resemblance scores and independent measures of typicality that do not rely on attribute listings are correlated in the .8 to .9 range for several natural categories.

Purposes

This paper has five purposes: (1) to discuss the implications of the family resemblance structure of categories for several theoretical and applied issues, (2) to address the issue of what factors underlie typicality judgements by demonstrating the graded structure of product categories, (3) to assess the relation of family resemblance scores to such variables as brand awareness and subjects' subjective perceptions of typicality, measured independently of attribute listings, (4) to lay out a practical, efficient methodology for computing family resemblance scores and (5) to discuss some of the problems that may be encountered in attempted applications of the technique.

¹The authors wish to thank Lisa Snyder, Jon Strobel, and Jan Shimanski for their comments and assistance in the study design.

Further insight into how family resemblance is measured and how it relates to the attribute structure of a category can be gained from an example. Suppose a simple category is made up of four products, each of which consumers perceive to have three discrete attributes. The products are ABC, BCD, ADE, and AFG. Note that no single attribute is common to all the products but that each product shares at least one attribute with others. The family resemblance of these products could be computed by setting up the product by attribute matrix shown in Figure 1, checking the attributes each product possesses, and then weighting each shared attribute by the number of products that possess it. Finally, each product's weighted sum of scores is totaled to yield an overall family resemblance score. In this category ABC has the highest family resemblance score and would tend to be rated as most typical of the category. ABC's attributes overlap the more frequently occurring attributes of other category members to a greater degree than any other member's attributes.

FIGURE 1

Example of Family Relevance Score Computation

	Product			
	ABC	BCD	ADE	AFG
Attribute A	(3)*		(3)	(3)
B	(2)	(2)		
C	(2)	(2)		
D		(2)	(2)	
E			(1)	
F				(1)
G				(1)
Family Relevance Score:	7	6	6	5

*Numbers in parentheses represent the scores associated with each attribute, computed by summing the number of products in the set that contain that attribute.

The measurement of family resemblance has a number of very practical marketing implications. A few are discussed below.

Cognitive Effects of Typicality

The measurement of family resemblance might help marketers to understand the effects of typicality on a product's likelihood of entering the consumer's awareness set and from there his or her evoked set. Several cognitive advantages accrue to prototypical members of a category. They come into a consumer's "awareness set" first as category members, and are classified more quickly and accurately than less prototypical stimuli as category members (Rips, Shoben, and Smith, 1973; Mervis and Rosch, 1981). Measuring family resemblance shows which attributes most influence the degree of a product's prototypicality within a category. Given this understanding, products could be designed or repositioned so they would "come to mind" quickly and easily as members of a particular category. Perhaps with this intent, trade associations of both dairy producers and orange growers have attempted to promote milk and orange juice as snack foods good anytime and anywhere, two attributes that our empirical data will show are very typical of snack foods.

Consumers may also use typical products as reference points for the evaluation of other products. Rosch (1975) has shown that in statements of the form "_____ is essentially _____", subjects consistently place more prototypical category members in the latter position. This finding suggests that consumers may use prototypical products as references for evaluating other less typical category members.

Mervis and Pani (1980) have shown that people learn about a category more quickly and accurately if they are initially exposed to more prototypical examples of the category rather than nonrepresentative examples. Furthermore, typical members of a category tend to be learned before atypical members by children (Mervis and Rosch, 1981; Mervis, 1980). These findings suggest that trade associations or marketers who wish to educate consumers about a new product category could introduce consumers to more representative examples of the category first if their goal is to maximize the speed and efficiency of learning.

Strategic Rationales for Typicality

The strategic circumstances that favor designing a more typical product are several. The marketer may wish to facilitate the acceptance of a new type of product in an established category. Family resemblance scores might show that "Taro root" would be more readily categorized as a snack food if the product were designed to have prototypical snack food attributes (e.g. convenient packaging, easy to eat finger food).

If a marketer chooses not to pursue a strategy of product differentiation, the design of a more prototypical product might have certain advantages. A prototypical product might encourage consumers to infer that the attributes of competitors' products also apply to the prototypical product (Mervis and Pani, 1980). Therefore, marketers who wish to compete with larger, better known rivals whose products have a reputation for quality may benefit by designing a prototypical product that maximizes generalization from competitors' products (cf. Peterson 1985).

Awareness Set and Evoked Set

Past marketing studies have explored the effect of typicality on cognitive variables but no past study has assessed what features determine the judged typicality of a product. Nedungadi and Hutchinson (1984) demonstrated the effect of typicality on the salience of a brand in a consumer's awareness set. They found that the prototypicality of a brand of beverages or magazines is significantly related to a brand's order of mention in unaided recall of brands in a designated product category and, furthermore, that prototypicality is related to brand attitudes. Troye (1984) also demonstrated the effect of typicality on the consumer's awareness. However, neither Nedungadi and Hutchinson (1984) nor Troye (1984) empirically assess the perceived attributes of products that underlie and produce their subjects' variations in typicality or brand similarity ratings.

Product Positioning

Howard (1983) has suggested use of Rosch's theory in product positioning. Howard suggests that the concept of a "product hierarchy", a consumer's cognitive picture of a product market, is important for marketers to understand because consumers cognitively position a product by its family resemblance to other products in the hierarchy. The product hierarchy has several uses: (1) It suggests a customer responds to a new and unknown product by matching it to the product it most closely resembles in the hierarchy. This match determines who existing competitors to the product will be. (2) The hierarchy is a means of mapping and identifying market segments. If a customer's ideal product is distant from the prototypical product in a category, a market segment

is suggested. (3) The product hierarchy helps determine whether a product will be perceived as an innovation or not. Howard characterizes the product hierarchy as a very practical concept, but argues that it is not well-measured and that the measurement techniques used by Rosch are not easily adapted to marketing practice. The present study is a step toward assessing the practicality of Rosch's concepts and measures in an applied context.

Study Overview

The purposes of the first empirical study were to (1) test whether product categories have a graded structure that can be measured by family resemblance scores, (2) test the relation of such family resemblance scores to prototypicality ratings and free recall production ranks, and (3) lay out a procedure for computing family resemblances. These purposes are intended to explain and validate an alternative, richer measure of product typicality. Two categories, types of snack foods and brands of shampoo, were used as stimulus categories. These were selected because they differed in their level of abstraction. Snack foods represented a superordinate category of product types, very similar to the natural categories used by Rosch and Mervis (1975). In contrast, brands of shampoo represented a more subordinate category, consisting of a relatively homogeneous set of stimuli. Consumers may focus on product types or brands depending upon the decision they need to make, how their attention is directed by promotions and situational factors. Brands of shampoo were selected to include a representative sample, including both national and private-label brands, both frequently and infrequently-used shampoos. Prototypicality ratings, free recall of products or brands and attribute listings used to compute family resemblance scores were collected for each product category. The data collection procedure is reported below.

Methodology

Overview and Procedure

Snack Foods. Procedures developed previously by Rosch and Mervis (1975) were used, in a laboratory setting, to obtain family resemblance scores and two other measures of prototypicality. The study consisted of three parts. In part 1, subjects were asked to list all the snack foods they could think of, in a free recall format, in the order that they thought of them. Subjects wrote each snack food on a separate line, and up to 20 different types of snack foods could be listed. Subjects were given 1.5 minutes to complete this task. No one gave all 20 responses. In part 2 of the study, subjects completed prototype ratings (described more fully later) for 16 types of snack foods. Subjects were given 20 seconds to complete each rating. Finally, subjects listed the attributes of each snack food to provide the raw data for computation of family resemblance scores.

Shampoos. The same procedures discussed above were used on an independent group of subjects to obtain family resemblance scores, free recall of brand names, and prototypicality ratings for 16 brands of shampoo. Differences between procedures used for shampoo and snack food stimuli were slight, but where appropriate are noted below.

Subjects

Subjects were students in two introductory marketing classes who participated in the study as part of the course. Sample sizes were 66 in the first class, where shampoo stimuli were tested, and 33 in the second class, where snack foods were tested.

Free Recall Category Member Listings

At the start of the experiment, prior to being exposed to individual brands of shampoo or individual snack

food, subjects were asked to list, on a page, "as many brands of shampoo [snack foods] that you can think of, in the order that you think of them." Subsequently for each of the sixteen shampoo stimuli and each of the sixteen snack food stimuli an average rank order of mention was computed from the free recall lists provided by subjects. Production norms for the stimuli were then created by ranking the snack food and shampoo sets from lowest to highest average rank.

Prototypicality Measures

Following Rosch and Mervis (1975), subjects were instructed to rate their perception of the prototypicality of products as shown below. In the case of snack foods (shown in brackets), the instructions varied slightly in that the type of snack food was written on the questionnaire form and a slide of the snack food was not shown.

. . . In this study we would like you to judge how good an example of a product category various brands in [members of] the category are. The brands in [members of] the category will be shown in a picture; you will be told the name of the product category and then shown pictures of some items in category.

. . . Then rate how good an example of the category each brand [food] is on a 0-10 point scale. A 10 means that you feel the picture [food] is a very good example of your idea or image of what the category is; a 0 means you feel the picture [food] fits very poorly with your idea or image of the category (or is not a member at all). A 5 means you feel the picture [food] fits moderately well. Use the other numbers of the 0-10 point scale to indicate intermediate judgments

A brief example was provided for color ("red" vs. less "red") and dog ("German Shepherd" vs. "Pekinese") categories to explain this technique.

Subjects completed prototypicality ratings on 0-10 scales with endpoints "extremely poor example" and "extremely good example". Sixteen brands of shampoo were rated in class 1 and sixteen snack foods were rated in class 2.

Family Resemblance Measures

Each of the 16 snack foods and 16 shampoos were printed at the top of a page. Subjects in class 1 each gave family resemblance attribute listings for one of 4 different sets of 4 shampoos. Each subject in class 2 provided attribute listings for one of two different sets of 8 snack foods. Within each class, all sets of stimuli were counter-balanced to control for order of presentation effects. Instructions (again following Rosch and Mervis, 1975) included the following:

. . . The next part of the project is a simple experiment to find out the characteristics and attributes that people feel various brands (snack foods) possess.

For example, if I asked you to list the characteristics of Tylenol pain reliever, you might list such characteristics as red bottle cap, extra-strength, round bottle, safety-sealed, red and white capsules, acts fast, is expensive, etc.

. . . At the top of the page . . . you will see the first brand [snack food] you should write about, then the next on the second page and so on . . .

At the top of each of the pages intended for listing attributes was the name of the product (snack food, shampoo) and the clause "Attributes or characteristics you think describe this product:".

To compute a measure of family resemblance--the degree to which an object has attributes that overlap those of other category members--for snack foods and shampoos, procedures developed by Rosch and Mervis (1975) were employed. First, all attributes mentioned by one or more subjects for any snack food (or shampoo) were written down on a master list. Second, each snack food (or shampoo) for which that attribute had been listed was credited with having that attribute. Following Rosch and Mervis' instructions, the two researchers deleted cases for which the brand-attribute match was clearly false, and included cases for which a brand-attribute match was clearly true but not mentioned by subjects. No new attributes were added to the master list for snack foods or shampoos (i.e. no attributes not listed by subjects were added). In cases where the two judges disagreed, no brand-attribute match was included. Heavily value-laden attributes were omitted from analyses (e.g. "high quality") since a judgment about which brands should be credited with these attributes would be highly subjective.

Next, each attribute in the master list received a score from 1 to 16, representing the number of types of snack foods (or shampoos) that contained that attribute. Therefore, attributes were weighted by the number of category members that contained them. Finally, to compute the total family resemblance score for each snack food and each shampoo, the weighted scores of each of the attributes that had been listed for a particular product or brand were summed.

Results

Results, reported in Table 1, demonstrate that family resemblance is related in expected ways to the two typicality measures in the case of the superordinate product category "snack foods." Spearman rank order

TABLE 1

Spearman Rank/Order Correlations

	Snack Foods	
	Prototypicality	Family Resemblance
Production Ranks	.92*	.82*
Prototypicality		.87*
	Shampoos	
	Prototypicality	Family Resemblance
Production Ranks	.63*	.06
Prototypicality		.03

*indicates significant difference from zero at alpha equal to .05

correlations between median free recall production ranks, mean prototypicality ratings, and family resemblance scores for snack foods are all highly significant, ranging from .82 to .92. Rank order data are shown in Table 2. As shown, the rank orders yielded by the different measures are markedly similar. Furthermore, the rankings have face validity. Quintessential snack foods like potato chips, popcorn and peanuts tended to rank highly (be very typical) on all measures. Inspection of Table 2 supports Rosch and Mervis' (1975) argument that family resemblance underlies and determines typicality. Snack foods such as popcorn which have the highest family resemblance scores--i.e. have attributes which overlap those of other snack foods to the greatest degree--have the highest typicality scores.

TABLE 2

Rank Order Data for
Snack Foods

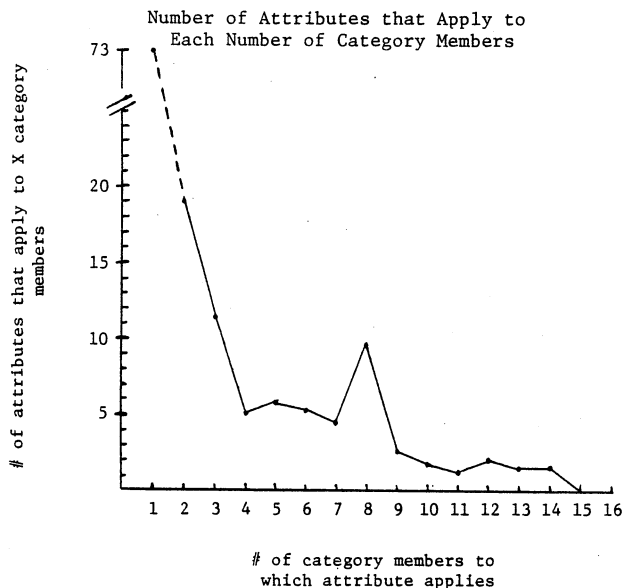
Production Ranks		Prototypicality Ratings	
Potato Chips	1	Popcorn	8.970
Candy	2	Potato Chips	8.818
Apples	3	Peanuts	8.273
Popcorn	4	Candy	7.970
Peanuts	5.5	Soda Pop	7.394
Soda Pop	5.5	Pizza	7.242
Cheese	7	Apples	7.212
Pizza	8	Cheese	7.030
Carrots	9	Carrots	6.091
Yogurt	10	Yogurt	5.879
Hamburger	11	Bologna Sandwich	4.182
Cereal	12	Hamburger	3.970
Salad	13	Cereal	3.424
Bologna Sandwich	14	Salad	3.212
Olives	15.5	Olives	2.667
Tomatoes	15.5	Tomatoes	1.818

Family Resemblance Scores

Popcorn	237
Potato Chips	226
Peanuts	224
Pizza	198
Apples	194
Candy	161
Carrots	159
Soda Pop	159
Hamburger	156
Cheese	148
Bologna Sandwich	141
Salad	130
Cereal	125
Tomatoes	119
Olives	111
Yogurt	102

Further analysis of our data provides insight into the underlying graded structure of product categories. According to Rosch and Mervis (1975), "A family resemblance relationship consists of a set of items of the form AB, BC, CD, DE. That is, each item has at least one, and probably several, elements in common with one or more other items, but no, or few, elements in common to all items" (p. 575). Figure 2 shows the number of attributes that respondents applied to only one product type, two types, three and so on to all sixteen types.

FIGURE 2



The figure supports Rosch and Mervis' (1975) argument that members of a category do not possess necessary and defining features that are common to all members of that category. No attribute was shared by all sixteen category members. Instead, snack foods have features that overlap some but not all other members of the category. The figure reveals that the different product types in the category were perceived as possessing relatively few (an average of 4-5) completely unique product characteristics.

The correlations for the shampoo data between mean prototypicality ratings, free recall production ranks and family resemblance scores are also reported in Table 1. The relationship between the rank order of mean prototypicality ratings and median free recall production rank is strong and significant although significantly lower ($p < .05$) than the correlation for snack foods. However, the correlation of family resemblance scores with the other measures is markedly low and nonsignificant, and significantly lower than the corresponding correlations for snack foods ($p < .05$). The possible reasons for the difference in results between the two types of categories--a superordinate category of product types and a more subordinate category of brands within a type--suggest the circumstances under which family resemblance scores can and cannot be validly computed.

By inspection of the attribute listings, we found that respondents reacted to the shampoo stimuli very differently than the snack food stimuli. Differences in family resemblance scores for shampoos were determined to a great extent by small, idiosyncratic differences in package design (e.g. "gold trim on label"). We speculate this is because shampoo attributes (e.g. "cleans hair") did not differentiate the brands to which subjects were exposed, and therefore were not mentioned. In contrast, the family resemblance scores for snack foods were better related to the degree to which the foods shared salient attributes of the category. The subjects' tendency to focus on minor details of package design in the shampoo attribute listings but not the snack food listings may have been accentuated by three factors: (1) subjects viewed slides of shampoos but not snack foods while listing attributes; (2) the instructions may have focused subjects on details of package designs which were salient for shampoos but not snack foods; (3) subjects listed attributes of different brands of shampoo and different types of snack food. The use of slides for shampoos but not snack foods likely increased subjects' mention of package details in describing the shampoos simply by making such details more available. In the absence of the slides, subjects might have focused more on attributes related to the brands' functions or images. Subjects also might have focused on package details simply because brands of many personal care and household products tend to be differentiated more by the details of package design than by substantive differences. Furthermore, the correlations between the measures for brands of shampoo may have been weaker than for types of snack food because of the influence of other variables like the relative advertising budgets of brands, their length of time in the marketplace, and familiarity. Unfortunately, the influence of these latter factors is difficult to assess in an experiment using natural stimuli. A similar study using artificial brands could control for such variables as frequency of exposure to advertising.

Discussion

Measurement of Family Resemblance

To increase the comparability of our data with that of past studies, we closely followed Rosch and Mervis' (1975) procedure for computing family resemblance scores. In doing so, we noted that some aspects of the procedure were problematic and might be improved upon for our stimuli. The instructions to subjects, as reported in Rosch and Mervis (1975, p. 578) and adapted here, did

little to focus subjects on the more salient common attributes of objects so subjects tended to mention many trivial attributes which made coding and computation complicated and time consuming. Perhaps instructions to focus on salient common attributes, or a time limitation placed on responses, would simplify the procedure.

Another difficulty pertained to the way family resemblance scores were computed. If one or more subjects mentioned that an object had an unique attribute, not shared by any other item in the category, the unique attribute still increased the object's family resemblance score by "1". Thus, an object with a plethora of unique characteristics could conceivably gain a higher "family resemblance" score than another very typical object. This scoring procedure seems to be a serious conceptual flaw in the measure.

Finally, the Rosch and Mervis procedure allows researchers to credit an object with attributes not mentioned by any subject but "clearly and obviously" (p. 570) true of the object. Allowing such a degree of judgement may compromise the objectivity of the measure.

Considering the problems discussed above, an opportunity exists to improve upon the current means of measuring family resemblance. Further research is needed on the reliability of the current measurement procedure across different stimulus sets at different levels of abstraction from subordinate to superordinate categories. The robustness of Rosch and Mervis' technique to changes in task instruction and to the means of presentation of the stimulus items also requires further investigation.

Structure and Manipulation of the Evoked Set

The measurement of family resemblance could be useful in the study of a number of applied issues. Members of a category having more family resemblance to other members are more likely to be part of a consumer's awareness set for a product category and thus have a greater chance of inclusion in a consumer's evoked set since the consumer can only select products from this set that "come to mind" as a member of the awareness set. In measuring prototypicality, family resemblance scores have an advantage over simple ratings because they do more than merely predict inclusion in the awareness set. The data entering into their computation shows which of a product's attributes have the most weight in determining a product's membership in and order of mention in the awareness set.

Attributes shared by the greatest number of snack foods have the most weight in making a product more typical of snack foods and thus more likely to be mentioned as a snack food. Table 3 shows the attributes shared by eight or more snack foods. The Table shows that a food is more likely to be perceived as a snack item if it has

TABLE 3 (continued)

Number of Snack Foods to which Attribute Applied	Attribute
8	Round shape.
8	Needs cold storage.
8	Easy to transport.
8	Good for you.
8	Usually served in small pieces.

different flavors or varieties, it is good with other foods, it is easy to prepare and easy to eat, it tastes good and it can be eaten any time of the day in a variety of situations. The most typical snack foods--popcorn, potato chips, peanuts--share almost all these attributes. Information on the determinants of typicality could be useful to a marketer in a number of ways. For example, a marketer wishing to promote cauliflower as a snack item could advertise its versatility, convenience, and compatibility with many other types of foods.

Besides their utility for new product positioning and design, the process of computing family resemblance scores revealed some insights into why consumers perceived existing products as more or less prototypical of a category. For example, subjects ranked apples as a rather typical snack food--more prototypical than other fruits and vegetables such as carrots or salad. Inspection of the brand by attribute matrix used to compute the family resemblance scores revealed some possible reasons for this outcome. Apples appear to share attributes with traditional snack foods like popcorn, potato chips and peanuts. Like these snacks, apples are crunchy, easy to prepare, appropriate for many occasions, liked by most people, and easy-to-eat "finger foods". Subjects also noted that apples are "roundish" like traditional snack foods, divisible into small pieces, have many varieties and flavors, and go well with many other foods. Apples were perceived as like popcorn in certain ways including low in calories, and a good source of roughage. Overall, then, apples were very prototypical of the snack food category.

For the marketer who wishes to persuade consumers that a product is a member of another category or appropriate for some use or occasion, the concept of family resemblance offers interesting insights. Efforts to convince consumers the product is similar to members of the target category on commonly occurring characteristics could be effective. For example, a marketer who wished to encourage consumers to think of apples as snack foods could create promotions emphasizing the characteristics that apples share with very prototypical snack foods like popcorn, potato chips and peanuts.

Application to Consumer Inferential Reasoning and Advertising

The measurement of family resemblance may be useful in the study of consumers' inferential reasoning about the members of a product category. Rips (1975) found that people tend to generalize new information about a product category asymmetrically. In reasoning about products, consumers may be more likely to generalize new information about more prototypical products to less prototypical products than vice versa. For example, if consumers perceive McDonald's hamburgers as prototypical and hear the rumor that McDonald's hamburger contains red worm meat, they may be more likely to generalize the suspicion to other fast food hamburgers than if they heard the same rumor about a less prototypical burger.

These insights into the effect of family resemblance on inferential processes have implications for advertisers, particularly comparative advertisers. A more prototypical product may benefit less from point-by-point comparative advertising or advertising that focuses on specific features of the product than its competitors

TABLE 3

Commonly Shared Attributes of Snack Food

Number of Snack Foods to which Attribute Applied	Attribute
14	Different varieties and flavors.
13	Good with other foods.
12	Easy to prepare.
12	Tastes good.
11	Easy to eat finger food.
10	Can eat anytime of day.
10	Versatile--Can be used for many occasions.
9	Can buy anywhere.
9	Good food to serve at parties.
9	Appeals to kids.
8	High in calories.
8	Liked by most people.
8	Many ways of preparing the food.

because consumers may tend to infer less prototypical products have the attributes of more prototypical products. In actual practice, many dominant, well-known brands like McDonald's avoid the use of point-by-point comparative advertising. Additional research should be useful to clarify these issues and their marketing applications.

Correlated Attributes

Natural categories appear to reflect the correlational structure of the environment. That is, items in a natural category have attributes that tend to occur in correlated clusters. Thus if a consumer classifies a food as a snack food, he or she is likely to infer the food possesses a set of correlated attributes such as "different varieties," "good with other foods," "easy to prepare," "easy to eat finger food," and "appeals to kids" (Table 3). The consumer may be most confident, in a probabilistic sense, that the food has more typical attributes of snack foods since these occur among snack foods with the greatest frequency.

If a consumer classifies a product as a member of a category with correlated structure, then notes the product has a particular attribute like "different flavors" (perhaps emblazoned on the package) then he or she is likely to infer the product also has attributes highly correlated with the attribute initially known. For example, if a product is promoted as having many varieties, consumers might infer it has high calories if these two attributes tend to co-occur in a particular category. This tendency could lead consumers to make unexpected inferences in response to a promotion stressing a particular feature.

The measurement of family resemblance affords insight into the correlational structure of a category. Such insight may provide marketers with clues to the inferences consumers make as a result of categorizing a product or crediting it with a particular attribute.

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RETRIEVAL PROCESSES IN CONSUMER EVALUATIVE
JUDGMENT MAKING: THE ROLE OF ELABORATIVE
PROCESSING, CONTEXT, AND RETRIEVAL GOALS¹

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Abstract

A stage model specifying the processes occurring over time between the acquisition of information and its use in judgment/choice consumer situations is discussed and three factors believed to have a significant impact on memory retrieval are singled out. An experiment where the factors are manipulated is presented. The results support the proposition that elaborative processing enhances recall and the likelihood of information utilization.

Introduction

The issue of how consumers arrive at evaluative judgments and choices has always been central to consumer research. Until recently however the role played by memory processes in these types of situations has been somewhat neglected. This is unfortunate since simple introspection suggests that judgment and choice processes always rely on both information retrieved from memory and information externally available. For instance, consider the case where information about a brand's position on several relevant dimensions or attributes is provided. Even in such a stimulus-based context, consumers may have to search their memory to find information about the relative weights that should be applied to the various attributes in order to generate an evaluative judgment or to make a choice.

As Lynch and Srull (1982) and others have pointed out, a consideration of retrieval processes is fundamental to consumer research. There is a vast literature in cognitive psychology that has been concerned with this problem. Over the years, a number of general principles of information retrieval, based on various experimental findings, have emerged (see e.g. Glass, Holyoak and Santa 1979). In general however, cognitive psychologists have limited their focus on retrieval per se, without worrying too much about information utilization. While it may be of interest to inquire about the process of accessing information in memory, it must be recognized that in most natural situations information is retrieved in order to be used. Thus, consumers generally do not search their memory for facts simply to comply to someone's request; most of the time they do so in order to use the retrieved information in typical tasks such as making choices, evaluative judgments, inferences, communications, etc. Therefore, it seems important to look at the problem of consumer information retrieval within the perspective of the utilization of recalled knowledge for achieving specific objectives.

This paper discusses aspects of information retrieval in consumer judgment/choice situations and presents an experiment designed to provide answers to some research questions that seem of relevance to this area.

Background Discussion

Stage Analysis

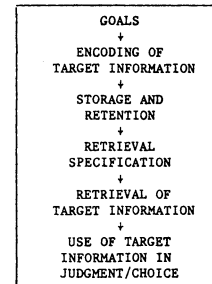
An understanding of the factors that may impact on one's ability to access a given piece of information in memory and use it for some purposes is contingent upon an understanding of the processes that occur prior to the retrieval attempt. For instance, failure to access the information may simply be due to its unavailability, in which

case an examination of the conditions prevailing at the encoding stage is warranted. It may also be due to the utilization of an inappropriate search path, in which case the compatibility between the retrieval specifications and the contextual elements surrounding the needed record must be investigated. Therefore, it seems useful to consider the problem of information retrieval and use in the context of a framework that specifies which processes occur over time between the acquisition of some target information and its use. Although simplistic in nature, this stage analysis (Crowder 1976, see also Hastie and Carlston 1980, Tulving 1976) provides some structure upon which various research questions can be formulated.

A stage model is presented in Figure 1. Briefly, the process begins with the individual's initial goals. These will eventually influence the way the target information is encoded. Once encoded, that information is stored and retained for a given period of time until it is retrieved and used for the purpose of making a judgment or a choice. Some issues related to this model are now discussed in more detail.

FIGURE 1

A Stage Model for Examining Issues in
Information Retrieval for Consumer Judgment and Choice



Goals

There is research evidence that one's objectives (e.g. to make an evaluative judgment, to select an alternative, to learn some information) will influence the strategies used to process incoming information and consequently the nature of the information subsequently available in memory (see e.g. Biehal and Chakravarti 1982, 1983, Cohen and Ebbesen 1979, Johnson and Russo 1981). Individuals differing initially with respect to their goals may exhibit quite different remembrances after having been exposed to the same set of stimuli. Ultimately however, all other things being equal, any disparity in recollection follows from the performance of qualitatively and/or quantitatively different mental operations at the encoding stage (Glass, Holyoak and Santa 1979); differences in goals are likely to have an effect on resulting memory structures to the extent that processing strategies are affected accordingly. For example, Biehal and Chakravarti (1982) have shown that directed learning of product information versus learning incidental to a choice task lead to different retrieval processes. In the first case, retrieval operations (as inferred from free-recall protocols) were predominantly brand-based whereas in the other case higher levels of attribute-based processing were observed. According to the authors, the learning goals had a different effect on memory structure because they led to different processing activities during encoding.

¹The authors would like to thank Dipankar Chakravarti for helpful comments on an earlier draft of this paper. This research was supported by a grant from Marketix Inc.

Encoding

At some point, information presented to the individual is encoded, i.e. put in a form that is comprehensible to the human information processing system (Klatzky 1980). Actually, the encoding stage, as it is conceptualized here, involves more than a transformation process but refers to the total interpretation that is taking place (see also Wyer and Srull 1980). Several implications for retrieval follow from an examination of what can happen during this stage.

Encoding. A trivial observation but one that has rather serious implications is that the to-be-retrieved information might not get encoded. The consequences for retrieval need not be elaborated in great detail. From a methodological standpoint however, this suggests the necessity of making sure that the individual allocates some time to information processing.

Prior knowledge. A well-documented result in memory research is that the outcomes of the encoding process are partially determined by what one already knows about the stimulus information (e.g. Bransford 1979, chapter 5). In addition to providing some initial structure that will allow the system to prime those stored concepts that may facilitate comprehension (especially when dealing with ambiguous material), prior knowledge triggers inference making processes. Of the many inferences that are made, one of particular concern here has to do with the believability of a target information. The "S said X is 0 versus X is 0" belief distinction (Fishbein and Ajzen 1975) is crucial as far as retrieving information for making judgments or choices is concerned. Two strategies for enhancing the believability of communicated information appears possible. One is to minimize the effect of prior knowledge by selecting a somewhat unfamiliar experimental topic. The other is to attribute the information to a credible source. Both strategies are implemented in the present study.

Mental operations. The type of mental operations performed at encoding is likely to make a difference at retrieval time. If the allocation of processing capacity to the target information is low, the resulting memory traces are less likely to become associated with potential retrieval cues. Mental activities such as rehearsal and elaborative processing (e.g. making relations with prior knowledge, associating the information with other facts) have been repeatedly shown to substantially improve one's memory. The usual explanation is that it increases the number of retrieval paths and consequently the likelihood of accessing the elaborated upon information (Anderson 1980).

Retrieval Specification

The search for the target information may be initiated and pursued with the help of cues coming from the environment, the retrieval goals (e.g. instructions, task objectives) or memory (Norman and Bobrow 1979). Each of these information suppliers is briefly discussed below.

Environmental cues. In many instances the environment may offer indications that can be helpful for locating information in memory. Consider the example of a consumer in a store trying to remember which of two brands was rated as being of higher quality in a recently read Consumer Reports article. Examining the packages may remind him of attributes that the article mentioned as being particularly important in the quality rating, allowing him/her to recover the name of the winning brand.

Often, the mere fact that the encoding and retrieval environments are the same will suffice to significantly increase the probability of retrieval. An experiment conducted by Godden and Baddely (1975) illustrates the phenomenon. Divers were asked to learn a list of unrelated words either twenty feet under the sea or on the shore. They were subsequently tested in the same environment or in the other one, resulting in completely crossed 2 X 2 factorial design. As expected, the interaction effect

between learning and recall environment was significant, i.e. recall in the same environment (dry or wet) was superior to recall in the different environment. These results can be taken as one manifestation of the principle of encoding specificity (Tulving and Thomson 1973) which asserts that the representation stored in memory is a function of the information present at encoding. Therefore, according to this position, in order to be effective, retrieval cues must be compatible with encoding inputs.

Retrieval goals. Clearly, one's objectives play a prominent role in guiding the retrieval process. They can be specific, as when one is asked "Who's Canada's prime minister?". But, in many cases, the individual's goals are broad, sometimes vague and necessitate his accessing different types of information of which the target information may only be a small subset. As an example relevant to this study, suppose one is asked to evaluate the goodness/badness of a set of profiles systematically defined using specific orthogonal dimensions, like in conjoint analysis (see Green and Srinivasan 1978), and that the research interest is in finding if some previously presented (target) information on the relative importance of these dimensions is retrieved and used by the individual to accomplish this task. The overall goal here is well defined, but the person has to come up by him/herself with some strategies to attain it and these in turn imply the formation of various retrieval goals, one of them being related to the weights that should be mentally assigned to the dimensions when the evaluative judgments are made. The degree of freedom enjoyed by the individual to perform this task makes it difficult to predict if the target information will be retrieved at all. But, if the goal is further specified, e.g. by cuing the person on the utility of considering the relative importance of the dimensions, one can be more confident that the relevant memories will be accessed and utilized.

Information from memory. Frequently, retrieval does not proceed directly. Rather, on the basis of some initial specification, memory is searched and the outcomes serve as inputs for further search until a match is obtained or a decision is made to stop. Memory then supplies itself with informational cues that constantly provide more specification to the retrieval process.

Research Propositions

Some summary statements about information retrieval in judgment and choice situations can now be made.

- (1) The direct retrievability of some specific information relevant to some judgment or choice is contingent upon its availability in memory¹.
- (2) Previously encoded information pertaining to some judgment or choice may be retrieved but will be used only if the individual agrees with the conclusions implied by this information.
- (3) Elaborative activities performed on some target information at the encoding stage will increase the likelihood that it will be retrieved and used.
- (4) The more similar the retrieval conditions are to the encoding conditions, the better the chances of recovering the target information and using it.

¹Obviously there are situations where a piece of information is not available in memory, but can be deduced from other elements. Such would not be a case of direct fact retrieval, however. For example, it is probable that the results of dividing the number 207 by 36.2 is not available in most people's mind. Yet, it can be computed with appropriate procedural knowledge.

- (5) The level of retrieval specification, i.e. the preciseness of the incitation to search for the target information, is an important determinant of retrievability; the more specified is the retrieval goal, the better the chances of accessing the information and using it.

Method

Overview

The experiment basically follows the sequence of events displayed in the stage model of Figure 1. Subjects were presented with some target information of relevance for an evaluative judgment, namely which attribute a credible source considered to be the most important aspect in the evaluation of a given consumer product. After a retention period of one week, they were given the opportunity to retrieve that information and use it in the context of a judgment task.

Preliminary Study

Prior to the experimental phase of the research a small scale study was conducted in order to identify a consumer product with which subjects would have minimal familiarity in terms of the dimensions to use for evaluation and their relative importance. In addition, it had to be possible to adequately predict subjects' evaluative judgments with a few non-interactive and approximately equally weighted attributes. A group of business students took part in a conjoint analysis study involving three products: binoculars, smoke detectors and stereo headphones. For each product a set of 18 profiles varying according to three attributes in a 3 X 3 X 2 complete factorial arrangement was constructed. Students rated the profiles on nine-point good buy-poor buy scales. After the task, they also reported how knowledgeable they were about the importance of the attributes. For this latter measure, the lowest mean was obtained with binoculars. Furthermore, the statistical analysis of the conjoint ratings for binoculars showed no interactions between attributes and very comparable magnitudes of main effects. Results for the other two products were much less interesting (some interactions, large differences between magnitudes of main effects). Thus, on the basis of these results, binoculars were chosen as experimental product.

Exposure Stage

Subjects were undergraduate business students at the University of Sherbrooke. In the first stage of the experiment, they participated in a study of "reading comprehension", supposedly conducted by a graduate student in psychology. Their task consisted in reading and answering various questions about three excerpts from recently published magazine articles. One excerpt was presented as coming from Consumer Reports and contained the target information. It mentioned that consumers in the process of looking at market offerings of binoculars should give more importance to one attribute: field of view. The choice of this attribute was based on a real article published in Consumer Reports (CR).

Elaboration manipulation. One of the research propositions considered earlier asserts that elaborative processing of incoming information helps memory by the fact that it allows the creation of additional useful retrieval routes. A two-level between-subjects factor is incorporated in this experiment. In the elaboration condition, the interaction with the target information was as follows. First, a four-minute delay was given to read the 150-word CR excerpt and answer four general questions about it (e.g. what title would you give to this excerpt?). Then a paragraph from the excerpt in which the target information appeared was made available for a period of ninety seconds during which subjects had to answer four questions related to the information (What product? What attributes? Which is most important? Why?). After this elaboration task, subjects were handed a blank sheet and given two minutes to write down the paragraph as they recalled it. In the no

elaboration condition, the experimental sequence was identical except that subjects were not asked any questions during the ninety-second presentation of the paragraph.

Judgment Stage

One week after having been in what they thought was a study of reading comprehension, subjects participated in a "decision making" experiment conducted by a different researcher². The experiment consisted in going through conjoint analysis tasks with the same consumer products employed in the preliminary study. Within-subjects evaluative judgments of profiles constructed by considering all possible combinations of the attributes associated with the products were collected. Table 1 displays the attributes and levels defining the profiles of binoculars. In addition, subjects were asked to rank the binoculars profiles in order of preference and provide ratings and rank orders of perceived importance for all attributes.

TABLE 1
Attributes and Levels of Binoculars

Attributes	Levels
Magnification	Average (power = 7) High (power = 8) Very high (power = 9)
Brightness	Average Very good Excellent
Field of View	Average (400 feet) Wide (350 feet)

Environmental context manipulation. Reviving the environmental encoding context has been shown to facilitate recall in many memory experiments (see Smith, Glenberg and Bjork 1978 for a review). Consistent with the principle of encoding specificity, reinstatement of the encoding context at the retrieval stage makes it easier to trace the needed information by maximizing the congruence between the retrieval and the previously encoded cues. In this experiment, context effects were investigated by having subjects provide the conjoint ratings either in the room where the reading comprehension study took place or in another room. The rooms were chosen so as to be distinctive, i.e. either a large lecture room with windows, blackboards, etc. or a small seminar room with a few chairs around a large table and no windows. The assignment of subjects to either type of room and experimental condition was random.

As Bettman (1979) has indicated, environmental context effects have been neglected in consumer research; yet, their relevance to marketing situations seems non negligible. For example, matching information context in ads with the in-store context:

"... advertisements present information in a particular context which very often does not match the in-store context. Perhaps information usage, usage of particular attributes as criteria, or even recognition of brands is influenced by the degree to which the context posed in the ad is present in the actual choice situation" (Bettman 1979, p. 46, underlining added).

In this study, the context manipulation was meant to simulate the same type of situation described above, although advertising issues were not of particular concern.

Retrieval specification manipulation. It was suggested earlier that broad goals such as forming an evaluation of a product do not insure that information potentially relevant to the attainment of that goal will be retrieved and

²There is no general rule as to how long a retention period should be, although a one-week delay is common (see e.g. Bradshaw and Anderson 1982, Wyer and Hartwick 1984).

utilized. What is needed to direct the system to some specific information are specific retrieval goals. Therefore, one additional manipulation in this study involved informing half of the subjects of the usefulness of making a priori decisions about the relative importance of the attributes that composed the profiles to be evaluated. This retrieval specification was made orally by the experimenter immediately before proceeding with the conjoint task.

Control group. In order to provide a basis upon which to compare the experimental results, an additional group of subjects provided the conjoint and attribute importance data. These respondents did not participate in the reading comprehension study and were not subjected to either the environmental context or the retrieval specification manipulations.

Experimental Camouflage

One concern with this study was that subjects might see a link between the exposure and judgment stages. In order to minimize the likelihood of subjects guessing that the experiments were in any way related, they were first contacted by the researcher supposedly in charge of the second experiment (judgment stage). Two or three days later, the other researcher, acting as if he had learned by chance that they had agreed to participate in some experiment, asked for another commitment to a study taking place one week earlier. This simple trick was meant to prevent subjects from making causal inferences regarding the relationship between the experiments too easily. Subjects were paid three dollars for their participation in the first study.

Postexperimental Survey

A few days after the judgment stage, subjects were contacted individually for a postexperimental interview. The objectives were to make some checks on the success of the retrieval specification manipulation and to verify if they had perceived a link between the two experiments. Those interviews confirmed that none of the subjects made connections between the studies.

Results

Manipulation Checks

Retrieval specification. During the postexperimental interview, all subjects were asked if they recalled having been told by the experimenter to think about the importance of the attributes composing the conjoint profiles before proceeding with the task. Twenty-nine of the thirty-one subjects in the retrieval specification (i.e. 90.6 percent) recalled the experimenter's intervention. Only one of the thirty-three subjects in the no retrieval specification condition thought he had heard the retrieval verbal incitation.

Elaboration. To verify the success of the elaboration manipulation, subjects' performance on the memory test given immediately after the exposure to the target information can be examined in both elaboration treatment conditions. The proportion of subjects having written down properly the target information on the provided sheet is 0.64 in the no elaboration condition as compared to 0.84 in the other condition. The difference is statistically significant ($Z = 1.83$, $p = 0.0336$, one-tailed test).

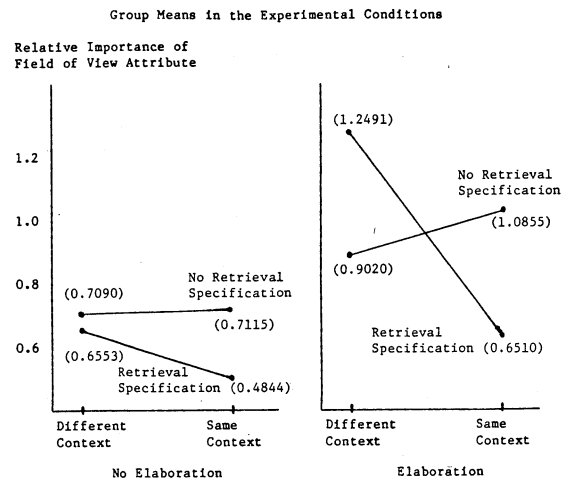
Dependent Variable

In this study, the interest is in finding if the target information was retrieved and used at judgment time and in determining the impact of elaboration, context and retrieval specification on the process. As shown in Figure 1, it is assumed that use of the target information will quite automatically follow its retrieval from memory. To assess subjects' use of the target information during the evaluative processing of the binoculars, a measure of relative importance of the field of view attribute must be

considered. The following analysis strategy was adopted. For each subject, the conjoint data (ratings and rankings) pertaining to binoculars were analyzed through ordinary least-squares methods in order to verify that an additive model was appropriate and that, consequently, the importance of the field of view attribute could be measured independently of the other attributes. The minimum proportion of total variation explained by additive effects only was arbitrarily fixed at 0.70 as a cut-off for inclusion in the final sample. Only one subject had more than thirty percent of the variation in his data explained by interactions and, as a result, was excluded. Overall, the mean proportion of variation due to interactions was very low (about 0.10).

For each subject in the final sample two measures of the relative importance of field of view were computed: (1) mean square associated with the field of view main effect over the sum of the mean squares of all three attributes, and (2) absolute difference between the marginal means of the field of view attribute over the sum of these differences for all attributes. These scores were obtained with both ratings and ranking data and the final dependent variable was defined as the sum of the four scores³.

FIGURE 2



Design and Analysis

The experimental design is a 2^3 between-subjects factorial arrangement with one control group where the two-level factors are elaboration, context and retrieval specification. The field of view relative importance group means are plotted in Figure 2. Since the seventy-four subjects composing the final sample are distributed unevenly across the experimental conditions (seven, eight or ten subjects per treatment condition), the factorial design is unbalanced. Accordingly, Appelbaum and Cramer's (1974) general linear model approach was applied in the computation of the different sums of squares. By using this model comparisons procedure neither the three-way nor any of the two-way interactions are statistically significant by usual scientific standards (i.e. $p < .05$). The only interaction effect which stands out is that involving the retrieval specification and context factors with a p-value of 0.1371; on a descriptive basis, retrieval specification leads to greater weight given to the field of view attribute when the retrieval context is different from the encoding context and lower weight when both contexts are the same. As Table 2 reports, the only statistically significant main effect is associated with the elaboration factor; subjects who engaged in elaborative activities at the encoding stage gave more importance to the field of view

³Other ways of operationalizing the dependent variable were also considered (e.g. absolute mean squares and utility ranges), but the pattern of results has remained essentially the same.

attribute at judgment time than subjects who did not. The differences in marginal means for the other independent variables are in the wrong predicted direction and not statistically significant. A comparison between the control group and the eight experimental groups as a whole confirmed that exposure to the target information leads to more importance attributed to field of view during the conjoint task ($t = 1.96, p = 0.0273, 65 \text{ df}, \text{two-tailed test}$).

TABLE 2
Analysis of Variance Results

Marginal Means	Predicted Direction	F-Statistic ^a	P-Value ^b	ω^2
<u>Elaboration</u>				
No Yes				
0.6421 0.9823	Yes	4.96	0.0149	0.06
<u>Context</u>				
Same Different				
0.7366 0.8689	No	0.73	0.3693	0.00
<u>Retrieval Specification</u>				
No Yes				
0.8476 0.7635	No	0.27	0.6082	0.00
<u>Control Group</u>				
0.4118				

^a With 1 and 60 degrees of freedom.
^b Two-tailed tests.

Discussion

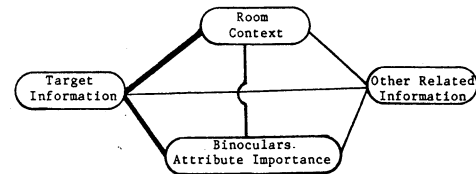
The only statistically significant results of this study are those associated with the elaboration manipulation. The results support the proposition that elaborative processing of stimulus information leads to better memory and, consequently, better chances of later retrieving that information and using it in some evaluative judgment task. It must be noted, however, that the elaboration manipulation, as operationalized in this experimental study, involved a question that required subjects to retrieve the target information specifically, viz. "Which attribute is most important?". This form of manipulation might then be more appropriately termed *elaborative rehearsal*, since it did not directly incite subjects to create new memory associations. The superior memory performance of elaboration subjects for the target information observed during the interpolated memory test suggests however that these associations were nevertheless created.

Although it did not reach statistical significance, the observed cross-over interaction between the retrieval specification and room context factors (see Figure 1) warrants some discussion, given the small sample sizes and the resulting low statistical power. It seems interesting to speculate about what may have caused this interaction. As indicated earlier, when encoding and retrieval room contexts differ, the retrieval specification manipulation leads to greater weight given to the target attribute. When contexts match, the effect of retrieval specification is opposite. As Figure 2 shows, the interaction seems to be concentrated in the conditions where the target information was elaborated upon. One explanation for the interaction is that the conjunction of retrieval specification and identical environmental context led subjects to question the validity of the target information, thereby reducing the importance given to the field of view attribute in the evaluation of the binoculars. Perhaps these two facilitating conditions occurring at the same time resulted in the retrieval of additional information that cast doubt upon the truth of the target belief, while each condition taken separately was less likely to activate this information. This argument is best conveyed using a spreading-activation memory network representation (e.g. Anderson 1980). Such a representation in the context of this study is depicted in Figure 3. As shown, the target information is assumed to be associated with the room context, the concept "Binoculars Attribute Importance", and some additional information processed during the encoding stage. Examples of additional informational units are the experimental research situation in which the target

information was learned, the CR excerpt context, the other attributes that were mentioned in the excerpt, the pro- and counter-arguments generated during the learning episode, and so on.

FIGURE 3

Network Representation of Subjects' Associative Memory Structure



Now, assuming only the room context mode is activated, accessing the target information should be easier since, contrary to other related information, it has been elaborated upon and the experimental procedures have made it more distinctive. Similarly, assuming only the "Binoculars Attribute Importance" concept node is activated (e.g. using retrieval specification), accessing the target information should be easier for the same reasons. Note that these two scenarios are consistent with the observed interaction. In Figure 3, the greater potency for memory access to the target information is represented by the wider paths connecting the nodes.

Consider the case where both nodes are activated (corresponding to the retrieval specification-same context experimental condition); again the target information should be easily accessed. However, the chances of accessing the other informational units should increase since activation now emanates from two concept nodes. Thus, for example, subjects might come to think about the research study context or the attributes mentioned in the CR excerpt or even self-generated counter-arguments. Such thoughts could have a significant impact on the decision to make use of the target information during the evaluation task. One possible consequence could be a decrease in the importance given to the target attribute.

Obviously, the above discussion has been highly speculative and other explanatory schemes could be proposed. One interesting aspect of this discussion though is that it stresses the distinction between information retrieval and information use and suggests that retrieval of some particular information does not necessarily lead to an unqualified utilization in some subsequent task (see also Gardner 1983).

Conclusion

Information retrieved from memory plays a significant role in the inference making process. Therefore, research on the conditions under which memory retrieval is facilitated must be extended to judgment or choice situations. The results presented in this paper suggest that engaging in elaborative mental activities at the encoding stage may increase the likelihood of retrieving and using the encoded information in a subsequent consumer judgment task. Although the positive impact of elaboration on memory is a well-documented finding in cognitive psychology, its extension to information utilization appears to have been neglected so far. Hopefully, the present study will have stimulated research into extending similarly other cognitive psychology findings.

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THE RELATIONSHIP OF MISCOMPREHENSION TO DECEPTIVENESS IN FTC CASES

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Abstract

Jacoby, Hoyer and Sheluga have interpreted their findings on miscomprehension as implying that much of what government regulators identify as advertising deceptiveness should properly be recognized only as normal levels of miscomprehension. An analysis is offered which questions this interpretation, for two reasons. The first reason is that the Jacoby group omitted studying one of the significant types of deceptiveness prosecuted by the FTC. The second is that, for the type of deceptiveness the researchers did study, the concept of "induced miscomprehension" suggests it is reasonable to interpret miscomprehension as evidence of deceptiveness.

Introduction

This is an assessment of the work of Jacoby, Hoyer & Sheluga (1980; Jacoby & Hoyer, 1982a, 1982b) on the topic of miscomprehension of message content. While other assessments of this work (Ford and Yalch 1982; Mizerski 1982) have focussed on methodological matters, this one focusses on the legal applicability of the findings for their intended use as evidence pertaining to deceptiveness in Federal Trade Commission advertising cases.

The Jacoby work was funded by the Educational Foundation of the American Association of Advertising Agencies, whose notice inviting research proposals explained how the work was to be applied to the deceptiveness topic: "In the past few years various regulatory bodies have charged certain advertisers with having produced 'misleading' advertising. Regulators have interpreted fairly modest levels of consumers misperception as evidence that a particular advertisement is 'misleading.' This may simply reflect the difficulty in distinguishing between deception and small levels of misperception which may be inherent in the process of mass communications" (A.A.A.A. 1978).

The immediate goal of the Jacoby et al. project was "to provide objective evidence of the extent and nature of consumers' perceptions and misperceptions of various forms of communication, including advertising" (with comment appended that "as the study developed 'misperception' was more properly defined as 'miscomprehension'") (Bartos 1980).

The principal result of the project was the finding that a substantial amount of miscomprehension by consumers occurred. An implication of this finding was stated to be that "just because there is a demonstrable degree of miscomprehension associated with a particular advertisement does not necessarily mean that the particular advertising contains something out of the ordinary to provoke said miscomprehension...[because]...a certain proportion of miscomprehension may simply reflect a natural error rate associated with all types of televised communication" (Jacoby et al. 1980, p. 97). Further, "the authors... would find completely unreasonable any attempt to use 'zero-based miscomprehension' as the criterion for evaluating advertising" (p. 98).

Although little more is stated explicitly, certain additional conclusions can reasonably be drawn as to what the researchers and their sponsors meant to communicate about the relationship of miscomprehension to deceptiveness.

There appears to have been an underlying assumption that government regulators investigate advertising by measuring consumer miscomprehension of it, and then prosecute advertisers on the belief that such demonstration of miscomprehension amounts to a demonstration of deceptiveness.

Contrarily Jacoby et al. urge the belief that miscomprehension, because it occurs in response to all advertising and indeed to all mass communication, should not be interpreted as evidence of deceptiveness. It represents only the natural tendency of human beings to have a certain level of error in their processing of message content, a phenomenon that should be attributable only to the consumer and not to the advertiser.

Only when the observed level of error exceeds the base level of miscomprehension should deceptiveness properly be assumed to exist. Should people typically err in 30% of instances, which is the average figure the researchers observed, then deceptiveness should properly be attributed only to messages for which the observed miscomprehension figure is higher than 30%. If the figure were say, 40%, then only the last 10% could be defined as deceptiveness. This would mean that a great many ads would have no deceptiveness at all, and that the 40% ad would have attributed to it only 10% deceptiveness rather than the full 40%.

Examination of FTC cases gives little reason to accept the A.A.A.A. assumption, at least for recent years, that the FTC frequently prosecutes advertisers on the basis of very small amounts of deception. The present authors, however, forego arguments based on such matter, in order to take up the issue of the theoretical relationship between the concepts of miscomprehension and deceptiveness.

Comparing Miscomprehension and Deceptiveness

We turn to assessing the arguments made by Jacoby et al. about what the occurrence of miscomprehension properly tells us about the occurrence of deceptiveness. The first step is to compare the two phenomena conceptually and empirically. The Jacoby report does not examine deceptiveness empirically, and by standing moot on this topic it may have the capacity to imply a closer relationship between deceptiveness and miscomprehension than is actually the case.

The report does discuss deceptiveness conceptually (p. 40), along with the concept of misleadingness as attributed to the FDA. The present discussion chooses to focus on deceptiveness, because the role of the FDA with respect to advertising is negligible compared to that of the FTC. In any event, there is not nearly so much difference between the two concepts as the report implies. The authors hold that deceptiveness involves a deliberate attempt to produce a false belief, while misleadingness does not necessarily do so (p. 40). Actually, neither do; it is fully established in advertising law that violations may be found in the absence of any evidence of intention to deceive (Preston 1976). Further, deceptiveness and misleadingness are not so clearly the province of separate federal agencies as the authors imply. Rather, the FTC's legislation prohibits misleading as well as deceptive advertising; its practice has been to use the terms interchangeably for conceptual purposes (Preston 1976).

Turning to measurement procedures, although the Jacoby report acknowledges a difference between miscomprehension and deceptiveness (p. 40), it does not discuss the latter enough that the differences as well as similarities may be fully seen. Both concepts involve the understanding about the advertised object that has been conveyed to the consumer. To assess miscomprehension, this conveyed

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meaning is identified as being the same as, or different from, the literal message about the object. If the conveyed meaning is different from that stated or logically implied in the ad, miscomprehension exists.

To assess deceptiveness, the FTC first determines the conveyed meaning about the advertised object. It then examines the facts about that object, and finds deceptiveness to occur when the conveyed meaning is false with respect to those facts. Deceptiveness is a function of that relationship without regard for whether the literal advertising message is true or false.

The difference, then, is that the miscomprehension researcher is concerned with whether the conveyed meaning accurately reflects the literal message, without concern for the facts, whereas the FTC is concerned with whether the conveyed meaning accurately reflects the facts, without concern for the literal message. Assuming properly that the literal message's truth with respect to the facts is independent of the conveyed statement's truth the relationship between deceptiveness and miscomprehension is as shown in Figure 1.

FIGURE 1
RELATIONSHIPS AMONG LITERAL AND CONVEYED MESSAGES

	A	B	C	D	E
Literal Message	T	T	F	F	F
Conveyed Message	T	F	F	F	T
Miscomprehension	No	Yes	No	Yes	Yes
Deceptiveness	No	Yes	Yes	Yes	No

The number of combinations of truth and falsity is five rather than four because when both literal and conveyed message are false they may involve the same or different falsities. Miscomprehension is shown where the conveyed message is discrepant from the literal message, and deceptiveness is shown where the conveyed meaning is false.

The most important result found in Figure 1 is that miscomprehension and deceptiveness are independent of each other. Although the Jacoby group recognized this (p. 40), they failed to incorporate the range of outcomes needed to fully demonstrate this phenomenon. They examined only two of the five possible outcomes, Columns A and B in Figure 1, those two being the ones where deceptiveness and miscomprehension are correlated. Such a limitation does not permit the independence of the two concepts to be recognized.

The limitation occurred through the researchers' decision to "accept as given (but not objectively demonstrated) that each of our ads provides a correct representation of Product X" (p. 35). Thus, in their work the literal message was never false. Consequently, they assessed the truth of the conveyed message only by comparing it to the literal message. This was really a measure of correspondence or noncorrespondence of the conveyed message to the literal message, but the researchers referred to it as truth or falsity.

If the conveyed message corresponded to the literal message, either explicitly or by logical relationship, then it was assumed to be true. And, because the literal message was assumed to be true with respect to the facts, the conveyed message therefore must be true with respect to the facts. Under such conditions, both comprehension and nondeceptiveness existed simultaneously.

If the conveyed message failed to correspond to the literal message, then it was assumed to be false with respect to both the literal message and to the facts, and under such conditions both miscomprehension and deceptiveness occurred simultaneously.

It is not surprising that the researchers so equated miscomprehension and deceptiveness, given their enabling assumption. Such assumption, however, is simply wrong.

The literal message may of course be false with respect to the facts. And the FTC certainly is prone to consider prosecutions in such instances.

How often has the literal message been found by the FTC to be false? The present authors analyzed its cases in eight most recent published volumes (FTC 1980-83). The fifty relevant cases contained 330 instances in which a charge of a false conveyed message was made on the basis of a literal statement in an ad. In 164 of these cases the conveyed message was the same as the literal statement, which means that the literal statement was charged by the FTC to be false. In 166 instances the conveyed statement was found to be implied by a literal statement, which means not precisely that the literal statement was found to be true, but rather that it was not challenged as false and therefore was conceded for legal purposes to be not false. If we assume that the unchallenged literal statements were in fact true, the results show that the 330 statements were divided almost exactly evenly between true and false. The Jacoby researchers thus failed to incorporate into their design a type of advertising message reflecting half of the volume of actual FTC activity.

Summing up our assessment to this point, the argument has been made that the Jacoby project failed to study the full range of relationships between deceptiveness and miscomprehension. This criticism does not in itself, of course, amount to a refutation of the suggestion that miscomprehension may in some cases (i.e., Column B in Figure 1) be properly interpreted as the equivalent of deceptiveness. We turn now to a direct assessment of that topic.

Interpreting Miscomprehension as Deceptiveness

The present authors offer no disagreement with the Jacoby researchers' assertion that the FTC has in many important cases sought to determine deceptiveness by utilizing empirical data that can be interpreted as measuring miscomprehension. The real issue lies elsewhere, as will be seen.

There are two kinds of deceptiveness, and the Jacoby group is quite right in associating one of them with miscomprehension. The kind of deceptiveness found in Columns C and D of Figure 1 is based on the literal message. It may be accompanied by miscomprehension (as in Col. D), but the deceptiveness is independent of the miscomprehension. In most such cases the FTC uses no empirical data, asserting a capacity to deceive simply from the message's falsity.

The deceptiveness indicated in Col. B is based on miscomprehension. In most cases the Commission makes no empirical determination of such deceptiveness, and when it does it typically uses different kinds of measures from case to case. However, there was one instance (Sun Oil 1974) of an FTC measurement of deceptiveness that was extremely like the Jacoby group's measurement of miscomprehension.

That particular measurement and the Jacoby measurement have a common forebear, the work of Preston & Scharbach (1971). The latter determined what meaning an advertisement conveyed to consumers by having experimental subjects respond to a number of prepared statements about that ad's content. The prepared statements might be directly true or false in the sense that they would directly express either some content found in the ad about the product or else the opposite of such content. Other prepared statements expressed things about the product that were either logically implied by what the ad literally stated, or else were illogically implied to anyone who responded on the basis of common logical fallacies. Finally a fifth kind of statement said something about the product that was irrelevant to anything the ad had said; it had none of the four previously specified relationships. Five statements, one of each kind, were used for each ad.

The subjects were asked to specify by checkmark whether each statement was an "accurate" or "inaccurate" restatement or paraphrase of what the ad stated or implied. The

instructions emphasized that a specification of "accurate" did not require that the exact words be used, but only that the same meaning be conveyed. Accordingly, subjects would be answering correctly if they specified "accurate" for the statements that were either true or logically implied or "inaccurate" for those that were false, illogically implied, or irrelevant.

The Jacoby measurement of miscomprehension was reported to be "patterned after Preston and Scharbach" (p. 53). Alterations included the use of only the first four of the five types of statements, and for each ad or other type of communication the use of two each of the false (called "inaccurate fact") and the illogically implied (called "inaccurate inference") statements, making a total of six. The instructions required the subjects to indicate whether each statement was "true" or "false," and this was to be based upon what they felt was both stated or implied in the communication (p. 53). Because of the latter qualification, "true" and "false" probably had the same meaning as did "accurate" and "inaccurate" as used by Preston and Scharbach.

In the Sun Oil case the conveyed meanings challenged as false were not the literal advertising statements; the latter thus were conceded to be true, and so were of the sort studied in the Jacoby project. In the case, Preston supported his testimony on conveyance of meanings by introducing a survey that used three of the five types of statements seen in Preston and Scharbach, along with the same instructions. Of eleven prepared statements three were true, two were false, and five were illogically implied. The latter five had been alleged by the FTC to be conveyed to the public and to be false. By showing a strong tendency to indicate that these statements were accurate references when in fact they were inaccurate, the experimental subjects confirmed the FTC in its decision that such content was indeed conveyed by the advertising.

Accordingly, a showing of what the Jacoby report calls miscomprehension was used by the FTC as evidence of deceptiveness. The specific process was that of miscomprehending by drawing invalid implications--that is, by committing common fallacies through drawing conclusions not justified by proper application of logical analysis (Preston 1967; Preston & Scharbach 1971).

The Jacoby report stresses the point that the cause of miscomprehension is in the consumer and thus not in the advertiser. Miscomprehension is shown to occur in approximately equal degrees across a variety of communications. Nonadvertising sources would presumably have no interest in creating deceptiveness, yet their communications produce the same rate of miscomprehension. Therefore, it appears reasonable to argue that normal levels of miscomprehension may be attributed generally to the recipient of the message rather than to the source.

We have now arrived at the real issue--not whether the observed phenomenon is miscomprehension, but whether miscomprehension should be recognized as deceptiveness. The Jacoby researchers (and presumably their AAAA sponsors) say it should not because to label the phenomenon miscomprehension is to conclude that it is created by the consumer and not by the advertiser. Thus it cannot be deceptiveness and the advertiser should not be prohibited from producing it.

The FTC, although not having commented specifically on the term as used by the Jacoby group, says in effect that miscomprehension often amounts to deceptiveness and so in such instances should be prohibited.

No doubt many observers will consider it unconscionable as a matter of public policy for the government to attack, place blame on, and restrict the activities of an advertiser who has not been proved to be the party responsible for the conveyed message. The legal position on this point, however, is the longstanding principle that messages harmful to consumers should be subject to prohibition regardless of the advertiser's intent to produce them.

The advertiser has created a message that has the capacity to deceive; that is enough. The goal of the law is elimination of harm, and lack of intent to harm is irrelevant if harm is created. Further, intent is usually impossible to prove, thus to impose such a requirement would mean that virtually no harm would be eliminated (Preston 1975).

Furthermore, the advertiser is not being prosecuted. The attack, and the prohibition, technically are made against the message alone, not against the advertiser. The message must cease; the advertiser is not punished. The criminal law which the FTC legislation supplanted allowed for sanctions against persons, but the civil law under which the Commission was created does not (FTC Act 1914).

The outcome of this analysis is that the Jacoby report has not revealed anything that the FTC doesn't already assume. The advertiser should not be punished for causing what is not his fault; the FTC knows that. Miscomprehension is not necessarily the fault of the advertiser in the sense of conscious intent; the FTC knows that. Miscomprehension occurs and is interpreted as constituting deceptiveness; the FTC knows that, too. The Jacoby report simply does not supply anything that technically makes any difference.

Possible Informal Impact on FTC Attitudes

Let us turn, however, to consider the impact the Jacoby report might make, despite the technicalities just discussed, on the basis of the simple common sense it exudes. The report raises issues of fairness toward which many observers will be sympathetic. And there appears to be a way in which the FTC might be influenced by such issues.

The approach would be to raise the issue of an advertiser's apparent lack of intent to deceive, not as a legal technicality but rather as a factor that might influence the FTC to dismiss a case for not being of sufficient public interest. In cases, for example, where the commission is straddling the fence on the question of whether a false conveyed message posed a sufficient threat of harm to the public, the realization that the advertiser was believed not to have intended any deception (along with, perhaps, a clean record on such matters in the past) might turn the tide in favor of dismissing. In its recent statement regarding its advertising substantiation program (FTC 1983), the Commission cited "competing demands on the Commission's resources" as a reason why it might sometimes "decline to initiate a law enforcement proceeding." Perhaps in a parallel way it might also decline where an advertiser could reasonably be thought to have no intent to deceive.

Before we assume that possibility, however, some comment is offered on the Jacoby group's apparent assumption that any consumer response recognized as miscomprehension should also be recognized as involving no intent to deceive. In Preston (1967) the possibility was raised that consumers' inaccurate perception of ad claims might favor the advertisers by enabling them to convey claims they could not state explicitly without risking prosecution. This suggests that advertisers might look favorably on the possibility of such miscomprehension occurring, because it would enable them in apparent innocence to convey messages deliberately that they otherwise could not get into the consumer's head. "We can't say it," an advertiser might observe, "but we can get our readers to think it---and that's what matters!"

An example given in Preston (1967) was that Bayer would have been unable to say truthfully that doctors recommend for colds and flu that people should 1) Rest in bed; 2) Drink fluids; and 3) Take Bayer aspirin. The Bayer ad had made a statement that was the same except for excluding the word "Bayer." Twenty-six out of 30 subjects showed miscomprehension by indicating that the test statement, worded as above with "Bayer" included, was an "accurate" expression of what the ad had stated.

The Jacoby report expresses, at least implicitly, the opinion that miscomprehension is uniformly bad and that all parties wish to eliminate it. It is not difficult, however, to appreciate that Bayer might not have wanted to eliminate a miscomprehension that would result in attributing a strong claim to its product. Nor is it difficult to imagine that the creators of the Bayer advertising might have been fully aware of how the phenomenon would operate. The Preston study was based on common logical fallacies, and the very concept of "fallacy" implies the realization that many people predictably will commit it.

What this analysis suggests, then, is a phenomenon that might be called "induced miscomprehension." It is miscomprehension that the message creator predicts will happen, and knows will produce a favorable result, and therefore utilizes deliberately. If it states something falsely about the product, then it will amount to deceiving in the way that the Jacoby report interprets that term---as involving intent. Certainly it will dispel the notion that miscomprehension is always unintended and innocent.

Preston (1967) included some evidence on the difference that "induced miscomprehension" might make. The overall rate of miscomprehension in his study was 29.2%, remarkably similar to that of the Jacoby research. It is possible by additional unreported analysis, however, to measure the miscomprehension rate separately for those test statements that would be favorable to the advertised product if properly comprehended and those that would be favorable only if miscomprehended.

The statements that were "true," "false," and "logically implied" would be favorable to the advertiser if properly comprehended. The "illogically implied" statements, called "inaccurate inferences" by Jacoby, would be favorable to the advertiser if miscomprehended. The independent statements, made up out of thin air and thus having no logical relationship to the ad content, were sometimes favorable to the advertiser but typically were neutral.

The reanalysis, eliminating the independent statements, shows that where accurate comprehension of the test statement would be favorable to the advertiser, the rate of miscomprehension was only 20%, well below the average. Where the miscomprehension of the test statement would be favorable to the advertiser, the rate of miscomprehension was 65%, very much above the average. The reason suggested was that consumers expect ads to say favorable things, and expect them not to say unfavorable things. The outcome certainly suggests that advertisers can benefit from miscomprehension and so could have an interest in inducing its occurrence.

A similar result occurred in the Sun Oil case. None of the representations alleged by the FTC to be conveyed and to be false were stated explicitly in the advertising; they could only have been conveyed by false implication and thus by miscomprehension. Several of the prepared test statements reflected these alleged representations, although other statements were included for masking purposes. For the three statements for which miscomprehension would be unfavorable to the advertiser, the miscomprehension rate was 12%. For the eight statements for which miscomprehension would be favorable, the rate was 67%.

Clearly miscomprehension occurred more to the advertiser's advantage than detriment in consumer response to the Sun Oil ads. And it was that miscomprehension that was interpreted as constituting a violation. Had the miscomprehension rate for the group of eight statements, most of which paraphrased the misrepresentations alleged in the complaint, been as low as for the group of three statements, the findings would have constituted far less support for the finding of a violation.

The Preston (1967) and the Sun Oil data provided comparison points by measuring miscomprehension under differing conditions, favorable or unfavorable to the

advertiser. This suggests that a benchmark can be identified for determining how much "induced miscomprehension" occurs over and above the occurrence of the miscomprehension that may be innocent. The Jacoby report stated that a zero-based assessment of miscomprehension would be unacceptable (p. 98). Had the FTC in Sun Oil considered such an argument, it might also have considered that the 12% miscomprehension rate found in the survey data could serve as a base for evaluating the 67% rate (and the same for the 20% and 65% rates in the Preston (1967) data). The result obviously would be that the challenged conveyed meanings would demonstrate amounts of miscomprehension well above the baseline.

We have been discussing the possibility that the omnipresence of miscomprehension might sway the FTC into dropping some prosecutions of deceptiveness for a lack of public interest. The analysis, however, suggests that this would be unlikely to happen unless the possibility of induced miscomprehension was ruled out. Induced miscomprehension can occur in cases where the false message is conveyed by implication, and data cited earlier suggests that this happened in half of the FTC's recent charges (see also Preston (1977) for analysis of cases in earlier years). We are not suggesting that the FTC is likely to make charges of, or collect data concerning, the concept of induced miscomprehension. The point is only that the perceived possibility of induced miscomprehension makes it unlikely that the FTC will accept the Jacoby report's urging that evidence of miscomprehension should be interpreted as implying the nonexistence of deceptiveness.

Value of Jacoby Report

A debt is owed to the Jacoby group for observing that what the FTC calls deceptiveness often occurs through the process of consumer miscomprehension. Nothing in this paper is intended to deny that advertisers may sometimes have been held responsible for misunderstandings for which consumers more reasonably ought to be held responsible. What is needed is the more precise specification of those situations under which the existence of miscomprehension may be held to imply the absence of deceptiveness.

A possible way to proceed would be to think in terms of defining the level of miscomprehension that cannot be eradicated. An advertiser's plea of not having intended to create a certain false impression could be vulnerable where the possibility exists of rewriting the message so that a more accurate impression will be conveyed. The advertiser, would be on firmer ground where he could argue that the message was written as clearly as humanly possible and that no alternative construction could possibly produce a lower level of miscomprehension. The latter advertiser would have a better case for claiming an exemption from the law's challenges.

Perhaps involved in such an analysis would be a distinction between miscomprehension of explicit and implied messages. More generally, there might be developed measures of the amounts of miscomprehension produced by structurally different types of messages. Certainly the Jacoby group will agree that more can be learned about miscomprehension as a follow-up to their innovative introduction.

Summary

We have proposed two ways in which to question the notion that what is challenged as deceptiveness is actually only miscomprehension. The first involves instances in which the literal message of the advertisement was false, and for which miscomprehension and deceptiveness do not occur concomitantly. The Jacoby research did not study such situations and therefore cannot be regarded as having any pertinence to them. The second involves instances studied by Jacoby in which the literal message is true and in which deceptiveness and miscomprehension are either present or absent concomitantly. For these situations the phenomenon of induced miscomprehension has been offered

as a reason why the FTC might choose to interpret evidence of miscomprehension as constituting evidence of deceptiveness.

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MEASURING MISCOMPREHENSION: A COMPARISON OF ALTERNATE FORMATS

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Abstract

The performance of two question formats for measuring miscomprehension, i.e. true-false and multiple choice, was examined. Immediately following exposure to one of six stimuli (TV ads), subjects answered a set of questions in either true-false or multiple choice form. Results indicate a high rate of miscomprehension for both question formats. However, there was some indication that the true-false questions were more difficult for subjects to answer correctly. Differences between the two formats were most pronounced for questions dealing with inferences (as opposed to facts).

Introduction

In recent years, the miscomprehension of communications has become an important subject of research in a variety of fields. This is evidenced by the fact that an increasing number of studies in the marketing, communication, broadcasting, and journalism disciplines have attempted to assess factors such as rates of miscomprehension and characteristics of viewing audiences that contribute to the misunderstanding of messages. Yet, in spite of this increasing interest, a number of key issues need to be resolved. One of these issues focuses on the measurement of miscomprehension. The purpose of the present study is to provide additional data related to the measurement of this important construct.

Previous Research on Miscomprehension

As mentioned, a number of different studies across a variety of fields have examined the subject of miscomprehension. In the broadcast journalism area, Katz, Adoni, and Parness (1977) found that adding a picture to audio messages did not affect comprehension either positively or negatively, though the picture did improve memory for newscasts. Edwardson, Grooms, and Proudlove (1981) obtained an overall miscomprehension rate of 37.7% using newscasts as stimuli and a multiple choice quiz for measurement. They also found that interesting video (in contrast to talking heads) resulted in a greater proportion of correct answers, and that comprehension levels were higher for persons under 40 years of age. Robinson (1982), using newscasts and an unaided recall measure, obtained a similar finding in that individuals between the ages of 25 and 54 evidenced greater comprehension. Robinson also found that comprehension of the news increases as education and income levels increase, and that men tend to comprehend more than women. Finally, a 1981 study by Sahin, Davis, and Robinson revealed that viewers who know more to begin with (i.e. have a higher level of general knowledge) comprehend the televised news to a greater extent, and vice versa.

In the marketing area, a large-scale study conducted by Jacoby, Hoyer, and Sheluga (1980) (also reported in Jacoby and Hoyer, 1982) revealed an average miscomprehension rate of 29.6%. The stimuli used in this study included 30-second advertisements, brief program segments, and public affairs announcements. A nation-wide sample was employed and miscomprehension was assessed using a 6-item true-false quiz administered immediately after viewing. Among Jacoby, Hoyer, and Sheluga's findings were that: miscomprehension occurred for all types of communications to a significant degree, both younger and older viewers has a slightly greater tendency to miscomprehend, and miscomprehension appears to be inversely related to amount of formal education to a slight degree. These findings are in general agreement with those found by the researchers in the broadcasting and journalism areas. In a related study, Hoyer and Jacoby (1985) obtained an average miscom-

prehension rate of 33.7% for public affairs program.

Using a set of communications for Jacoby and Hoyer (1982), Jacoby, Hoyer, and Zimmer (1982) examined the levels of miscomprehension across three different types of mass media (TV, audio, and print). Results indicated that printed messages were least miscomprehended and audio-only messages led to the greatest degree of miscomprehension. More importantly, the overall mean miscomprehension rate was 22%. While this figure is somewhat lower than in the earlier investigation, the sample was composed of students and, thus, was upscale in terms of education.

An identical modality effect was evidenced by Chaiken and Eagly (1976). While the main focus of the study was examining the persuasive impact of complex legal information, miscomprehension was included as a major dependent variable. Even in this entirely different context, a normative miscomprehension rate of 38% was in evidence.

Other studies using entirely different stimuli and alternative measurement techniques have produced similar findings. In a study by Lipstein (1980), 32% of advertising content was miscomprehended. Jacoby, Nelson, and Hoyer (1982) experienced miscomprehension rates as high as 50% in the case of corrective advertising claims. Finally, Schmittlein and Morrison (1983) reanalyzed the estimates obtained from the initial study (Jacoby and Hoyer, 1982) in order to account for the effects of guessing and yeasaying with true-false items. Their major conclusion was that a more accurate estimate of the miscomprehension rate would be 46% (as opposed to 29.6%).

An important implication of the studies previously reviewed is that comprehension of televised messages should not be assumed or taken for granted by those in broadcasting, advertising, and communications research, though this has commonly occurred in practice (Sahin, Davis, and Robinson 1981). Several factors contribute to the continued importance of comprehension as a research topic. For one thing, research concerned with the effects of advertising on the formation of consumer attitudes and purchase intentions has generally assumed that these processes occur after the message has been comprehended (Jacoby, Hoyer, and Sheluga 1980). In other words, a number of advertising models are predicated on the assumption that comprehension has occurred, which, as has been demonstrated, may be a questionable assumption. In addition, public policy topics such as whether or not an ad is deceptive or misleading and/or whether corrective advertising should be required of a sponsor center on issues of comprehension (Jacoby and Hoyer 1982).

Purpose of the Present Study

One topic which has generated some controversy is that of measuring miscomprehension among viewers. It is apparent from the previous review of recent studies that researchers have used aided and unaided recall measures, true-false quizzes, and multiple choice quizzes to assess miscomprehension, and that various rates have been obtained. Due to its important public policy implications, the Jacoby, Hoyer, and Sheluga (1980) study sparked specific criticisms from Ford and Yalch (1982) and Mizerski (1982) on the issue of measurement. Ford and Yalch (1982) suggested, among other things, that "a multiple choice quiz may have been a better alternative than their true-false quiz because it can be designed to discourage guessing and would assess alternative interpretations of the message that might be considered 'acceptable'" (P. 30). Mizerski (1982), in supporting his claim that the Jacoby and Hoyer (1982) findings were "measurement bound", referred to results of an FTC commercial copy test in which measures of

aided recall, unaided recall, and recognition (multiple choice) were taken. Miscomprehension rates of literal ad claims in that study alone ranged from 2% to 40%, depending on the measure used.

Again, in light of the importance these suggestions have for public policy issues, the purpose of the present study is to explore these criticisms and to investigate the performance of alternate types of recognition measures, specifically true-false item format versus multiple choice format, in assessing miscomprehension. We have chosen to focus on recognition measures for several reasons. First, Ortony (1978) and Woodall, Davis, and Sahin (1983) have pointed out that comprehension of a stimulus and memory for the stimulus may well be separate and distinct phenomena which need to be recognized and treated as such in the study of human information processing. While recognition measures probably do confound memory with comprehension to some degree, they are clearly not as dependent on storage of the stimulus in memory as are recall measures. Another reason for studying recognition measures specifically is that recall measures are quite different to code reliably, and need, at the very least, to be supplemented by more objective quiz items. Finally, as noted in a rejoinder by Jacoby and Hoyer (1982) to criticisms of their original study, miscomprehension rates ranging from 2% to 38% have been obtained in various studies depending on whether true-false or multiple choice questions were used as the recognition measure.

Hypotheses

Competing hypotheses can be generated regarding the expected performance of true-false versus multiple choice questions. One perspective is that expressed by Ford and Yalch (1982), i.e., that subjects have a better chance of guessing correctly on true-false questions, which should result in lower rates of miscomprehension for true-false tests. The chance of guessing correctly on a true-false item is obviously 50%, whereas the chance percentage is reduced to 25% when a four-item multiple choice format is used. An alternative hypothesis is suggested by researchers in the educational measurement area. Frisbie (1973) noted that a multiple choice item "limits the universe of comparisons that the individual must make" (p. 303), meaning that the problem of searching for counterexamples that would falsify a statement is narrowed down for the subject when a question is asked in multiple choice form. A true-false question, in contrast, does not provide the subject with a neat set of four possibilities, with the result that a more extensive memory search is necessary in order for the subject to generate counterexamples. According to this line of reasoning, true-false items would be associated with a higher miscomprehension rate. The following study was designed to explore these hypotheses.

Method

Sample

One hundred sixty eight college undergraduates participated in the study. This represents a convenience sample of sophomores and juniors enrolled in a promotion strategy class. The authors feel justified in utilizing this type of sample since the goal of the research is to explore the internal validity of the measures employed. There will be no attempt to generalize our findings concerning miscomprehension rates to the television viewing population as a whole.

Stimuli

Six 30-second advertisements were chosen from the original Jacoby, Hoyer, and Sheluga (1980) study for use as stimuli in this study. Ads were initially chosen by Jacoby, et al. (1980) to represent the most heavily advertised product categories. The sponsors agreed to participate in the original study on the condition that they not be identified in the results, so only the products advertised in the ads chosen for this particular study can be identified. They were a laundry detergent, a brand of beer, small appli-

ances, a skin care product, a breakfast cereal, and a cough/cold remedy. These ads were chosen to represent the spectrum of miscomprehension scores obtained by Jacoby, Hoyer, and Sheluga (1980) (i.e. from high to low).

Dependent Variables

True-False Quizzes. For purposes of comparison, the exact 6-item true-false quizzes used by Jacoby, Hoyer, and Sheluga (1980) were also used in this study. Half of the questions were based on factual material in the ad, while the other half were based on inferences which might reasonably be drawn from the ad. In each quiz, two items were accurate and four items were inaccurate. In sum, each quiz consisted of one true fact, one true inference, two false facts, and two false inferences. In order to construct the original true-false quizzes (Jacoby, Hoyer, and Sheluga 1980), each 30 second advertisement was analyzed for product or product equivalent information in both audio and visual form. This product relevant information provided the basis for quiz construction. It was determined by the authors at that time that six quiz items exhausted the range of suitable information for miscomprehension testing. The original quizzes were subjected to a series of pretests to assure that they properly sampled the information in the ads and that they were understandable to study participants.

Multiple Choice Quizzes. The multiple choice quizzes in the present study also contained six items each, which were written so as to match the true-false items in content. It was presumed that Jacoby, Hoyer, and Sheluga (1980) had adequately dealt with the issue of sampling the relevant information contained in the ads. It has been suggested (Anderson 1972) that paraphrases can be used to assess comprehension. A paraphrase captures the meaning of the original message, but differs with respect to the shape or sound of the specific words. Comprehension is presumably required for a person to answer a paraphrase question correctly (Anderson 1972). Jacoby, Hoyer, and Sheluga (1980) employed paraphrase to construct their original true-false quizzes, and that tradition was followed in writing multiple choice quizzes for the present study.

The task in composing the multiple choice items was to create an item "stem" and alternative answer categories that would correspond to Jacoby, Hoyer, and Sheluga's (1980) true-false items. It has been suggested in the educational measurement literature that the paraphrase be contained in the stem (Anderson 1972) and that the stem contain the essence of the topic being measured (Mehrens and Lehman 1975). Following these guidelines, the topic of the original true-false item was used in its original wording as the multiple choice item stem. Several options are possible for writing distractor answers for multiple choice items, including: (1) judgmental determination of plausible distractors; (2) administration of a completion test and use of the most commonly occurring errors as distractors; and (3) use of the errors (from a completion test) that best discriminate among high and low scorers (Mehrens and Lehman 1975). It has been demonstrated (Frisbie 1971, Owens, Hanna, and Coppedge 1970) that method of constructing multiple choice alternatives has no significant effect on test validity (Mehrens and Lehman 1975). Therefore, for the present study, one multiple choice option corresponded exactly to the comparable true-false item, and the three additional answer possibilities were constructed on a judgmental basis to represent reasonable alternatives which might have been stated or implied in the ad.

Procedure

Subjects were tested as a group. A 30-second ad was presented over television monitors distributed around the classroom. Immediately after viewing a particular ad, the subjects completed a true-false or multiple choice quiz pertaining to the ad. When the subjects had completed the questions for one ad, the next ad was shown. The quiz for each stimulus was contained on one page of the questionnaire, and subjects were requested not to read ahead in their questionnaires. Subjects appeared to cooperate with

this request not to turn their pages until instructed to do so.

Results

Overall Miscomprehension Scores

Table 1 presents a comparison of overall miscomprehension for both the true-false and the multiple choice formats with the scores obtained in the original study (Jacoby, Hoyer, and Sheluga 1980). As would be expected, a highly educated student sample exhibited significantly lower levels of miscomprehension than the general population across all six stimuli. It is important to note, however, that there is a strong degree of consistency in terms of the order of miscomprehension scores. In other words, the stimuli exhibiting the lowest, medium, and highest levels of miscomprehension in the original study were in the same order in the present study. This order was reproduced exactly in the true-false format ($r=1.00$) and very closely in the multiple choice format ($r=.94$). Thus, while statements regarding absolute levels of miscomprehension cannot be made from present data, conclusions regarding relative levels appear justified.

TABLE 1
OVERALL MISCOMPREHENSION SCORES

Ad	Jacoby, Hoyer, Sheluga (1980)	True-False	Multiple Choice	Significance
Detergent	19%	12%	7%	.04
Skin Care Product	21%	14%	8%	.001
Cough/Cold Remedy	28%	15%	15%	N.S.
Beer	33%	17%	18%	N.S.
Small Appliances	34%	26%	32%	.03
Breakfast Cereal	40%	36%	30%	.03

The most important findings from Table 1 concern the comparisons of the two measurement formats. It can be seen from the table that, for three of the stimuli, miscomprehension was higher for the true-false format.¹ In two cases, differences were non-significant, and in the last instance, miscomprehension was higher for the multiple choice format. Thus, there appears to be slight support for the hypothesis that true-false items require more cognitive elaboration and, thus, are more difficult items to answer. It should be noted, however, that the magnitude of these differences is not large, and substantial miscomprehension occurs with both formats.

Miscomprehension of Facts and Inferences

A major distinction in the Jacoby, Hoyer, and Sheluga (1980) study was the ability to comprehend factual and inferential material. Accordingly, overall miscomprehension levels were broken down into scores representing factual and inferential miscomprehension levels. Table 2 presents a summary of this analysis across the six stimuli.

It can be seen from the table that most of the differences between the two formats occur in the case of inferential items. In two cases, greater miscomprehension was

¹Item total correlations were computed in order to examine the pattern of item difficulties for the true-false and multiple choice items. Results of this analysis indicated a fairly consistent pattern of item difficulties across the two formats.

TABLE 2

MISCOMPREHENSION OF FACTS AND INFERENCE

Ad	Facts			Inferences		
	True-False	Multiple Choice	Significance	True-False	Multiple Choice	Significance
Detergent	10%	5%	.006	2%	2%	N.S.
Skin Care Product	3%	5%	N.S.	11%	3%	.001
Cough/Cold Remedy	8%	7%	N.S.	7%	8%	N.S.
Beer	8%	6%	N.S.	9%	12%	N.S.
Small Appliances	14%	14%	N.S.	12%	18%	.003
Breakfast Cereal	18%	21%	N.S.	18%	9%	.001

evidenced for true-false items; in one instance, more miscomprehension occurred for the multiple choice format; and, in the remaining three instances, there were no differences.

For factual items, there were no significant differences between items in five of the six cases. In only one instance, the true-false format exhibited higher levels of miscomprehension than did the multiple choice format.

Thus, it may be concluded that differences in miscomprehension scores due to item format occur largely for inferential items. In this case, true-false items appear to be slightly more difficult. However, again, it must be noted that the differences are not large and a significant degree of miscomprehension occurs for both types of items in both formats.

Discussion

Results of the present study appear to support, to some degree, the hypothesis that true-false questions are more difficult for subjects to answer correctly. The reasoning for this finding, as explained in an earlier section, is that true-false questions require more cognitive effort on the part of subjects in that subjects must generate alternatives and counterexamples on their own, rather than having them provided in the question (as they are when the multiple choice format is used.) One practical implication of this general finding is that, in future studies, researchers might find it fruitful to determine at the pretest stage if systematic misunderstandings can be identified for a stimulus and, if so, use them as multiple choice alternatives. This would permit a more precise determination of miscomprehension due to specific types of information or alternative interpretations of this information. In other words, if miscomprehension is hypothesized to be a function of certain types of belief, statements related to these beliefs can be included as response alternatives to more accurately pinpoint the cause of miscomprehension.

The findings of this study contradict the implication by Ford and Yalch (1982) that guessing by subjects on true-false questions resulted in an inflated measure of miscomprehension in the original Jacoby, Hoyer, and Sheluga (1980) study. If guessing on true-false items led to inflated miscomprehension scores, one would have expected miscomprehension to be significantly lower when assessed with multiple choice items. Results did not, however, indicate definitive superiority of one question format over the other.

It is important to note that substantial miscomprehension occurred with both the true-false and the multiple choice formats. From a practical standpoint, the differences between measures are not large, and the results of the present study do not invalidate the use of the true-false format in prior studies, such as Jacoby, Hoyer, and Sheluga

(1980). Thus, the key conclusion that substantial amounts of miscomprehension occur across the different types of televised communication does not appear to be invalidated by the type of question format employed.

The most notable differences in miscomprehension rates using true-false versus multiple choice format occurred with inference questions. There appeared to be a slight tendency for subjects to miscomprehend true-false inferential items to a greater degree than multiple choice inferential items. This finding can be viewed as consistent with the generation of counterexamples hypothesis since questions pertaining to inferences would require the generation of a greater number of counterexamples than would factual items. Thus, true-false inferential items would be more difficult than similar items for factual material. This finding needs to be replicated in future studies. However, on a practical level, future attempts to assess miscomprehension should keep this distinction in mind.

It is important to note that the present study possesses some important limitations. The first involves the nature of the sample employed. Obviously, a college sample would be more intelligent and more highly educated than the population at large, and, thus, generalizations regarding the absolute levels of miscomprehension cannot be made. However, it is important to reemphasize that the rank ordering of miscomprehension scores (from lowest to highest) for the true-false format was exactly reproduced in the present study (as compared to Jacoby, Hoyer, and Sheluga 1980). Thus, it may be possible to make at least relative statements regarding the internal consistency of the data. Nevertheless, future research is needed to replicate findings such as these on a more representative sample.

A second limitation is that the ads were tested in one order at one point in time, and order effects may have threatened the internal validity of the findings. This problem appears not to be great, however, since, as mentioned above, there was a high correspondence between the ordering of scores in the original study and the present study.

A third limitation is that the manner of composing multiple choice questions could have influenced results. It may be preferable, when using multiple choice questions, to determine alternative answer categories through use of a completion test at the pre-test stage, as discussed in the methods section.

In conclusion, the results of this study suggest that work remains to be done on the issue of how to best measure miscomprehension. Given the importance of this construct for communication and advertising effectiveness, future studies which systematically compare other question formats would be particularly helpful. One obvious comparison would be between recognition measures, such as those employed in the present study, and recall measures, which have been collected in a number of the studies referred to previously. Exploring this type of measurement issue is one avenue that might be pursued in trying to specify the role(s) of memory in comprehension. In addition, future studies might consider possible interactions between ad characteristics and question format. The effects of question format in the present study differed depending on whether the question concerned a fact or an inference. Ad characteristics, e.g. cognitive vs. affective appeal, or one-sided vs. two-sided message, might also reasonably be expected to affect question format performance.

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THE ROLE OF KNOWLEDGE
IN THE EFFECTS OF TELEVISION ADVERTISING ON CHILDREN

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Abstract

Previous research on the effects of television advertising on children has focused on age as the important explanatory variable. This study looks at another variable, that of the child's knowledge about advertising, as the important factor. Specifically, this study looks at memory differences between those children who have knowledge about the purpose of advertising and those who do not. Results indicate that those children who have knowledge about advertising remember more product-related information from commercials. These results bring a new theoretical interpretation to the effects found by past researchers and have implications for public policy issues concerning misleading advertising.

Most children between the ages of 5 and 12 watch at least six hours of television each week. During each of these viewing hours, the child is exposed to approximately 15 commercial messages (Barcus 1980). What effect do these television advertisements have on children? This issue has been a focus of research and theory for at least the past 15 years. However, there is still no definitive answer. The purpose of this paper is to review our current knowledge of the effects of television advertising on children, and to suggest a new theoretical interpretation of these effects.

Previous research in the area of children and television advertising has looked at the following questions:

- Do children understand the purpose of advertising?
- Do children pay more attention to commercials than programs?
- Are children persuaded to want the advertised product?
- What do children remember about T.V. commercials?

While these questions have independently received partial answers, we still do not know how television advertising works with children. However, in each of these areas, age emerges as an important mediating variable. Taken as a whole, studies in the area demonstrate that children become more sophisticated in dealing with advertising as they grow older (Adler et al 1980). These age mediated effects have been explained in terms of Piaget's theory of cognitive development. Piaget's theory is often interpreted as essentially a theory of deficits; children of a certain age and cognitive stage are seen as being unable to perform mental operations characteristic of another, later stage. Early, lower stages of reasoning are more concrete, literal and undifferentiated, while higher stages are more complex and show more differentiation and integration of perception and cognition (Blatt, Spencer & Ward 1972). Research in the area of children and advertising has developed with this kind of deficit emphasis (Wartella et al 1979).

Piaget's theory guides research by providing rough age guidelines to follow in designing research (Wackman and Wartella 1977). However, biologically based cognitive stages do not really provide an adequate explanation of children's information processing. What they essentially do is to indicate limits on children's capacity to process information (Calder, Robertson & Rossiter 1975).

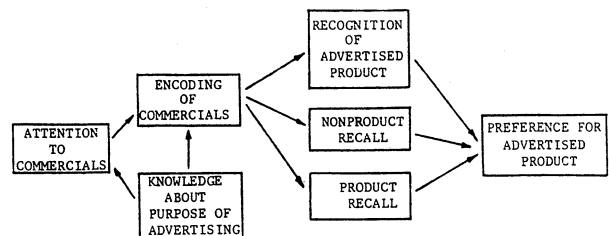
¹Funding for this research was provided by the Graduate School of Industrial Administration, Carnegie-Mellon University. The author thanks Eric J. Johnson for his helpful comments, Joanne Chu for her assistance in conducting the study and the Gymkhana school for their cooperation.

They are useful because they explain what children cannot do, but are limited because they do not tell us what children can do. The notion of cognitive stages is most often used in an explanatory, rather than predictive, fashion. Thus, Piaget's stage dependent view of children's performance has gained rapid acceptance among those interested in explaining the effects of television advertising on children. It represents a convenient mechanism for predicting what children are and are not able to do within a given stage (Chestnut 1979).

There has been a recent shift in the field of developmental psychology away from Piaget's theory of cognitive development towards the role of a child's knowledge base as a factor in memory development. By a child's knowledge base we mean the child's knowledge of a specific domain. Changes in such knowledge of specific content domains may underlie changes previously attributed to the growth of capacities or strategies (Siegler 1981). Siegler suggests several points about the child's knowledge base. First, knowledge influences the recall of newly presented material. Second, memorial performance improves during periods of development in which there is little improvement in strategies but substantial improvement in content knowledge. Third, age-related differences in measures of basic capacities and strategies may be attributable to changes in the knowledge base. Finally, under some circumstances, differences in content knowledge outweigh all other age-related differences. Memory development can be viewed as the increment of more content knowledge and a growth in the knowledge base with age can account for learning and improved memory performance (Chi 1981). Thus, according to this view, a younger child can behave like an older child, given the same knowledge base.

It is this relationship between a child's prior knowledge and subsequent performance that this paper is concerned with. Specifically, we want to show that the knowledge that children possess about television advertising, and not age, is the important factor in the effects of television advertising on children. Knowledge and understanding of the purpose of television advertising will affect how children are persuaded by commercials, and subsequent memory for commercial information. The model proposed for this relationship is presented in Figure 1. This model suggests that knowledge about the purpose of advertising will have an effect on the encoding of commercials. This in turn will effect the amount of product related information and non-product related information remembered from the commercial, and recognition of the advertised product. Preference for the advertised product will be affected by three things: 1) recognition of the advertised product, 2) non-product related recall and 3) product related recall. The major findings from previous research for each of the components in the model follow.

FIGURE 1
MODEL



Children's Understanding of the Purpose of Advertising

Age has been found to be directly related to the child's understanding of the purpose of advertising (Blatt, Spencer & Ward 1972; Ward 1972; Ward, Reale & Levinson 1972; Ward, Wackman & Wartella 1977; Adler 1978; Ratner 1978). Children age 5-7 are confused and unaware of the selling motive. Children age 8-12 have some understanding that commercials are intended to sell. By the time children are twelve years old they have a clear recognition of selling motives, and an emerging understanding of the techniques advertisers use in constructing commercials.

Attention to Commercials

In order to process a stimulus, it must first be attended to. Attention is necessary for any memory and comprehension that does occur (Anderson & Lorch 1983). For this reason, children's actual looking behavior or attention to television commercials has been studied. Television advertising to children uses many attention-getting devices such as repetition, unusual sound or visual effects, animation, magic and fantasy (Barcus 1980). What is the effect of these devices on children's attention to commercials? Children 5-10 pay greater attention to commercials and programming than children age 11-12 (Ward, Levinson & Wackman 1972), and the younger the child the greater the influence of perceptual characteristics of commercials on his attention (Ward, Wackman & Wartella 1977). In general, the paying of full attention to commercials decreases with age (Ward 1972).

Children's Preferences for Advertised Products

Several studies have looked at children's preferences for advertised products as a measure of persuasion (Goldberg & Gorn 1974; Robertson & Rossiter 1974, 1976, 1977; Goldberg, Gorn & Gibson, 1978; Rossiter 1979, 1981; Gorn & Goldberg 1982). Exposure to advertising increases desire for, requests for, and consumption of advertised products (Barry 1977; Atkin 1980). This is especially true of brand-name sugared products (Ratner 1978). There are inconsistent findings in terms of developmental differences in this area of research. However, children younger than 8 years old seem to be more likely to request products, and may be more strongly influenced to desire and request television advertised products after watching commercials (Wartella 1980).

Children's Memory for Commercial and Product Claims

As children grow older recall of commercials becomes more differentiated and complex (Ward 1972, 1974; Ward, Wackman & Wartella 1977; Ratner 1978). With both recall and recognition measures memory for commercials increases as a function of age (Blatt, Spencer & Ward 1972; Ward, Reale & Levinson 1972; Wartella 1980; Stoneman & Brody 1983). Young children do not recall the content or purpose of advertising and only recall a single element in a commercial or several elements but in a random fashion. Older children recall more features and relate these features in the proper sequence to represent the story told in the commercial; the commercial message is the focus of recall, not the elements. The major increases in memory seem to occur between the ages of 5 and 8. Again, this focus on age has led researchers to ignore other factors that might influence a child's memory for commercial messages. Roedder (1981) describes these age differences within an information-processing framework. In this perspective, younger children experience difficulty in processing the central persuasive arguments advanced in television commercials and only process information that is peripheral to the commercial content. Roedder concludes by saying that children's abilities to process information can be enhanced by "...affecting the processing of incoming commercial content and previously stored information relevant to evaluating commercial claims" (page 150). It is this relationship between a child's previously stored information about commercials and the child's subsequent memory of commercials that is investigated in this paper.

In summary, research in the area of children and television advertising has shown that age is the best explanatory variable for the effects found. However, the acceptance of this explanatory variable has led to the lack of any investigation of the possible underlying causes. Could it be that a child's knowledge about the purpose of television advertising is the mediating variable?

Experiment

Although the components of children's understanding and knowledge has been investigated, such as children's attention to commercials, memory for commercials, and product preferences, the relationship between these measures has not. The cognitive perspective suggests that there may be strong relationships between them. For example, prior knowledge will effect the recall of newly presented material (Siegler 1981). Thus, we might suspect that knowing that commercials are intended to sell products should have an effect on what is remembered from the commercials. Young children have been found to recall mostly non-product related information from commercials. If young children know the purpose of commercials (to sell products), it should lead to better recall of product related information.

This experiment looks at recall differences between those children who have knowledge about commercials and those children who do not have knowledge about commercials. It is expected that recall of product related information in commercials will be better for those subjects who possess the prior knowledge and understanding of television advertising. This is consistent with prior studies. We know, for example, that children above the age of 11 are able to recall the commercial message, and a separate study shows that this same age group is also able to distinguish between commercials and programming and to understand the purpose of advertising (what a commercial is). Our purpose then, is to minimize age differences by making younger children as knowledgeable as their older counterparts.

In addition, this experiment investigates two explanatory hypotheses. One is the relationship between attention to commercials and overall recall of commercial information. It is expected that knowing about the purpose of advertising will lead to greater attention to the commercials. This greater attention should lead to better memory for both product and non-product related information. The second is the relationship between memory for the commercial and preference for the advertised product. Recall of product related information will be higher for those subjects who know the purpose of advertising. It is expected that this better memory for product-related information will be positively related to preference for the advertised product. This is expected because the more a child remembers about an advertised product, the more salient the product will be when the child is asked to indicate a preference.

Hypotheses

The following hypotheses are proposed:

- Hypothesis 1: Recall of product related information will be better for those children who know the purpose of commercials.
- Hypothesis 2: Recall of non-product related information will be the same for all children regardless of the knowledge they possess about commercials.
- Hypothesis 3: Recognition of the advertised product will be the same for all children.
- Hypothesis 4: For those children who know the purpose of commercials, greater attention to the commercial will lead to better memory for both product and non-product related information.
- Hypothesis 5: For those children who know the purpose of commercials, better memory for product related information will be positively related to preference for the advertised product.

Method

Subjects. Nineteen children, between the ages of 5 and 6 years, (mean age 5.6 years), participated in the study. The children were enrolled in a pre-school gymnastic program in the Pittsburgh area. Children were recruited from two classes at the gymnastic school. Letters were sent out to the parents describing the study, and consent sheets were sent back in the mail. All children were from upper middle class, well educated families. Children were given a small toy at the completion of the experiment for their participation.

Design. The experiment included two groups of subjects who were exposed to four commercials in a trial sequence. Knowledge about the purpose of advertising was manipulated by instructing subjects about commercials. Accordingly, one group (n=10) was instructed about the purpose of commercials while the other group (n=9) was not. All subjects participated in 2 sessions, a week apart from each other.

Materials. The experimental materials consisted of a commercial questionnaire, four cereal commercials and eight cereal boxes (used for the preference and recognition measures). The commercial questionnaire consisted of six questions which measured children's knowledge about the persuasive intent of commercials.

Cereal commercials were chosen because they account for at least 34% of all ads broadcast on children's television programs (Barcus, 1980). The four cereal commercials were for the following brands: Lucky Charms, Cookie Crisp, Cinnamon Life and Cheerios. Each commercial was 30 seconds long. Commercials were obtained from companies and advertising agencies. Although the cereals in the commercials are available in the Pittsburgh area, the commercials were not currently being shown on television. Four different orders for viewing the commercials were used in order to counterbalance the four commercials across trials.

The eight cereal boxes included the four advertised cereals plus four other distractor cereals. The cereals were chosen so that two of them were of the sweetened variety (comparable to Lucky Charms and Cookie Crisp) and two were of the non-sweetened variety (comparable to Life and Cheerios). The four cereals were: Cap'n Crunch, Super Sugar Crisp, Golden Grahams and Kix.

Apparatus. Children viewed the commercials on a 19" color TV. A home video cassette recorder was used to play the commercials. Verbal responses were recorded on a cassette tape recorder. Looking time was measured with a digital stopwatch.

Procedure. The experiment was conducted in two sessions, each a week apart. Two different experimenters were used for each session. All subjects were tested individually.

Session 1: All children were asked questions about television commercials. These questions were imbedded in other questions concerning television in general (i.e. What is your favorite cartoon?) and questions about cereal (i.e. What kind of cereal do you eat for breakfast?).

Following these questions, subjects were randomly assigned to either the instructed or non-instructed condition. The non-instructed subjects were dismissed and told to return next week at the same time. The instructed subjects were told: "Now I want to talk to you about commercials. When you watch television I am sure you see a lot of commercials. Commercials are those short things on TV between programs that show you things to buy. The commercials show things like candy, toys, games and food. Commercials are shown on TV so that you will buy something. The people who make these toys and games put commercials on TV to get you to buy them" (adapted from Shamir, 1979; Wackman et al, 1979).

After these instructions were given, subjects were shown

a videotape of two commercials from Saturday morning cartoons. While viewing these commercials (for bubble gum and cookies) the experimenter pointed out aspects of the commercials that were talked about in the instructions. After viewing the example commercials, subjects were re-asked the commercial questions (as a manipulation check). Subjects were then dismissed and told to return next week at the same time.

Session 2: This session was the same for both groups of subjects. Children viewed the four commercials in a trial sequence. The first commercial was shown and then subjects were asked to tell the experimenter what they just saw on TV. Similarly, the next 3 commercials were shown one at a time with the children recalling after each commercial. Looking time at each commercial was measured by the experimenter with a digital stopwatch.

Following these 4 recall trials subjects were given 4 preference tests. The order of the cereals was the same as that in the commercial viewing. Each preference trial consisted of the 1 advertised brand and the 2 comparable distractor brands. (For example, if subjects saw the Life cereal first, they were shown the Life cereal box along with the Kix and Golden Graham cereal boxes). Children were asked: "If you could take one of these cereals home with you to eat for breakfast tomorrow, which one would you want?". Subjects were told to point to the cereal that they would want. This was repeated 3 more times. Each time, the child was shown the 1 advertised cereal along with 2 distractor brands.

Following the preference measure a series of recognition tests were given. These recognition trials were in the same format as the preference trials. Here, children were asked to point to the cereal they just saw on TV.

At the completion of the experiment all subjects were again asked the commercial questions.

Results

Commercial Questionnaire. Results are presented in Table 1. As can be seen, less than half of all subjects (prior to instructions) could answer appropriately to questions concerning the persuasive intent of commercials. The results for the session 1 manipulation check for the instructed condition subjects show that prior to instructions, the question "What do commercials want you to do?" was responded to correctly by only 20% of the subjects. After the instructions were given, 70% of the subjects could answer the question correctly. As can be seen, the manipulation was successful for all but 3 subjects. Results from the questions asked at the conclusion of the experiment indicate that the instructional manipulation held over the two week period.

TABLE I
QUESTIONNAIRE RESULTS

	SESSION 1		SESSION 2	
	INSTRUCTED Before	UNINSTRUCTED After	INSTRUCTED	UNINSTRUCTED
What is a TV commercial?				
interrupts show	20%	30%	22%	0%
sells you something	0%	20%	22%	10%
don't know	80%	50%	56%	90%
Why are commercials shown on TV?				
to sell or buy things	20%	60%	33%	60%
to tell you things	10%	0%	11%	20%
don't know	70%	40%	56%	20%
What do commercials try to do?				
get you to buy things	30%	60%	56%	70%
don't know	70%	40%	44%	30%
What do commercials want you to do?				
buy things	20%	70%	56%	60%
don't know	80%	30%	44%	40%

Looking Time. Means for looking time are close to ceiling (average looking time is 28.44 seconds for a 30 second commercial). In a 2 (condition) X 4 (commercial order) X 4 (trials) repeated measures ANOVA, a significant effect was found for trials, $F(3.33) = 5.31, p < .01$. A Tukey test for the comparison of means revealed a significant increase in attention up to trial 3, but not beyond. These results indicate that in both conditions children were paying the same amount of attention to the commercial.

Recall. Recall items were coded as product related or non-product related information. Product related information consisted of the cereal brand name, any of the cereal attributes (e.g. marshmallows, low in sugar, etc.) and the character related with the cereal. Non-product related information consisted of any people appearing in the commercial or any events that happened in the commercial (e.g. the little boy just woke up). Results were analyzed separately for product related recall and non-product related recall.

Product Related Recall. In a 2 (condition) X 4 (commercial order) X 4 (trials) repeated measures ANOVA, a significant effect was found for condition, $F(1.11) = 10.50, p < .01$. When recall was analyzed in a 2 (condition) X 4 (specific commercial) repeated measures ANOVA, a significant effect was also found for commercial, $F(3.51) = 3.31, p < .05$ (see Figure 2).

Non-Product Related Recall. In a 2 (condition) X 4 (Commercial) X 4 (trials) repeated measures ANOVA, no significant effect was found for condition, $F(1.11) < 1$. As in product related recall, when non-product related recall was analyzed in a 2 (condition) X 4 (specific commercial) repeated measures ANOVA, a significant effect was found for commercial, $F(3.51) = 5.31, p < .01$ (see Figure 3).

FIGURE 2
PRODUCT RECALL FOR COMMERCIAL

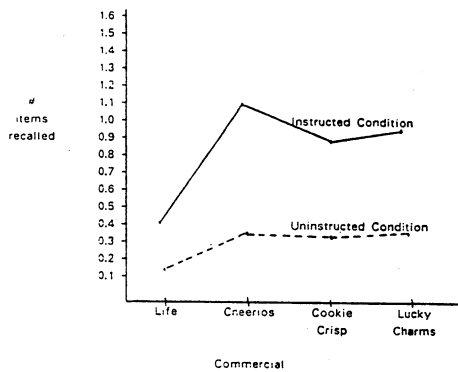
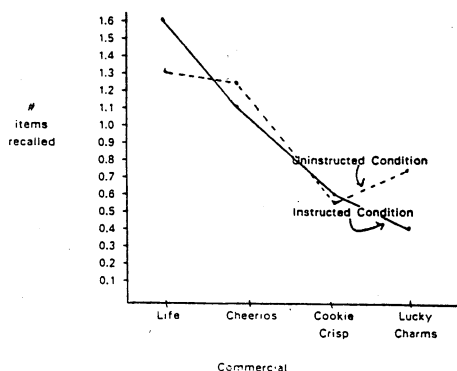


FIGURE 3
NON-PRODUCT RECALL FOR COMMERCIAL



Preference. For the analysis of variance, preference for the advertised product was summed across trials. Means are presented in Table 2. In a 2 (condition) X 4 (commercial order) ANOVA, no significant differences were found. If children know the purpose of advertising, one would expect them to be less persuaded by commercials. While the means are in this direction, it could be that the lack of any significant effect is due to the small number of data points for each subject.

Recognition. As with the preference measure, for the analysis of variance, recognition of the advertised product was summed across trials. Means are presented in Table 2. In a 2 (condition) X 4 (commercial order) ANOVA, no significant differences were found. Advertised products are recognized equally well by both groups of subjects.

TABLE 2
MEAN PREFERENCE AND RECOGNITION

	# CEREALS PREFERRED	# CEREALS RECOGNIZED
INSTRUCTED	1.90	3.7
UNINSTRUCTED	2.11	3.2

Correlations for All Measures. Correlation tables for all subjects, instructed subjects, and uninstructed subjects are presented in Table 3. For all subjects, the correlation between recognition and product recall ($r=.594$) was significant, $p < .01$. This correlation was also significant for the instructed condition subjects ($r=.736$), $p < .01$. However, it was not significant for the uninstructed condition subjects. This suggests that recalling the product name is related to recognizing the product at some later time. The correlation between recognition and preference for the instructed condition subjects was also significant ($r=.553$) $p < .05$. For the uninstructed condition subjects the only significant correlation was between attention to the commercials and recognition of the advertised product ($r=.596$), $p < .05$.

Tests for differences between the correlations for the instructed condition and the uninstructed condition were also done. The only comparison that was significant ($p < .05$) was the correlation between preference and recognition, (instructed condition $r=.554$, uninstructed condition $r=.381$). This suggests that preference for the advertised product and recognition of the advertised product are related only for the subjects that knew the purpose of television advertising.

For the instructed condition subjects, it was expected that attention and recall of the commercial would be positively correlated. However, given that the attention measures were close to ceiling for both the instructed and non-instructed conditions, it is not surprising that the hypothesized relationship was not found. In addition, for the instructed condition subjects it was expected that recall of product related information and preference would be positively correlated. As can be seen, the hypothesized relationship (although nonsignificant) was found. This suggests that the better memory for product related information found in the instructed condition subjects is related to preference for the advertised product.

Discussion and Implications

The experiment has provided support for the three major hypotheses. As predicted, recall of product related information from the commercials was greater for those subjects who knew the purpose of advertising. Also as predicted, recall of non-product information and recognition of the advertised product were the same for all subjects, regardless of the knowledge they possess about commer-

TABLE 3
CORRELATIONS FOR ALL MEASURES

ALL SUBJECTS				
	Attention	Product Recall	Nonproduct Recall	Preference
Product	.086			
Nonproduct	-.163	.225		
Preference	.082	.000**	.000	
Recognition	.336	.594**	.075	.181

INSTRUCTED SUBJECTS				
	Attention	Product Recall	Nonproduct Recall	Preference
Product	-.177			
Nonproduct	.108	.296		
Preference	.211	.151	.166	
Recognition	-.207	.736**	.337	.553*

UNINSTRUCTED SUBJECTS				
	Attention	Product Recall	Nonproduct Recall	Preference
Product	-.132			
Nonproduct	-.425	.321		
Preference	.067*	-.036	-.444	
Recognition	.596	.224	-.257	-.381

* $p < .05$
** $p < .01$

cial. These findings bring a new perspective to the issue of children and the effects of advertising. They show that young children's failure to recall product related information from commercials is not brought about by the mere fact that they are young, but by the fact that they do not understand that commercials are any different from programs. The lack of any differences in non-product related recall lends further support to this notion. Children without the knowledge of commercials only recall what they understand.

The relationship between recall of commercials and attention to commercials is still unclear. Better attention measures would probably help in shedding some light on this issue, along with varying the amount of attention getting devices in the commercials.

Preference for the advertised product appears to be related to only one measure, recognition of the advertised product. This suggests in some way that young children's preferences are not based on any product attributes themselves, but on the mere fact that they are able to recognize the product. However, a weak positive relationship between recall of product information and preference for the advertised product was found for the instructed condition subjects. This finding suggests that remembering more about the specific product influences the child's preference for that product. The extent of this influence needs to be specified through further research.

This study provides a new theoretical explanation of the results that have been found in previous studies. Mainly, that of the child's knowledge about advertising being the determining factor in his/her encoding of commercials,

memory for advertised products, and the extent to which the child is persuaded to want the advertised product. Although there were a small number of subjects in the study the results are encouraging. Further research is being conducted to extend the findings reported here.

This study also has implications for public policy issues concerning children and television advertising. In the past ten years, consumer advocacy groups and the Federal Trade Commission have argued that it is unfair to advertise to young children (Possiter, 1981). One issue, in particular, is whether advertising to children is deceptive. Deception is defined in terms of the child's beliefs about the product. An advertising claim may be factually true yet result in consumer beliefs that are factually false. Of concern here is whether advertisements directed at children result in beliefs about the product that are untrue. Prior research has helped shape public policy to date. Specifically, research has been instrumental in supporting or refuting allegations of misleading advertising (Rossiter, 1981). How can this study contribute to this issue?

In terms of children's recall of television commercials, research findings have suggested that children recall information that is peripheral to the product, and young children in particular, recall very little product relevant information. This learning of information that is peripheral to the product may be one factor involved in misleading advertising. For example, in a toy commercial, much information may be given about the toy itself. However, information peripheral to the toy, such as children playing with it and laughing, may lead to a possibly false belief that the toy will make a child happy. Due to the lack of any remembering about the product itself, the child is left with a false belief that the product will make him/her happy. If young children have the relevant knowledge about advertising (e.g. knowledge about the purpose of advertising, knowledge about the product being advertised or knowledge about the product class in general) to process product-relevant information and young children are able to recall this information, this should lead to less false beliefs about the product. Therefore, this research has much to contribute to policy issues involving misleading advertising to children. Specifically, it can be shown that when young children have the knowledge that is necessary to process the information, they are able to recall more product-relevant information.

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IF IT ISN'T A DUCK THEN WHY DID IT QUACK? COMPETING EXPLANATIONS
FOR AN OBSERVED EFFECT OF ILLUSTRATIONS IN AN ADVERTISEMENT

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Abstract

A further examination of the availability-valence hypothesis found that illustrations added to advertising copy enhanced belief formation and attitude toward the product. The results illustrate the value of taking as much care in the choice of dependent measures as is taken in choosing the manipulations to test the hypotheses.

Introduction

In a recent study, Kisielius and Sternthal (1984) undertook an examination of what they call the "availability-valence hypothesis." Their findings that instructions to image and the presence of story-board illustrations reduced subjects' judgments about a fictitious brand of shampoo were explained by the following set of propositions:

- 1) people process new information about an object by relating it to available information in memory,
- 2) the affective valence of information brought to mind by external stimuli in turn determines the favorableness rating of the external stimuli,
- 3) the picture analogs (illustrations) used in their research and their instructions to image advertising copy enhances cognitive elaboration that makes available in memory information that is less favorable to the advocated message position and, consequently,
- 4) adding illustrations to advertising copy may result in a decrement in favorable brand attitudes.

In the Marketing Teleconference Consortium organized by the Oklahoma State University on November 28, 1984 entitled "Assessing the Black Box: When is a Duck a Duck," scholars from different institutions raised concerns as to whether Kisielius and Sternthal (K&S) had considered and eliminated alternative explanations for the major effects observed in their study. It was suggested that a research approach employing manipulation check measures and measures of moderating beliefs associated with specific claims made in the advertising copy might have helped eliminate competing explanations and led to a better test of theory. In accordance with this philosophy, the research reported here replicates K&S's study, incorporating additional measures which we believed would help further explain the judgmental effects of pictures.

The K&S results were surprising in view of the literature which has shown pictures to frequently have a favorable effect on learning (i.e., recall). Childers and Houston (1984) examined the role of interactive pictorial stimuli in which verbally presented brand names were accompanied by pictures that directly portrayed the brand name. They found that pairing pictures with verbal brand names enhanced brand name recall when people were engaged in sensory but not semantic processing. However, picture conditions yielded better recall than verbal conditions in both sensory and semantic processing groups after a two day delay. Lutz and Lutz (1977) have also found interactive pictures to enhance recall. This was not the case for non-interactive pictures (i.e., pictures that were separated from the brand name) which generated recall levels equivalent to those obtained in the verbal only condition. In a recent partial replication of the Lutz and Lutz study, Biron and McKelvie (1984) found that picture conditions resulted in superior recall to verbal conditions even when the illustration and verbal portions were separated.

K&S's pictorial stimuli were large drawings with the verbal claim appearing at the bottom of the page in small

standard one-eighth inch type. Each verbal claim was about a sentence long. In the research reported here, their verbal and pictorial conditions are replicated. A second pictorial condition is added that is designed to draw greater attention to the verbal claim. In this condition, the verbal claim appears in large black lettering at the top of the page. If K&S's results are due to subjects' paying insufficient attention to the verbal claims, we would expect the negative effect of the picture condition to be eliminated in the large print picture condition.

An alternative possibility that could account for their results is that the illustrations employed in the picture conditions may have adversely affected the evaluation of the advertisements, and this negative evaluation may have generalized to the product. The pictures employed by K&S were black line drawings or sketches on white paper. They were not at all like finished advertisements. Examination of differences in stimulus evaluations between verbal and pictorial advertisement conditions would address this issue. We, therefore, asked subjects to evaluate each of the 13 story-board pages in the advertisement on good-bad, desirable-undesirable and pleasant-unpleasant scales.

A third possibility is that their illustrations may have been irrelevant to their verbal claims. Pictures appear to facilitate learning when they are relevant to the verbal material, but have a detrimental effect on learning when they are irrelevant (Wollen, Weber and Lowry 1972; Wollen and Lowry 1971). Manipulation check questions included in our study permit an examination of this possibility.

A fourth consideration is that K&S had people rate the shampoo on three attributes after seeing all 13 pages. Yet it is likely that the effects of pictures on acceptance of each page's verbal claim will vary from page to page. Therefore, in addition to asking for summary evaluations of the shampoo, we assess subjects' beliefs about each of the claims made in the advertising stimuli to which they were exposed. We expect that some of these beliefs will be affected by the picture manipulation and that others will not be affected by this manipulation.

Relatively little is known about what differentiates effective and ineffective or counterproductive pictures. Whether or not pictures are interactive with verbal material, whether they are relevant to that material, whether people are engaged in semantic or sensory processing and whether they have sufficient time to fully process the stimuli have been shown to be important moderating variables. It is likely that other variables are also important. For example, message titles and pictures that help the reader better understand the meaning of the verbal material have been found to increase the cognitive effort employed in the comprehension of that material (Britton, Holdredge, Curry and Westbrook 1979) and the recall that results (Bransford and Johnson 1972, Dooling and Lachman 1971). Some of these variables will be explored in this research by examining differences in subjects' ratings between effective and ineffective pictorial ads. While we recognize the post hoc nature of this kind of data investigation, we believe it is a fruitful precursor to future research.

A final concern is methodological in nature and focuses on the particular manner in which K&S assessed subjects' attitude toward the shampoo. Their attitude measure, reproduced in Table 2, consisted of three semantic differential scales. As can be seen, the first two scales

appear to tap subjects' beliefs or cognitive attitude rather than their affective attitude. Consequently, it is debatable whether K&S even tested the effect of elaboration valence on affective attitude toward the target object. If this is a valid concern, then the K&S findings should be interpreted using a cognitive based theory rather than an affect transfer theory.

The following study is an attempt to replicate and extend the K&S findings by exploring competing explanations for observed moderating effects of illustrations on advertising copy. The findings should therefore be of interest to three audiences: advertising practitioners, information processing theorists, and those interested in continuing the philosophy of science debate on the most appropriate methods for testing theory and advancing knowledge.

Method

Subjects and Procedures

A total of 555 students enrolled in a massive undergraduate marketing course participated in the study. In order to maximize comparability with the K&S study, we employed the same copy, pictures and dependent measures.¹ Only the instructions were altered slightly to reflect that the product was being considered for introduction into the Columbus market rather than the Chicago area.

A booklet containing the advertising stimuli was distributed to subjects during class under the supervision of eight experimenters. Subjects were directed to examine each of the 13 pages that contained the phrases comprising the advertising copy (see Table 1 for the 13 phrases). They were exposed to each page for five seconds. After the directed page by page study of the advertisement, subjects responded to a series of measures described below.

TABLE 1

THE ADVERTISING COPY

1. Does your hair get tangled and limp? Could be your shampoo.
2. Now there is Celebrate, designed especially for you.
3. It cleans your hair .. squeaky clean.
4. And it leaves your hair smooth, soft and full.
5. Celebrate contains no harsh detergents.
6. It doesn't have those sweet perfume or soapy scents that are found in most shampoos.
7. And Celebrate comes in three formulas -- for fine, thick and normal hair -- one just right for you.
8. Even Celebrate's new plastic bottle was designed with you in mind.
9. It has a handle built into the side of the bottle so that it won't slip out of your hands.
10. And it has a measuring dispenser that regulates just the right amount of shampoo for one washing.
11. Even though Celebrate costs about a dollar more than other leading shampoos..
12. You'll want to buy the shampoo that does the most for you.
13. So, why not Celebrate!

At the end of the exercise we also verbally instructed subjects to reread the initial instructions and place an "x" on the back of the booklet if they had not conscientiously followed the instructions or if they had answered any or all of the questions flipantly. Fifty nine participants did so and were excluded from the analysis. A further 50 subjects were dropped from the analysis because of missing data or clearly inconsistent responses to the K&S and attitude measures that indicated a lack of

¹We would like to thank Jolita Kisielius and Brian Sternthal for their generous cooperation in supplying us with the experimental materials from their study.

care and/or effort.

Independent Variables

The experiment involved a 2x3x2 between-subjects factorial design. The first factor manipulated the presence or absence of the following paragraph in the initial instructions:

"To compensate for the unfinished form of the ad, we would like you to view the ad in a particular way so as to get a good feel for the product. As you are presented with the ad, please try to construct a mental picture or image of the product as it is being described. For example, if an ad about a dishwashing liquid stated that it had high sudsing value, you might imagine a sink full of dishes covered with soap bubbles. Certain characteristics of a product may seem hard to picture in your mind. Nevertheless you should attempt to create some sort of image."

The second manipulation involved three story-board formats. The first (verbal only) presented the reader with a type written phrase at the bottom of each of the 13 pages. The rest of the page was conspicuously blank. In the second condition (picture-words), the K&S illustrations were added. We also explored the framing effect of the words on the picture (rather than vice versa) by creating a word-picture condition. This involved placing the phrase at the top rather than the bottom of each page in very bold printed letters some 4-5 times larger than in the second condition.

The third factor was a blocking on sex. The female students received a pink booklet with female illustrations, the males a blue booklet with male illustrations.

Measures

Upon completion of the advertising message, subjects first responded to the three bipolar scales used by K&S (see Table 2). Our study went further by having subjects

TABLE 2

RATING SCALES EMPLOYED IN THIS RESEARCH

The Kisielius and Sternthal Scale

CELEBRATE shampoo is:

Gentle _____ Harsh
 Difficult to handle _____ Easy to handle
 Good for your hair _____ Bad for your hair

Our Attitude Scale

CELEBRATE shampoo is:

Superior _____ Inferior
 Undesirable _____ Desirable
 Pleasant _____ Unpleasant
 Bad _____ Good
 Worthless _____ Valuable

Example Belief Measures

	SD	N	SA
Celebrate leaves hair smooth, soft and full.....	1	2	3 4 5 6 7
Celebrate does not have a sweet perfume.....	1	2	3 4 5 6 7
Celebrate contains no harsh detergents.....	1	2	3 4 5 6 7
Celebrate costs a dollar more than other shampoos.....	1	2	3 4 5 6 7
Celebrate's bottle has a non skid bottom.....	1	2	3 4 5 6 7

respond to (1) five evaluative semantic differential attitude scales (see Table 2), (2) 11 general belief statements about Celebrate, (3) 16 very specific belief judgments using the words from the advertising copy but including three false product claims, and (4) questions that evaluated each of the 13 story-board pages. The last set of measures consisted of again presenting each of the 13 stimulus pages on the left facing page. The right facing page contained measures asking subjects to rate the

stimulus page on three evaluative scales, followed by three scales assessing the ease of understanding, ease of relating to, and meaningfulness of the page. The next three questions measured how favorably disposed the subject was toward the entire page, the words alone, and the illustration alone (in the conditions where illustrations were presented). For the illustration conditions, the final four measures captured the extent to which each picture was perceived to be consistent with the accompanying words, similar to the words, related to the words, and whether it was perceived to clearly illustrate the specific point or feature made by the text (e.g., "The picture clearly illustrates that Celebrate has a handle built into the side of the bottle so it won't slip out of the hands"). For the verbal only condition, however, the final four measures assessed subjects' perceptions of the ease in which images could be formed for the words (consisting of two measures) and the words could be related to subjects' actual shampoo experiences, as well as their agreement with the statement "Nothing comes to mind when I read these words."

Subjects answered these questions after studying each story-board page for as long as they desired. These measures, although taken some time after the initial paced exposure to the advertisement, enabled us to explore the impact of specific word-picture combinations on related specific and general beliefs as well as the impact of the entire set of 13 pages of text and illustrations on overall attitude toward the product.

Hypotheses

For the purposes of this paper we have chosen to only present a number of preliminary findings that address the following hypotheses:

- H1: The imaging instructions will reduce affective evaluation of the advertised product (shampoo).
- H2: The presence of illustrations accompanying the advertising copy will reduce affective evaluation of the product.
- H3: Framing the pictures with the copy by presenting the words at the top of the page in very large printed letters will moderate the detrimental effect of the illustrations on attitudes.

These three hypotheses are derived from availability-valence hypothesis. The first two are directly implied from the propositions presented above. The third hypothesis is based on the theory that external contextual information as well as internal available information will shape the interpretation of the distal cues. This implies that the pictures may well influence interpretation of the copy and vice versa. If the words are presented boldly at the top of the page rather than at the bottom of the page, then the subject may be more likely to read the copy first before studying the pictures. This will result in less picture interference with the words and an interpretation of the picture more consistent with the copy. It may also reduce the impact of relevant and (perhaps more importantly) irrelevant information on the interpretation and assimilation process which is likely to occur if the subject is first exposed to the illustrations and then reads the relevant copy (see Edell and Staelin 1983).

We anticipate that the effect of imaging and the effect of the illustrations on attitudes will be accompanied by similar effects on beliefs about product claims made in the copy. However, we expect that the effect of adding each of the 13 different story-board illustrations to each of the phrases will vary and depend on the picture-word consistency.

Results

Findings for K&S Measure

The scores on the three item K&S measure were summed for

each individual. It yielded a coefficient alpha of .47 ($n = 446$) which is lower than the alpha of .60 ($n = 43$) reported by K&S. The second scale (easy/difficult to handle) was problematic as reflected by a corrected item-total correlation of only .17. Indeed, alpha rose to .63 if this item was deleted. The K&S scale was then submitted to a $2 \times 3 \times 2$ factorial analysis of variance. Contrary to K&S's findings, neither the imaging nor pictorial manipulations had a significant effect. The only significant main or interaction effect was that females rated Celebrate higher ($p < .004$) than did males.

Findings for Our Attitude Measure

The above analyses were then replicated for our five item attitude measure. This measure received a coefficient alpha of .85. Our attitude measure also responded to the experimental manipulations quite differently than the K&S scale with the exception of the imaging instructions again failing to have a significant effect. Thus, H1 was not supported.

Contrary to K&S's findings, pictures had a significant ($p < .04$) positive effect on attitude. The mean score across the five scale items was 4.98 in the verbal only condition, 5.25 in the picture-small print condition, and 5.26 in the picture-large print condition. Differences between the verbal only condition and each of the picture conditions were significant ($p < .05$). However, H2 was not supported as the pictures increased rather than decreased affect toward the product. H3 was also not supported, as affect was constant across the two picture conditions. Other than the effect stemming from the pictorial manipulation, none of the remaining main or interaction effects were significant ($p > .1$). Consequently, we collapsed the design into a simple single factor design consisting of two groups: the verbal only subjects versus the picture subjects (including both picture versions). Unless otherwise noted, subsequent analyses are based on a comparison of these two conditions.

The above results raise questions about the tenability of the availability-valence hypothesis as presented and tested by K&S. First, the validity and the consistency of the three item K&S measure can be questioned. Second, we were not able to replicate the previous findings using the K&S measure. Third, and of greatest concern, the illustrations enhanced affective attitudes toward the product. Granted the effect explained very little of the overall variance, but it was still statistically significant in the wrong direction!

To explore whether the illustrations contributed to the formation of stronger beliefs about the product, which in turn influenced attitude, we examined the impact of pictures on specific beliefs. It should be noted that the availability-valence hypothesis does not explicitly propose that illustrations influence learning and acceptance of the verbal claims which in turn influence attitude. Rather, it proposes a direct transfer of valence from internally generated available thoughts to the target object.

Effect of Illustrations on Beliefs

Comparisons of product-related beliefs between picture and verbal only conditions revealed a number of significant ($p < .05$) differences and several that approached significance (see Table 3). It is reassuring that some, but not all, beliefs were influenced by the message manipulation. This finding eliminates the possible contention that subjects employed an evaluative inferential process in responding to the measures. Only if all (or at least most) beliefs varied in sympathy with the attitude measures across the message conditions would such an argument seem plausible.

For those beliefs affected by the manipulation, pictures enhanced subjects' beliefs about the product. For all but one of these beliefs, higher belief scores reflect greater processing accuracy and/or acceptance of the claim.

TABLE 3
RESULTS FOR SELECTED BELIEFS

Belief Statement	Verbal Only	Picture Conditions	p*
1. Celebrate is a good buy	3.34	3.64	.066
2. A lot of thought was put into designing Celebrate's plastic bottle	4.96	5.36	.013
3. Celebrate's plastic bottle is designed with me in mind	4.56	5.32	.000
4. Celebrate has a special dispensing device that gives you the right amount of shampoo	5.98	6.29	.055
5. Celebrate's bottle has a non slip handle	5.61	6.03	.021
6. Celebrate leaves hair smooth, soft and full	5.10	5.39	.035
7. Celebrate's cap is attached to the plastic bottle	4.10	4.38	.059
8. Celebrate is designed especially for me	4.05	4.49	.009
9. Celebrate comes in four special formulas	2.42	3.28	.000

*Significance level for the message main effect.

Note: Scale ranged from "strongly disagree" (1) to "strongly agree" (7).

This was not the case for the statement "Celebrate comes in four special formulas" as the advertisement states it comes in three special formulas. For this incorrect product claim, subjects in the pictorial conditions had less accurate perceptions although they did on average disagree with the statement. But this result is understandable when one appreciates that the illustration accompanying this claim depicts five people. This inconsistency between the pictorial and semantic stimuli apparently had a detrimental impact on the picture condition subjects' accuracy.

An important question at this juncture is whether message impact on affect was driven by the above differences in cognition. If the message influences affect through beliefs, then one should expect that controlling these beliefs should eliminate the message impact on attitude. Accordingly, various sets of beliefs were covaried to test their ability to mediate the influence of pictures on affect. The first set of covariates were the beliefs associated with the bottle design (beliefs 2-5, 7 and 8 in Table 3). These covariates completely eliminated ($p > .3$) the impact of pictures on attitude. The second set of covariates consisted of beliefs focusing on hair treatment (beliefs 6, 8, 9). Again the effect of pictures was eliminated ($p > .1$) although the beliefs pertaining to number of formulas was not a significant ($p > .7$) covariate. The final covariance analysis used the single remaining belief (belief 1 in Table 3). Although this belief was a significant ($p < .001$) covariate, it did not completely mediate the impact of pictures ($p < .05$). In sum, these analyses suggest that pictures influenced particular product beliefs (especially the beliefs about bottle design) which in turn impacted on product attitude.

An important question that arises at this point is why do some pictures enhance associated beliefs while others do not? To address this concern, we compared those stimulus pages which did ($p < .05$) versus did not ($p > .1$) have a significant effect on product beliefs. The pages where the effect approached significance were omitted.² These comparisons were performed on various measures assessing favorability toward stimulus elements, ease of understanding, meaningfulness, and consistency. The results are

²The page presenting the potentially conflicting picture-word information about the number of formulas was also omitted.

summarized in Table 4.

TABLE 4
RATINGS OF EFFECTIVE AND INEFFECTIVE PICTURES

Measure	Effective	Ineffective	p
Page is good/bad	4.96	4.47	.000
Page is desirable/undesirable	4.94	4.34	.000
Page is pleasant/unpleasant	5.04	4.40	.000
Page is easy/hard to understand	5.47	5.47	.988
Page is easy/hard to relate to	5.24	5.21	.540
Page is meaningful/meaningless	4.98	5.00	.571
Page makes me feel favorable/unfavorable about Celebrate	4.93	4.35	.000
Words make me feel favorable/unfavorable about Celebrate	5.20	4.58	.000
Picture makes me feel favorable/unfavorable about Celebrate	4.68	4.15	.000
Picture is consistent/inconsistent with words	4.96	4.82	.004
Picture is similar to/different from the words	4.95	4.78	.001
Easy to relate picture to words	4.79	4.67	.019
Picture clearly illustrates the product claim	4.24	4.12	.041

Effective represents those stimulus pages producing a significant ($p < .05$) picture effect on relevant beliefs while ineffective represents those stimulus pages not having a significant ($p > .1$) picture effect on relevant beliefs.

As can be seen, these two groups differed across nearly all of the measures except for those representing the meaningfulness and ease of understanding and relating to the page. Pages which influenced product beliefs generated more favorable responses than pages failing to influence beliefs. The presence of such differences must be cautiously interpreted, however, as evidence for a variable's role as an antecedent of the picture effect. For example, although illustrations were rated more favorably for pages having an effect on belief, further data analysis suggest that subjects' favorability toward the illustration was unrelated to the pictorial effects observed here. In particular, comparisons between the picture and verbal only conditions for those pages generating stronger beliefs revealed that subjects had a more favorable ($p < .05$) evaluation of the page in the verbal only condition. If these page evaluations were responsible for the impact of pictures on beliefs, then the verbal only condition should have enhanced beliefs. That the verbal only condition produced more favorable page evaluation but weaker beliefs suggests that subjects' evaluative reactions to the illustration were not responsible for the effect of pictures on beliefs. Indeed, covarying these page evaluations did not eliminate the impact of the picture manipulation on beliefs.

Discussion

K&S summarized their findings by pointing out that "on four occasions, verbal information presented alone was shown to induce more message-consistent judgments than verbal information accompanied by pictorial analogs" (p. 61). They argue that this effect is due to the "pictorial analogs" inducing greater elaboration of information that is less favorable than that elicited by the verbal claims. The results reported here present a dramatic contrast to their findings. Using their stimuli and procedures, verbal information accompanied by pictures produced a more favorable response than did verbal information alone. One could interpret this effect as also being consistent with the availability-valence hypothesis by arguing that in our study the pictures induced elaboration of information that was more favorable than the information available in memory for subjects in the verbal only condition. However, the same theory would then be employed to explain two diametrically opposed effects obtained following the same procedure and using the same stimuli. This points out a serious weakness in the availability-valence hypothesis. In a very real sense it is nonfalsifiable. No matter what effects are obtained on attitude, it can always be argued that they are consistent with the valence

of information available in memory. The theory does not permit us to predict on an a priori basis whether pictures or other stimuli will have a favorable or an unfavorable effect on the valence of available information.

This research went beyond the use of a multi-item attitudinal scale as a single dependent variable. Subjects also reported their level of agreement with statements made in the verbal claims. Significant belief effects emerged for six of the thirteen verbal claims made in the K&S stimuli. These belief scores show more agreement with the claim in the pictorial conditions than in the verbal only condition. When these beliefs were employed as covariates in separate analyses of variance, they eliminated the effect of message on attitude.

These findings appear to be inconsistent with implications of the availability-valence hypothesis. K&S state as a general proposition that "pictorial analogs" should enhance elaboration. The resulting effect depends on the valence associated with this elaboration. They argue that "the richness of cues in the picture condition was likely to have enhanced the availability of idiosyncratic information" (p. 56). If this idiosyncratic information were the cause of the obtained effect on attitude, then covarying for the belief scores obtained on ratings of the verbal claims should not eliminate the effect of pictures on attitude. The finding that covarying for these beliefs did eliminate the effect on attitude suggests that the obtained effect of pictures on attitude was not due to elaboration of idiosyncratic information.

If we assume as they do that pictures enhance "elaboration of message relevant information" (p. 61), we should expect to find a consistently greater level of learning in the picture condition across their stimuli. That is, if presenting the claim with a picture increases stimulus relevant elaboration we should obtain significant belief strength effects for each of the verbal claims. The finding that only some of the beliefs were significant suggests that the effect on learning may depend upon the type of picture employed or upon the relationship between the picture and the accompanying verbal claim.

In a general sense, these findings also support the usefulness and importance of carefully examining obtained effects on a series of dependent variables. Without the belief measures discussed above, we would have been unable to address alternative explanations for the obtained effects on attitude. On the other hand, in hindsight, we feel that our dependent measures of attitude toward each page and picture-word inconsistency were weak because of the manner in which this data was collected. It is questionable whether the responses to these measures fully reflected the processing that occurred during the initial paced exposure to the advertisement.

It should be acknowledged that the effects observed in this research did not account for a large proportion of the variance in the data. We did not obtain a significant effect on the imaging manipulation, and the manipulation of the order and visual dominance of the verbal claim over the illustration was not effective. We followed K&S by administering our study in a classroom, and this may have adversely affected precision. While the distractions and loss of control that are common in classroom exercises may well have added error, there is no reason to believe that classroom administration would have a biasing effect on our results. This is particularly true here because Kisielius and Sternthal also employed classroom administration. We recommend that future experimental research: reduces the number of pages and claims in the advertisement, manipulates time of exposure by a greater amount, manipulates the attractiveness and the consistency of specific picture-word combinations within the advertisement, and is administered in small groups or individually. The value of using appropriate measures of affect and beliefs has been demonstrated in the above study.

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VISUAL INFORMATION PROCESSING OF TELEVISION
COMMERCIALS: COGNITIVE EFFECTS

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Abstract

Advertisers have utilized various techniques for assessing the effectiveness of television commercials. The present manuscript describes a theory and methodology for examining viewers' chunking of ongoing visual information when viewing commercials. In an exploratory study, viewers indicated the number of chunks of information in television commercials while being exposed to either the visual stimuli or to both the audio and visual stimuli. It was hypothesized that the number of boundaries of information chunks (breakpoints) indicated by observers would affect information processing and, subsequently, output measures of advertising effectiveness (i.e., attitudes & beliefs). Results consistent with this process perspective were found.

Introduction

A variety of research techniques and measures have been proposed and developed for assessing the effectiveness of television commercials. These techniques include memorial measures (e.g., recall, & recognition), physiological measures (e.g., eye movements, tachistoscope, galvanic skin responses, pupil dilations, & electroencephalograms), and cognitive measures (e.g., cognitive rehearsals, free associations, attitudes, beliefs, & intentions) as well as more behaviorally oriented measures (e.g., sales following test markets, inquiries via reader cards, calls to toll-free telephone numbers requesting additional information). Although all of these techniques have advantages and disadvantages (see Engel, Warshaw, & Kinnear 1983), with the exception of the physiological measures, the majority of the measurement techniques do not allow the simultaneous collection of data during consumer viewing of the commercials and, hence, are post hoc. Consequently, these measures fail to acknowledge that the manner in which the stimuli are processed may affect subsequent cognitive measures and behaviors (i.e., purchase). For the physiological measurement techniques, mixed results have been found and, hence, have had little practical implications for the development of commercials (Watson & Gatchel 1979; Hensel 1970).

Previous research in the field of advertising has concentrated on the stimuli inputs and cognitive outputs related to television commercials such as the attention properties of the commercial and recall of these attention points. However, little or no attention has been given to the processing (what & how) involved during the actual viewing of the commercial. When information processing has been addressed, it has almost exclusively been conducted on auditory as opposed to visual stimuli.

Although there is an absence of research addressing visual information processing of television commercials, some research does exist examining the processing of visual stimuli for print advertisements (i.e., pictures vs. text). Generally, these studies have found that pictures are more easily recalled than accompanying text or text containing the same basic information as the pictures, and that print advertisements influence product related attitudes and beliefs, both negatively and positively. In one of the few studies to actually examine the effects on consumers of print advertising from a process perspective, Edell & Staelin (1983) found differences in the processing of text and pictures based upon the relevancy between the two components as well as for subsequent cognitions (e.g., attitudes). Specifically, these authors found differential effects of the ad structure (relevancy of pictures and text) and ad

content (objective versus subjective) on the processing of information and subsequent measures of cognitive responses, beliefs, attitudes, and intentions. These dependent measures were found to be hierarchical whereby the activation of one process variable impacted upon subsequent variables.

The present process conceptualization for television commercials parallels that of Edell and Staelin's (1983) conceptualization for the processing of print advertisements with one major exception: the present study examines the manner in which the consumers process the visual information contained within the commercial as opposed to any content differences between commercials per se. In this regard, the present conceptualization suggests that the stimuli are not necessarily the sole key to what material is processed and how the material is processed. Rather, the conceptualization suggests an interactive process of the advertisement, information processing, and cognitive activity. In the case of television advertisements, the processing of audio material should be similar to the processing of text material in print advertisements and, hence, similar to output measures from text material. For visual material, however, the motion inherent in television commercials forces viewers to process a series of "pictures" or "frames"; each "picture" potentially having the property of conveying information to the viewer and interacting with the audio portion as well as with viewer processing variables. This perspective suggests that consumers may segment the visual stimuli into chunks. The chunking of the visual portion of commercials and related variables represents the major thrust of the present study. The number of chunks of visual information that is perceived by a viewer should impact upon various output measures of beliefs and attitudes. In this regard, a theoretical perspective and methodological technique for examining the visual information process are warranted. The feature change hypothesis and breakpoint analyses serve this purpose.

Feature Change Hypothesis & Breakpoint Analyses. Darrin Newtonson and his colleagues (Newtonson 1973, 1976; Newtonson & Engquist 1976; Newtonson, Engquist, & Bois 1977; Newtonson, Rinder, Miller, & LaCross 1978) have demonstrated that observers of an action sequence tend to divide the action into meaningful segments for the purpose of extracting information. The number of segments indicated by observers has been shown to be affected by the instructional set provided to the observers (virtually all studies in this area), the predictability of the action sequence (Newtonson 1973; Newtonson et al. 1978; Wilder 1978a, 1978b; Jensen & Schroeder 1982), the sex-type of the observer (Deaux & Majors 1977), and by the number of actors (Jensen 1983, 1984). The indication of the boundaries for a segment are termed breakpoints. What is important for information processing, however, is not the actual breakpoints but, rather, the change or action between two successive breakpoints. This contention, termed the feature change hypothesis, has received considerable empirical support (e.g., Newtonson et al. 1977; Newtonson et al. 1978).

The feature change hypothesis postulates that stimuli factors such as movement, rate of movement, changes in the rate of movement, predictability, and changes in the relationship between two objects could alter an individual's segmentation strategy when observing ongoing action. Viewer factors such as attention, the sex-type, personality, and previous exposure to the material or related material may also affect the degree of perceptual analysis of an action sequence. Furthermore, this

hypothesis suggests that stimulus and viewer factors may interact in affecting the processing of visual information and subsequent cognitions. The research methodology in most of the studies have had observers view a videotape or movie while indicating "meaningful actions" (breakpoints) by either pressing a button connected to a continuous event recorder, pressing a button connected to a high speed computer, or by indicating tally marks on a piece of paper.

The present study was not designed to be a direct test of the feature change hypothesis but, rather, was designed to test the relationship between the chunking of visual information in commercials and the subsequent impact upon cognitions. However, in testing this relationship, ancillary evidence for the feature change hypothesis may be gleaned. In the present study, it was predicted that individuals viewing television commercials would segment television commercials into chunks when provided with differential instructions utilizing a breakpoint methodology and that the number of breakpoints indicated would be related to subsequent cognitive output variables (e.g., attitudes & beliefs). First, it was predicted that individuals instructed to indicate the more detailed or "smaller" actions in the commercial that were meaningful to them would indicate more breakpoints than individuals instructed to indicate the "larger" actions. More importantly, it was predicted that a positive relationship would be found between the number of breakpoints indicated by individuals and subsequent cognitive output measures (i.e., attitudes & beliefs). Previous research has indicated a positive relationship between the number of breakpoints and attributions (i.e., Newton 1973; Newton & Rindner 1979; Wilder 1978a) and affect (i.e., Lassiter & Stone 1983) concerning the actor(s) in stimulus materials.

The above predictions and previous research findings are based upon the premise that an increase in the number of chunks of visual information results in more positive cognitions. However, it is feasible that with an increase in the number of chunks of information, an individual would simply process more information to confirm pre-viewing cognitions. In other words, individuals who were initially positive toward the brand, commercial, or actors within the commercial could become more positive after more detailed processing while individuals who were initially negative could become more negative. In this regard, following the viewing of a commercial, individuals' cognitions could become more extreme or increase in magnitude in either a positive or negative direction. Hence, it was predicted that individuals indicating a finer unit of perceptual analysis would hold more extreme cognitions.

Finally, it was predicted that the presence versus absence of the audio portion of the commercials would affect the number of breakpoint indicated, hence, lending support to the interactive perspective of the stimulus material and viewer visual information processing. No specific predictions were made about the direction of the influence when both audio and visual stimuli of a commercial were provided to viewers as opposed to only the visual stimuli.

Methodology

Subjects & Procedures

A total of 209 students (96 males & 113 females) enrolled in either a consumer behavior course or a principles of marketing course volunteered to participate in the study for extra course credit. The 2 to 5 subjects who attended each session were instructed that the study addressed the manner in which individuals extracted information from television commercials. The experimenter explained to the subjects that previous research had indicated that people segment action sequences into meaningful segments or units and provided the subjects with a brief example of how an action sequence could be

segmented into either small or large segments. The subjects were informed that they would be making judgments of meaningful actions in commercials by pressing a hand-held metal tally register whenever, in their judgment, one meaningful action ended and another action began.

Approximately one fourth of the subjects were instructed to press the tally register for the smallest (fine unitization instructions) meaningful actions, one fourth of the subjects for the largest (gross unitization instructions), and one fourth of the the subjects for the most natural (natural unitization instructions). For example, individuals provided with fine unitization instructions were asked to "indicate their judgments of the smallest meaningful behaviors or actions portrayed in the commercial by pressing the tally register." The remaining one fourth of the subjects were not provided with any information or instructions concerning the segmentation of action (no unitization instructions): they were informed that the study dealt with the manner in which individuals processed information from commercials and that following the viewing of some commercials they would be requested to complete a questionnaire concerning their impressions of the commercials.

One half of the subjects were shown the commercials with the audio turned off (visual condition). The remaining subjects were provided with both the visual and audio portions of the commercials (audio/visual conditions). Hence, the factorial combination of instructions (fine, natural, gross, or none) and stimuli (visual or audio/visual) resulted in eight conditions that were conducted according to a block randomized schedule.

For those individuals provided with unitization instructions, between each of the six commercials the experimenter recorded the number of breakpoints indicated by each subject for that commercial. Following the presentation of the commercials, all of the subjects completed a questionnaire concerning their impressions of the commercials. When the subjects had completed the questionnaire the experimenter collected the booklets and thoroughly debriefed the subjects.

Stimulus Materials: Commercials & Questionnaire

Television commercials were recorded on a 1/2" VCR color television recorder using two major criterion: the commercial must contain ongoing action sequences and the primary emphasis other than brand must be the actor and the relationship between the actor and the brand. Using these criterion, 66 commercials were selected for further consideration, of which six were utilized in the present study based upon the clarity of the picture, length (30 seconds), the advertised product being a relatively frequently purchased nondurable good, and the presence of visual information. In order to reduce any order effects, two randomly ordered presentations were developed with approximately one half of the subjects receiving each of the two different orders of presentation.

The questionnaire requested subjects to indicate their beliefs about the primary actor/actress (13 items), commercial (11 items), and brand (7 items) for each of the six commercials. Subjects were also requested to indicate their attitude (liking) toward the actor/actress, commercial, and brand for each of the six commercials. All belief and attitude measures were collected on seven point semantic differential scales with the positive and negative poles randomly determined both within and between commercials. However, for all of the analyses presented below the scales have been transformed such that 7 represents the positive pole. Finally, a series of demographic items, the frequency of previous purchases of the brands and exposure to the commercials, and future purchase intentions were collected.

Results

The effects of the instructions (fine, natural, gross,

or none) and stimuli (visual only or audio/visual) on the various dependent measures were tested utilizing multivariate analysis of variance (MANOVA) across commercials where the main effects of instructions and stimuli as well as the interaction served as predictor variables. The results of these analyses for all dependent variables are reported in Table 1. As a manipulation check of the assignment of individuals to conditions, two analyses were conducted utilizing the individual's self-reported frequency of exposure to the commercials and pre-experimental purchase patterns of the advertised brands. None of the F values approached statistical significance for these dependent variables, verifying the random assignment procedure.

TABLE 1

MANOVAS ACROSS SIX COMMERCIALS: F VALUES AND df

	Instructions	Stimuli	I X S
<u>Breakpoints</u>	1.94 ^a (12,294)	5.35 ^a (6,147)	1.00 ^c (12,294)
<u>Intentions</u>	.71 ^c (18,552)	.38 ^c (6,195)	.57 ^c (18,552)
<u>Attitudes</u>			
Commercial	1.71 ^a (18,543)	.93 ^c (6,192)	1.24 ^c (18,543)
Brand	.89 ^c (18,546)	2.95 ^a (6,193)	1.25 ^c (18,546)
Actors	1.43 ^c (18,552)	1.31 ^c (6,195)	1.19 ^c (18,552)
<u>Attitude Extremity</u>			
Commercial	1.68 ^a (18,543)	1.88 ^b (6,192)	1.55 ^b (18,543)
Brand	.78 ^c (18,546)	.97 ^c (6,193)	.78 ^c (18,546)
Actors	1.29 ^c (18,552)	1.06 ^c (6,195)	1.59 ^c (18,552)
<u>Beliefs</u>			
Commercial	1.63 ^a (18,506)	1.08 ^c (6,179)	1.00 ^c (18,506)
Brand	.87 ^c (18,523)	.91 ^c (6,185)	1.08 ^c (18,523)
Actors	1.75 ^a (18,495)	.66 ^c (6,175)	.92 ^c (18,495)
<u>Belief Extremity</u>			
Commercial	1.03 ^c (18,506)	1.18 ^c (6,179)	.96 ^c (18,506)
Brand	.91 ^c (18,523)	1.13 ^c (6,185)	.68 ^c (18,523)
Actors	1.55 ^b (18,495)	1.08 ^c (6,175)	1.37 ^c (18,495)

^a $p < .05$
^b $p < .10$
^c $p > .10$

Breakpoints

The analyses conducted on the number of breakpoints indicated for the commercials revealed, as predicted, significant main effects of instructions and stimuli. Collapsing across commercials, individuals given fine unitization instructions indicated more breakpoints ($X = 9.08$) than individuals given natural unitization in-

structions ($X = 7.41$) with individuals given gross unitization instructions indicating a number of breakpoints between the two extremes ($X = 8.58$). Individuals receiving only the visual stimuli indicated more breakpoints ($X = 9.32$) than individuals receiving both the audio and visual portions of the commercial ($X = 7.36$). The interaction of these two factors did not approach significance.

Purchase Intentions

Analyses conducted on purchase intentions for the advertised brands revealed no differences between conditions.

Attitudes

Commercial. The F values associated with the effects of instructions and stimuli on attitudes towards the commercials revealed a significant F value for instructions. Individuals provided with fine unitization instructions indicated greater liking for the commercials ($X = 4.85$) than did individuals who were not provided with any unitization instructions ($X = 4.51$). Individuals provided with gross or natural unitization instructions indicated a degree of liking for the commercials somewhere in between those individuals in the other two conditions ($X = 4.66$ and $X = 4.62$, respectively). The F values for stimuli and the interaction of instructions X stimuli did not approach statistical significance.

Brand. Analyses conducted for participants' liking of the brand revealed only a significant effect of stimuli. Individuals receiving both the audio and visual portions of the commercials indicated a greater liking for the brand ($X = 4.67$) than individuals receiving only the visual stimuli ($X = 4.51$). The main effect of instructions and the interaction of instructions X stimuli did not approach significance.

Actors. Analyses conducted on individuals' attitudes toward the actors revealed a marginally significant F value, $p = .11$, for the main effect of instructions. This finding was due to individuals receiving the fine unitization instructions ($X = 4.95$) or no unitization instructions ($X = 4.83$) indicating a more positive attitude toward the actors than individuals receiving either gross ($X = 4.72$) or natural unitization instructions ($X = 4.74$).

Attitude Extremity

In order to assess whether the attitude extremity was affected by the experimental manipulations as opposed to the direction and strength of the attitude as in previous studies, the scales were collapsed about the midpoint. Hence, attitude extremity measures ranged from 0 to 3 with 0 indicating neutral and 3 indicating a more extreme attitude regardless of direction (e.g., favorable versus unfavorable).

Commercial. The analyses conducted on the attitude extremity for the commercial revealed significant main effects for instructions and stimuli as well as a significant instructions X stimuli interaction. Basically, individuals provided with natural unitization instructions held more extreme attitudes ($X = 1.81$) than individuals provided with no unitization instructions ($X = 1.67$), gross unitization instructions ($X = 1.63$) or fine unitization instructions ($X = 1.58$). Although the MANOVA revealed a main effect of instructions, this finding was due to individuals indicating a more extreme attitude when presented with both the audio and visual stimuli ($X = 1.79$) as compared to only the visual stimuli ($X = 1.55$) for two of the commercials while for the other four commercials this trend was reversed (visual = 1.73, audio/visual = 1.61), qualifying the overall significance when collapsing across all six commercials ($X = 1.67$). The significant interaction was due to individuals given fine unitization instructions indicating more extreme attitudes when receiving only the visual stimuli

($X = 1.65$) as compared to both the audio and visual stimuli ($X = 1.51$) while for the other instructional conditions no significant difference was found (audio/visual = 1.73, visual (1.68).

Brand. Analyses conducted for attitude extremity in reference to the brands advertised did not reveal any significant differences.

Actors. Although not revealing any significant main effects, this analysis revealed a significant instruction X stimuli interaction. Individuals receiving only the visual stimuli indicated more extreme attitudes when provided with natural unitization instructions ($X = 1.68$) than when provided with either fine ($X = 1.56$), gross ($X = 1.56$), or no ($X = 1.53$) unitization instructions. For individuals receiving audio and visual stimuli, however, more extreme attitudes were found for natural unitization instructions ($X = 1.76$) than for gross ($X = 1.58$) or no ($X = 1.50$) unitization instructions, which in turn were more extreme than for fine unitization instructions ($X = 1.37$).

Beliefs

In order to examine the participants' beliefs, all items used in tapping the beliefs were reassigned such that 7 was the positive pole and 1 represented the negative pole. In the case of items that did not possess easily discernible positive and negative poles (e.g., traditional versus contemporary), the scales were transformed when necessary such that the poles were labeled consistently (e.g., traditional = 1). The items tapping subjects' beliefs were then summed for beliefs about the commercial (11 items), brand (7 items), and actors/actresses (13 items). Hence, neutral beliefs would be indicated by scores of 44, 28, and 52 for commercial, brand, and actors/actresses, respectively. Collapsing across commercials, Cronbach's alphas were .81 for commercial beliefs, .56 for brand beliefs, and .78 for actor beliefs.

Commercial. A significant effect of instructions for participants beliefs about the commercial was revealed. Individuals provided with unitization instructions tended to have slightly more positive beliefs (fine = 49.76, gross = 48.99, & natural = 49.18) than individuals not receiving any unitization instructions ($X = 48.07$).

Brand. This analysis did not reveal any significant main effects nor interactions.

Actors. Individuals receiving different instructions held differential beliefs about the actors. As with commercial beliefs, individuals receiving unitization instructions had more positive beliefs about the actors (fine = 59.51, gross = 59.07, & natural = 58.75) than individuals not receiving any unitization instructions (none = 57.98).

Belief Extremity

As with attitudes, the possibility exists that the experimental manipulations utilized in the present study may have affected the extremeness of beliefs as opposed to or in addition to beliefs *per se*. In this respect, the instructional manipulations may have caused individuals to attend closer to the details contained within the commercial itself. This increased attention could result in the individuals observing some aspect of the commercial which, in turn, could justify their existing beliefs and, subsequently, increase the magnitude or extremity of those beliefs. In order to test this proposition, individuals' belief scores were collapsed about the neutral midpoint for commercial, brand, and actor beliefs. In this regard, a zero belief extremity score represents a neutral or very weakly held belief for the commercial, brand, or actor. Scores of 33, 21, and 39 represent extreme beliefs, either positive or negative, concerning the commercial, brand, and actor, respectively.

Commercial. Analyses conducted for extremity of beliefs about the commercial did not reveal any significant effects.

Brand. The F values for extremity of brand beliefs were not significant.

Actors. Analyses conducted for the extremity of beliefs regarding the actors in the commercials revealed a significant main effect of instructions. Individuals receiving gross ($X = 11.36$) or natural ($X = 11.49$) instructions indicated held more extreme beliefs when compared to individuals not receiving any unitization instructions ($X = 9.78$) while individuals receiving fine unitization instructions possessed beliefs somewhere between the two extremes ($X = 10.61$). No other significant effects were found.

Discussion

In the present study, individuals directed to attend to the finer details of the action in a commercial perceive more meaningful behaviors than individuals provided with alternative instructional sets. The fact that individuals indicated more breakpoints when provided with "gross" as opposed to "natural" unit instructions is inconsistent with previous studies examining the unitization of ongoing action sequences: most research has found that, although not necessarily statistically significant, individuals indicate more breakpoints when provided with natural as opposed to gross unitization instructions. Two possibilities for this discrepancy exist. First, under "natural" unitization instructions observers may have believed that the semantic context of natural could be interpreted to imply "as if you were watching the commercials at home." In this regard, individuals may have reacted by not paying as close of attention to the commercial as they did under "gross" unitization instructions and, hence, passively processed the incoming visual and auditory information. Second, in a similar semantic vein, individuals may have interpreted the "natural" in the instructions as referring to "common everyday occurrences" rather than "naturally meaningful" actions. Given the uniqueness of the actions contained within the commercials and the propensity for these actions to attract attention, individuals may have viewed the commercials as containing few actions or behaviors that they might engage in or that they might view others exhibiting. Also, some combination of the above two reasons may have been responsible for the difference between gross and natural unitization instructions.

The finding in the present study that individuals indicated more breakpoints when provided with only the visual portion of the commercials as contrasted to both the audio and visual portions of the commercials is, although unique in the present context (e.g., commercials), consistent with previous studies requesting individuals to focus on either the visual or the verbal behaviors of two actors having a conversation (e.g., Strenta & Kleck 1984). At least three explanations for this finding are feasible. First, it is possible that the audio stimuli interfered with the processing of the visual information. The inclusion of the audio portion in the present study may have caused individuals to engage in more "gross" processing of visual information due to the interference/distraction of the auditory stimuli. Second, the audio message may have caused the individual to shift toward a "gross" unitization strategy of the visual information, either actively or passively, in order to capture both sensory inputs. This explanation suggests a change (reduction) in visual information processing with the increase in information. Third, individuals may lack the attention capacity to process both stimuli and may therefore switch attention between the audio and visual, resulting in the appearance of a "gross" visual analysis.

All of the above explanations, although not exhaustive, assume a limited capacity input channel. Individuals

may have had to allot processing time to the audio stimuli in order to capture both sets of information. In this regard, visual messages may not be adequately processed, not as deeply processed, processed in less detail, and/or processed in larger chunks when presented with audio messages. Hence, one would predict that more complex and/or distracting audio messages would result in poorer visual information processing and have a subsequent impact upon memory for the components (cf., Bither & Wright 1973). Likewise, under conditions of the same audio message, complex visual messages would not be processed to the same extent nor in the same manner as simple visual messages. These explanations are also consistent with the work of Posner and Snyder (1975a, 1975b) who have shown that if attention is attracted to one modality, information from another modality is not processed to the same extent as if it were presented separately and with Edell and Staelin's (1983) findings that the consistency between the messages presented in the pictures and text of print advertisements affects memory and cognitions. Furthermore, these interpretations are also consistent with Jensen and Schroeder's (1982) findings that an increase in the number of actors does not result in a corresponding increase in the number of breakpoints.

The relationship between the visual information processing as operationally defined by the number of breakpoints and subsequent measures of cognitive processes revealed some interesting findings. As expected, individuals' cognitions about the commercial were more affected by the extent of visual information processing than individuals' cognitions about either the actors or brands. This finding is not surprising when one acknowledges that the extent or magnitude of processing manipulation involved attention properties as well as an interaction of attention and cognitive activities (see Newton 1980). Individuals may be more prone to cognitive change concerning an object that they have had relatively little experience, such as the commercial, whereas individuals may possess relatively strong attitudes and beliefs regarding the brand. Also, a strongly held cognition would be relatively difficult to alter following a single exposure. For cognitions about the actor, individuals would be unlikely to form attitudes since the observer would not foresee interacting with the actor or making any decisions involving the actor. However, individuals should be able to form beliefs about the actors, assigning them various characteristics or attributes (e.g., talent). These attributes, in turn, should be related to the attention an individual pays to the actors and, hence, as found in the present study, to the extent or magnitude of processing. This finding is consistent with previous studies examining the segmentation of ongoing behavior and subsequent causal and ability attributions (e.g., Newton 1973; Newton & Rindner 1979; Wilder 1978a). Also, for both cognitions regarding the commercial and actors, the positive relationship between the extent of processing (i.e., number of breakpoints) and attitudes or beliefs is consistent with earlier studies of affect (e.g., Lassiter & Stone 1983).

An interesting finding concerning cognitions and measures of cognitive extremity was found for attitudes and beliefs about the commercial and beliefs about the actors. Given the random assignment of individuals to conditions and subsequent manipulation checks, the amount of processing affected cognitive change in a positive direction which, in turn, was inversely related to measures of cognitive extremity. Individuals provided with instructions invoking a finer level of analysis were more likely to change their attitudes and beliefs in a favorable direction but, subsequently, appeared less sure or confident of those attitudes and beliefs. The possibility, strongly suggested in the present study, that cognitive change is inversely related to subsequent measures of extremity, confidence, or strength following persuasive communications warrants additional research.

Potential limitations of the present study are similar to those associated with other exploratory studies and the need for more sophisticated attention in future research efforts. First, the results of the present study for either the breakpoints, cognitions, or both measures may be due to demand characteristics. The plausibility of demand characteristics causing the individuals to respond in some set manner is weakened, however, when one notes the consistency of the present results with previous studies, findings from other studies examining the motion between successive breakpoints as opposed to non-breakpoints, and similarities in memory for individuals provided with natural as compared to no unitization instructions in recognizing breakpoints and nonbreak points (for example, see Newton et al. 1977). For the measures of cognitions, it also seems unlikely that demand characteristics could account for the more positive actor and commercial related cognitions while not also impacting upon brand related cognitions. Nonetheless, additional studies may need to develop appropriate methodologies to examine the possibility of demand characteristics in spuriously producing the obtained results.

Second, one can always question the generalizability of the findings in a laboratory situation to more "real world" settings. Individuals in the present study knew they were involved in a study examining the "effectiveness" of various commercials. The possibility exists that some of the findings may have been due to the artificial situation imposed upon the participants.

Third, individuals in the present study were exposed to only a single presentation of each commercial. Given that most individuals had some previous exposure to the commercials, questions arise about the effects of multiple exposures and novelty of the commercials on visual information processing and subsequent cognitions.

Fourth, the present study did not examine the relationship between visual information processing and cognitive responses nor memorial factors (e.g., Edell & Staelin 1983). Studies are justified which examine the simultaneous information processing of television commercials, cognitive responses, and recall as well as recognition. Furthermore, the present study measured cognitions immediately following the viewing of the commercials. Future research should examine the persistence of some of the findings (e.g., attitude change) following differential processing as well as probe for new findings following the passage of time (e.g., changes in confidence).

Fifth, the present study examined commercials for relatively frequently bought products, some of which may not have been especially relevant for all of the participants. Other studies examining visual versus auditory (e.g., Bither & Wright 1973) or pictorial versus textual (Edell & Staelin 1983) have concentrated their efforts on less frequently purchased, higher ticket products (e.g., automobiles). Investigators may need to consider the degree of involvement of the observers for the advertised products.

In conclusion, echoing and elaborating upon the call by Jensen and Schroeder (1982), the ultimate veracity of the segmentation of ongoing action rests in the identification of related psychological processes (e.g., cognitions) and the resulting impact upon behavior. Furthermore, future research should be concerned with the identification of the conditions likely to induce the various levels of processing. For example, Newton (1973) and Wilder (1978a; 1978b) have shown that the predictability of the action affects the unitization rate. Marketing research efforts designed to identify the characteristics needed in television commercials to invoke fine or gross levels of visual information processing should prove to be valuable both from theoretical and applied perspectives.

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MEASURING EMOTIONAL RESPONSES TO ADVERTISING

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Abstract

Traditional measures of cognitive response, attitude toward the ad, and attitude toward the brand fail to include adequate emotional measures of consumer response. Emotional responses to ads can be assessed by coding verbal protocols for positive and negative affect. Also, the emotional component of attitude toward the ad (ATT_A) and toward the brand (ATT_B) can be measured through "emotional" attitude scales. The current study shows that emotional measures of cognitive response, ATT_A, and ATT_B are needed to evaluate the effects of emotional advertising.

Introduction

Until recently, consumer behavior researchers have relied on cognitive information processing models of consumer decision making and have neglected the emotional side of human behavior (Holbrook and Hirschman 1982, Rook and Levy 1983, Zajonc and Markus 1982). This "man-as-computer" perspective regards consumer behavior as a series of rational decisions through which the buyer processes attribute information to make a purchase decision from available alternatives (Holbrook 1984).

Although cognitively-based models have been useful in the prediction of consumer behavior, they have been unable to completely explain the processes underlying advertising effects. This may be due, in part, to the failure to include "emotional" variables in these models. If emotion is considered at all, it is usually operationalized as a simple affect measure that deals with only one emotional dimension (e.g. like-dislike). This perspective ignores the multidimensional nature of emotion (i.e., love, hate, anger or joy).

The purpose of this paper is to identify and to discuss the role of emotion in the sequence of steps that intervene between exposure to an advertising message and eventual purchase of a product. The study presented is an attempt to improve understanding of the measurement of emotional advertising effects.

Background

The Traditional Approach

The traditional model of consumer decision making has its roots in Plato's original distinction among cognition, affect and behavior (Holbrook 1984). This paradigm was first introduced in the marketing literature as the hierarchy-of-effects concept (Lavidge and Steiner 1961). This perspective, consisting of a causal flow from cognition (C) to affect (A) to behavior (B), dominated subsequent attitude research.

Recent research has suggested that the C-A-B sequence of decision stages may not always take place. For instance, Zajonc and Markus (1982) have conducted extensive research which concludes that affective judgements may be independent of, and precede in time, cognitive operations.

Changes in the traditional C-A-B approach are also based on evidence which suggests that a consumer's level of involvement in a particular advertising message may influence his or her processing strategy (Krugman 1965, Rothchild 1979, Vaughn 1980).

Petty, Cacioppo and Schumann (1983) have expanded the level of involvement approach through the development and testing of their "two routes" theory. Following this theory, Shimp (1981) has suggested that most ads use one of two possible

approaches that he terms "ATT_B" and "ATT_A." Under the ATT_B (attitude toward the brand) approach, purchase behavior is influenced by developing favorable consumer attitudes toward the advertised brand. This is accomplished by structuring ads to influence consumers' beliefs and evaluations regarding the favorable consequences of purchasing a particular brand. This approach is consistent with the high involvement/central route perspective (Petty, Cacioppo and Schumann 1983).

Under the ATT_A (attitude toward the ad) approach, a message is not directed at specific product attributes or benefits. Instead, the purpose of the advertisement is to create a favorable attitude toward the ad by leaving the viewer/listener/reader in a positive emotional state after processing the ad. The assumption underlying this concept is that consumers are hedonistically motivated by the desire to feel good. This approach is consistent with the low involvement/peripheral route perspective (Petty, Cacioppo and Schumann 1983).

The Attitude Toward the Ad Perspective

The ATT_A perspective described by Shimp (1981) has led to a recent emphasis in the marketing literature on studies involving attitude toward the ad (Holbrook 1978, Lutz, Mackenzie and Belch 1983, Mackenzie and Lutz 1983, Mitchell and Olson 1981). Typically, this construct is treated as an intervening variable that mediates the effects of the advertising message on brand attitudes and preferences (Edell and Burke 1984, Holbrook and O'Shaughnessy 1984). Further, ATT_A is believed to consist of two distinct components, one cognitive and the other emotional (Shimp 1981). The former dimension is determined by consumers' conscious response to the advertising execution. For instance, consumers may prefer certain ads due to a credible source or a convincing product demonstration. The latter dimension is composed of consumers' emotional responses to advertisements. These responses may include feelings of love, joy, patriotism and nostalgia.

Measurement of ATT_A

One of the most common methods used to measure consumers' reactions to advertisements is through verbal protocols. Although interest in ATT_A has increased, the cognitive response categories used to code verbal protocols have remained similar to those developed by Wright (1973). These categories include support arguments, counterarguments and source derogations. In recent years, researchers have added categories such as simple affirmations and disaffirmations (Berber 1975), neutral and irrelevant thoughts (Cacioppo and Petty 1979), and source bolstering and repetition related thoughts (Belch and Lutz 1982). Further, Lutz, Mackenzie and Belch (1983) divided responses according to whether they were evaluatively positive or negative.

Consumer responses also may include emotional reactions to the moods created by the ads. For example, Golden and Johnson (1983) have conducted research suggesting that factual and emotional ads produce differential communication responses. Therefore, the most appropriate coding scheme for cognitive responses should include categories that capture consumers' reactions to product information, ad execution style, and the emotions elicited by the ad.

Besides cognitive responses, bipolar scales have been used to measure ATT_A. For example, Mitchell and Olson (1981)

measured attitude toward the ad through four scales (good-bad; like-dislike; irritating-not irritating; and interesting-uninteresting). The mean of these four evaluative measures was interpreted as ATT_A .

Although this approach provides a good overall measure of ATT_A , it may not capture the multidimensional nature of this construct. Which, if any, of these scales measures emotional response? One investigation did attempt to estimate consumers' emotional reactions to ads with the scale "positive-negative" (Moore and Hutchinson 1983). It is doubtful that this one scale is capable of capturing the richness of possible emotional responses (i.e., happiness, sadness, love and joy).

In an attempt to break from this tradition, Gresham and Shimp (1985) used seven affective items to measure their emotional reactions. Although their results were somewhat disappointing, they did attempt to partition potential emotional reactions into soothing, warm-hearted, sorry, sad, affectionate, happy and elated categories. Therefore, consistent with the discussion involving cognitive responses, it is recommended that researchers using bipolar scales to measure ATT_A select scales that capture the emotional responses as well as the "utilitarian" response.

Measurement of ATT_B

Measures of ATT_B are even less likely to contain an emotional component. For example, Mitchell and Olson (1981) measure ATT_B through mean values on four five-point scales (e.g. good-bad and dislike very much-like very much).

The use of these procedures is somewhat peculiar given the widely discussed classical conditioning hypothesis. This position conjectures that ATT_A may directly influence ATT_B through classical conditioning (Edell and Burke 1984). Under this hypothesis, ATT_A 's direct effect on ATT_B occurs since emotional reactions elicited by the ad get transferred to the brand. Thus, the emotional element of the ad acts as the unconditioned stimulus and the brand becomes the conditioned stimulus, eventually generating the same affective response as the ad. Given this perspective, it is essential that measures of ATT_B include both cognitive and affective components that capture the full range of meanings of these variables.

Objectives

The current study is designed to determine whether affective measures that assess emotional responses to advertisements are needed to measure the impact of emotional advertising. In the case of advertising that is primarily factual, traditional cognitive response measures--support argument, counterargument, source bolstering and source derogation--should be sufficient to assess consumer responses to advertising. Emotional measures--positive affect and negative affect--are unlikely to assist in the measurement of factual ad effects. On the other hand, emotional measures of cognitive response are likely to be important in examining the impact of emotional ads.

In addition, traditional bipolar evaluative adjective scales--good-bad; like-dislike; irritating-not irritating; interesting-uninteresting--are unlikely to discriminate between the effects of factual and emotional ads. It is predicted that these ATT_A measures are inadequate to capture the impact of emotional ads. The "sensual" factor (Leavitt 1970) consisting of adjectives that capture the emotional mood of the television commercial (lovely, beautiful, gentle, serene, tender and sensitive) should be more effective in measuring emotional ad effects.

Finally, traditional ATT_B measures (e.g., good-bad and like-dislike) should be adequate for determining the impact of factual advertising. However, to discriminate between the effects of factual and emotional ads, affective ATT_B measures are needed. Bipolar adjective scales that measure consumer emotion (e.g., pleasant-unpleasant; sociable-unsociable; nice-awful) regarding individual brands are likely to be more effective than traditional measures when

emotional ads are being tested.

Method

The study was conducted at a private university in the eastern United States. Student subjects voluntarily participated in the experiment and received additional course credit for their participation. Subjects were randomly assigned to the two experimental treatments--exposure to emotional or factual advertising. Approximately 25 subjects participated in each of four experimental sessions. Overall, 48 and 51 subjects were in the emotional and factual advertising treatments, respectively.

Subjects were led to believe that the study was designed to examine the impact of television programming on their attitudes and beliefs. This guise was successful since all subjects stated that the program was the central focus of this investigation in response to a study-purpose question placed at the end of the study. All subjects watched three separate segments of a movie that had not yet appeared on network television. The movie was interrupted for three commercial breaks to simulate actual exposure to a television program.

All subjects were exposed to one television ad at each commercial break. Subjects viewed commercials for a bank, telephone service and a camera. Commercials were matched so that emotional and factual versions were the same length (either 30- or 60-seconds). The ads for the telephone service and camera were for the same brands while the bank ads contained different organizations. However, the use of different firms in the bank ads was not expected to impact on the results since both banks were unknown to subjects. A panel of judges familiar with advertising campaigns un-announcedly concluded that the advertisements used were either predominantly factual or emotional in execution.

After viewing the advertisement during the commercial break, subjects were asked to generate verbal response protocols by providing any and all response to the ad they had just seen. They were given four minutes to complete this task. After the television program was concluded (including commercials), respondents were asked to provide written protocols in response to the television program they had just seen (distractor task).

Written protocols were coded independently by two judges who were given operational definitions of the response categories and were trained in the application of the definitions. In cases where there was no agreement between the judges (approximately 10% of all responses), the researchers served to make the coding decisions.

The cognitive response categories were support argument, counterargument and source derogation (Wright 1973). In addition, a source bolstering category was also used to provide the positive counterpart of source derogation (Belch 1981). Two other cognitive response categories--positive and negative affect--were used in order to capture respondents' emotional responses to the messages (Batra 1984). One example of a positive affect response is "I felt good when I saw this ad". On the other hand, a negative affect response might be "This ad made me angry". A series of 45 adjectives were taken from Leavitt's (1970) factor analytic study that identified eight factors--amusing, authoritative, dislike, energetic, familiar, novel, personal relevance and sensual--to rate television commercials. Each factor consisted of six adjectives having the highest loadings on that factor with the exception of the "familiar" factor that contained only three adjectives. Respondents were asked to judge on a five point-scale whether each of the adjectives described the commercial "extremely well" (5) to "not very well at all" (1). Scores for adjectives were summed to develop eight ad rating variables (factors).

Following the advertising ratings for a given commercial, respondents were asked to provide their overall evaluation

(ATT_A) of the advertisements on four bipolar adjective scales (good-bad ; like-dislike; irritating-not irritating; interesting-uninteresting). These are the four attitude scales commonly used to measure ATT_A (Gardner 1983; Mitchell and Olson 1977). Scores on the four attitude scales were summed to develop a single overall ad evaluation measure.

After the three commercials were shown and were evaluated, respondents were asked to provide their attitudes toward specific brands of cameras, telephone services and banks. ATT_A measures were taken on four sets of bipolar adjective scales--overall evaluation (good-bad; like-dislike; positive-negative); emotional (pleasant-umpleasant; sociable-unsociable; nice-awful); savory (sensitive-insensitive; interesting-boring; tasteful-tasteless); authoritative (useful-useless; important-unimportant; intelligent-unintelligent). These attitude scales were taken from analytic work of Osgood, Tannenbaum & Suci (1957) and Batra (1984).

Results

Cognitive Response Measures

The data in Table 1 indicate that arguments advanced, message factors and affect measures were important variables in discriminating between the effects of emotional and factual commercials. For the bank advertisements, there were few support or counterarguments for either the emotional or factual advertisements. However, the factual ad generated significantly more source bolstering statements, on the average, than did the emotional ad (2.04 vs. .92). The factual ad used animation and apparently this technique was liked by respondents. The emotional bank ad generated more positive affect responses than did the factual ad (.54 vs. .02).

TABLE 1
COGNITIVE RESPONSE MEASURES
EMOTIONAL VS. FACTUAL ADVERTISEMENTS

	Mean Scores		t-value
	Emotional Ad	Factual Ad	
<u>Bank Ads</u>			
Support Arguments	.23	.22	.89
Counter Arguments	.02	.06	.34
Source Bolstering	.92	2.04	-3.17 ^b
Source Derogations	.60	.82	-1.17
Positive Affect	.54	.02	3.28 ^c
Negative Affect	.04	.04	.06
<u>Telephone Ads</u>			
Support Arguments	.29	.63	-2.24 ^a
Counter Arguments	.04	.27	-2.68 ^b
Source Bolstering	1.23	.67	-2.36 ^a
Source Derogations	.15	.96	-3.71 ^c
Positive Affect	.90	.00	4.95 ^c
Negative Affect	.08	.08	.94
<u>Camera Ads</u>			
Support Arguments	.33	.42	-.59
Counter Arguments	.02	.51	-3.15 ^b
Source Bolstering	.71	1.49	-2.58 ^a
Source Derogations	.71	.78	.75
Positive Affect	.40	.00	3.57 ^c
Negative Affect	.33	.02	2.50 ^b

^a p < .05

^b p < .01

^c p < .001

In the case of the two telephone ads, the factual ad produced more support arguments, on the average, than the emotional ad (.63 vs. .29). The mean number of counterarguments generated for the factual ad was also higher than for the emotional ad (.27 vs. .04). On the other hand, the mean number of source bolstering responses was higher for the

emotional ad (1.23 vs. .67), but the mean number of source derogations was higher for the factual ad (.96 vs. .15). The emotional telephone ad generated significantly more positive affect responses than the factual ad (.90 vs. .00). Neither message produced any significant volume of negative affect statements.

Finally, the factual camera commercial produced significantly more counterarguments, on the average, than did the emotional commercial (.51 vs. .02). The factual ad also generated significantly more source bolstering responses than did the emotional camera ad (1.49 vs. .71). The mean number of positive and negative affect responses generated was greater for the emotional ad than for the factual ad (.40 vs. .00; .33 vs. .02).

These findings suggest that when there are differences in the number of support arguments or counterarguments generated that factual ads will produce a higher number of these responses than will emotional ads. For the telephone ads, the factual ad resulted in significantly more support and counterarguments than the emotional ad. This finding was also observed for the camera ads; the mean number of counterarguments was higher for the factual ad than for the emotional ad. In no case did emotional ads produce a higher level of support or counterarguments than did the factual ads.

As expected, there was no consistent pattern of differences in source bolstering or source derogation responses produced by emotional and factual commercials. In one case (telephone ad), the emotional ad produced more source bolstering responses; in three cases, the factual ads produced more source bolstering or source derogation responses. The particular execution used is likely to be responsible for source related responses. There is no inherent liking or disliking of emotional or factual executions.

When there were differences in the number of affective responses generated, emotional ads always produced higher mean levels than did factual ads. For all three advertising treatments, there were more positive affect statements when the emotional ad was aired in contrast to when the factual ad was aired. In one case (camera ad), the emotional ad also resulted in a greater number of negative affect responses.

Table 2 shows the relative contribution of message arguments (support arguments-counterarguments), source statements (source bolsterings-source derogations) and affective responses (positive affect-negative affect) in predicting consumers' overall ad evaluations. For these three cognitive response measures, the number of negative responses was subtracted from the number of positive responses for each individual. The four ad evaluation scales (good--bad; like--dislike; irritating--not irritating; interesting-uninteresting) were summed up to produce an overall ad evaluation measure. Stepwise multiple regression analysis was employed by "forcing" the three independent variables in the following order: (1) message arguments (SA-SD); (2) source statements (SB-SD); and (3) affective response (PA-NA).

The stepwise multiple regression analysis indicates that affective responses (PA-NA) did not produce any significant amount of incremental explained variance for the three factual ads. In each case, the message arguments and source statements accounted for all of the variance explained in the overall ad evaluation measure used in the factual ads. For the emotional ads, however, affective responses accounted for a significant amount of incremental explained variation in ad evaluation for both the bank and telephone commercials. In both of these conditions, affective measures (PA-NA) had more explanatory power (highest simple correlation coefficients) than either the message argument or source statement variables.

Advertising Ratings

The data reveal that the overall evaluation measures (good--bad; like-dislike; irritating--not irritating; interesting-uninteresting) used in most ATT_A research did not distinguish

between the impact of emotional and factual ads. Statistically significant differences between emotional and factual ads. Statistically significant differences between emotional and factual ads were observed in only one case (telephones).

TABLE 2
MULTIPLE REGRESSION
AD EVALUATIONS WITH COGNITIVE RESPONSE MEASURES

	Emotional Ad		Factual Ad	
	Cummulative Multiple R	Simple R	Cummulative Multiple R	Simple R
<u>Bank Ad</u>				
SA-CA	.17	.17	.20	.20
SB-SD	.25	.18	.45	.43
PA-NA	.34	.23	.45	-.06
<u>Telephone Ad</u>				
SA-CA	.05	-.05	.36	.36
SB-SD	.25	.25	.39	.26
PA-NA	.39	.27	.39	.00
<u>Camera Ad</u>				
SA-CA	.30	.30	.26	.26
SB-SD	.58	.53	.59	.59
PA-NA	.59	.15	.61	-.13

The set of eight factors developed by Leavitt (1970) and Wells, Leavitt and McConville (1971) appear to better discriminate between the effects of emotional and factual ads than do the traditional evaluative measures. Three factors related to ad execution--the "energetic" factor (lively, exhilarated, vigorous, enthusiastic, energetic and excited), the "amusing" factor (merry, jolly, playful, joyful, amusing and humorous), and the "novel" factor (original, unique, imaginative, novel, ingenious, and creative)--vary significantly across emotional and factual ad treatments. In the case of the banks and cameras, the factual commercials received higher scores (more descriptive) on these three factors; for the telephone ad the emotional ad received a higher score on the three execution factors.

As hypothesized, respondents rated the emotional ads as being higher on the sensual factor (lovely, beautiful, gentle, serene, tender and sensitive). For each of the three commercials, statistically significant differences were observed for the sensual factor (Table 3).

TABLE 3
ADVERTISING RATINGS
EMOTIONAL VS. COGNITIVE ADVERTISEMENTS

	Bank		Telephone		Camera	
	Emot.	Fact.	Emot.	Fact.	Emot.	Fact.
Overall Evaluations	9.79	11.00	6.83 ^c	13.31 ^c	11.06	13.24
Energetic	15.42 ^c	18.90 ^c	21.02 ^c	13.96 ^c	14.73 ^c	20.22 ^c
Amusing	12.29 ^c	17.65 ^c	20.88 ^c	8.86 ^c	14.54 ^c	18.25 ^c
Personal Relevance	17.78	18.08	20.00	18.27	18.46	17.08
Authoritative	21.98	20.59	17.52 ^c	24.57 ^c	17.50 ^a	19.20 ^a
Sensual	19.79 ^c	13.41 ^c	20.98 ^c	10.29 ^c	23.84 ^c	13.33 ^c
Familiar	7.17	7.88	12.38 ^c	9.00 ^c	11.31	10.08
Novel	17.56 ^b	20.08 ^b	20.04 ^c	15.80 ^c	17.65 ^b	20.06 ^b
Dislike	10.44	11.31	8.48 ^c	10.80 ^c	11.08 ^b	14.11 ^b

^a p <.05 ^b p <.01 ^c p <.001

Brand Ratings

The data in Table 4 indicate that respondents tended to express a more positive attitude toward the brand under the emotional ad conditions as compared with the factual ad

conditions (lower numbers in the table are more positive). These differences were particularly strong in the case of the factors that were hypothesized to distinguish between emotional and factual ads. In the case of the "savory" factor (sensitive-insensitive, interesting-boring, and tasteful-tasteless) and the "emotional" factor (pleasant-unpleasant, sociable-unsociable, and nice-awful), there were significant differences between factual and emotional treatments across all three commercials.

The overall brand evaluation factor (ATT_B) (good-bad, like-dislike, and positive-negative), which has been used in most studies employing an ATT_B measure, was slightly less useful; it discriminated between emotional and factual treatments for only two of three ads. The "utilitarian" factor (useful-useless, important-unimportant, and intelligent-unintelligent) was significant in the case of the telephone ad only.

Therefore, affective brand evaluation measures appear to be slightly more sensitive in discriminating between the effects of emotional and factual ads than are traditional evaluation measures.

TABLE 4
BRAND RATINGS
EMOTIONAL VS. COGNITIVE ADVERTISEMENTS

	Mean Scores		t-value
	Emotional Ad	Factual Ad	
<u>Bank Ad</u>			
Overall Evaluation	7.02	8.37	-1.84
Savory	8.00	9.33	-2.11 ^a
Emotional	6.75	8.27	-2.38 ^a
Utilitarian	8.71	8.43	.66
<u>Telephone Ad</u>			
Overall Evaluation	6.54	9.57	-3.23 ^b
Savory	6.71	10.14	-4.65 ^c
Emotional	6.21	8.43	-3.07 ^b
Utilitarian	7.35	7.63	-.46

^a p <.05 ^b p <.01 ^c p <.001

Discussion

This paper takes the position that "traditional" approaches to measuring three key dependent variables in advertising research--cognitive responses, ATT_A and ATT_B--are inadequate for assessing the impact of emotional advertising. Zielske (1982) previously reported that traditional day-after-recall measures "penalize" emotional ads since consumers are unlikely to play back specific ad elements in "feeling" ads. He recommends, therefore, that advertising researchers use recognition techniques, which are better able to detect the impact of emotional ads.

The current research extends Zielske's view to three other dependent variables used in advertising studies. Following the theoretical work of Batra (1984), affective cognitive responses were coded in addition to the traditional cognitive response categories--support arguments, counterarguments, source bolstering and derogations. The affective responses were useful in assessing the impact of emotional advertisements. Future researchers should consider using coding schemes that incorporate affective cognitive responses, as well as the traditional cognitive response measures.

This study also suggests that traditional ATT_A measures are inadequate for measuring the impact of emotional ads. The ad rating factors developed by Leavitt and Wells were more effective than the traditional evaluative measures for measuring the emotional ad effects. The "sensual" factor (lovely, beautiful, gentle, serene, tender and sensitive) appears to offer the most promise in future studies involving

emotional advertising. Other ATTA measures specifically focused on the affective component might be developed in subsequent research studies.

Finally, several previous researchers (Bagozzi 1982; Batra 1984; Burnkrant and Page, 1982) have attempted to isolate cognitive and affective components of brand attitudes. These efforts have met with only limited success. Generally, a positive "halo" effect has been found to operate. Respondents do not discriminate between cognitive and affective measures; their responses are strongly influenced by their overall attitude toward the brand. The current study found some differences between cognitive and affective components. However, even though the "savory" and "emotional" factors distinguished between emotional and factual ad effects, the overall evaluation measures "worked" reasonably well also. Therefore, additional research is needed to develop affective brand attitude measures.

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A DEVELOPMENTAL STUDY OF FAMILY FINANCIAL MANAGEMENT PRACTICES

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Abstract

Family financial management and control practices have received little attention. Yet they are increasingly important, due to changes in the financial environment such as deregulation of the banking industry and the increasing number of dual income families. This paper reports on a pilot study relating demographic variables, measures of sex role, and locus of control to five variables thought to be indicators of the family's financial management and control tendencies. An overall financial management scale is constructed and its relationship to the independent variables is discussed.

Introduction

Although seldom explicitly acknowledged in consumer research studies, normative assumptions about consumers' pre-purchase behaviors are strongly emphasized in the consumer economics and family management literatures (Deacon and Firebaugh 1975; Maynes 1976). Writers in these disciplines tend not to conduct empirical studies of how consumers actually do behave. However, research in marketing has provided data on numerous measures of what one researcher has labeled "good consumership" (Hill 1963). Reviews of these studies document wide variability in pre-purchase behavior, and various interpretations and tentative profiles of "good consumers" have been offered (Granbois 1977; Granbois and Braden 1976; McNeil 1974; Newman 1977; Olshavsky and Granbois 1979).

A second normative theme in family management and consumer economics -- that consumers "should" devise and utilize appropriate financial planning and control procedures regarding spending and saving -- has not been subjected to much empirical testing (Beutler and Sahlberg 1980; Ferber 1973). Ferber (1973) reports few studies and fewer generalizations about how families handle financial tasks and decisions regarding budgets, bill payment, or saving.

The underlying rationale for prescribing specific financial practices seems to be that families engaging in such practices are expected to be more effective in achieving goals and in getting the greatest possible utility from their income. One writer refers to these behaviors as "... family competences which differentiate families who make the most of their resources in getting where they wish to go from families who lag in this respect" (Hill 1963, p. 425). A clear statement of the predicted link between financial management and goal achievement is provided by Deacon and Firebaugh (1975), who note:

The expected outcome of financial management is to meet demands (whether long-term goals, short-term goals, or events) by effective use of the resources available to each managerial unit. A major output is the achieved level of living and the related sense of fulfillment of goals. (p. 287)

Recent changes in the financial environment make this process more important. Consumers today are faced with many more savings options as the line blurs between savings and investments. Taking advantage of these options generally requires better management than was true for the traditional passbook savings account because restrictions or penalties may be applied to deposits and withdrawals. The dual incomes of many families may also require better financial management to take advantage of increased opportunities. Differences among families in the extent and pattern of financial planning and control

practices may be useful for defining segments that will respond differently to financial institutions' strategies.

An ultimate theoretical justification for the empirical study of consumers' financial management practices appears to be the need to verify that "good managers" will make more effective use of resources in meeting goals. Presumably, both objective measures of level of living, household net worth, etc. and subjective measures of perceived achievement and satisfaction should be affected by consumers' financial management practices. Before such predictions can be tested, though, it is necessary to identify the nature of consumers' financial management practices, devise measures for determining performance, and determine characteristics and situations associated with their use.

This paper reports on an exploratory study of five aspects of the financial management practices reported by married couples. The topics were suggested by a literature review and by our earlier developmental research involving unstructured depth interviews with married couples. Our findings on husband-wife role structures with respect to these financial management behaviors have been reported elsewhere (Rosen and Granbois 1983). Our emphasis here is on the extent to which our pilot study respondents used the management practices investigated, the testing of tentative hypotheses about family characteristics that may predict which families use the practices, and the development of a composite scale measuring financial management behavior with the family.

Development of Variables and Hypotheses

Financial Management Variables

Ferber (1973) divides the domain of family economic decision making into four segments: money management, saving behavior, asset management, and spending behavior. We confined our discussion of family financial management to money management and saving behavior because asset management is complex and specialized and perhaps best studied by experts in consumer finance and investments.

Five primary measures of family financial management were suggested by our literature review and developmental depth interviews:

Budget: whether a budget is determined at the beginning of a spending period;

Savings Policy: whether savings are added to on a regular (periodic) basis;

Surplus Funds Policy: whether pre-planning occurs for funds left over after the payment of bills and other obligations;

Special Accounts: whether special savings accounts are used to facilitate saving for specific purposes;

Credit Transactions Analysis: whether credit card transactions are sorted to study spending patterns.

Using each of these strategies would be consistent with a normative view of how family financial affairs might "best" be handled. However, we did not expect all five behaviors to appear with equal frequency across families. We did suspect that the five varied in importance in contributing to effective family financial control, and

they were hypothesized to be ranked in importance in the order listed above.

Budgeting was viewed as most important because it includes all aspects of using household funds. While budgets tend to be prepared for each pay period, regular budget preparation has implications for long-run control of spending and saving. Thus, both short-run and long-run consequences of budgeting may be realized. Regular saving is similarly both a short-run and long-run practice, but covers disposition of only that part of the household income that is not spent. Planning for surplus funds and use of special accounts are both subsidiary practices facilitating the larger savings function. Finally, credit card sorting was visualized as an occasional aid used to track expenditures. It was thought that credit transaction sorting could occur in the absence of budgeting. Also, it was felt that planning for the use of surplus funds and having special accounts did not necessarily imply regular saving. Each of the five behaviors was therefore considered to be a possible independent component of a larger syndrome of planning and controlling the disposition of the family's income.

Independent Variables

As measures of independent variables we included several dimensions suggested in the literature on family decision making. Recent researchers and commentators on contemporary families have suggested wife's working status and motives for work, life cycle stage, and husbands' and wives' sex-role attitudes as potentially important variables for explaining differences among families. (See Rosen and Granbois 1983 for a brief review.) Since control is a central element in budgeting behavior, a personality variable, locus of control, (Rotter 1966) appeared to be especially likely to be related to family financial management. Individuals classified as "internals" on the locus-of-control variable tend to believe they are more in control of events that affect their lives while "externals" tend to believe that such events are not in their control.

Demographic variables, including education of both husband and wife, number of years married, and household income have been found in earlier studies to have some relationship to family financial management, although the exact nature of these relationships has not been clearly established (Ferber 1973). In a recent study of the extent to which families engage in three activities specified by a formal financial management system model (recording expenditures, reviewing and evaluating expenditures, and making formal spending plans), formal planning was negatively related to age of household head and life cycle stage and positively associated with number of children and education of household head (Beutler and Sahlberg 1980). We could find no support in the literature for directional hypotheses relating sex-role attitudes or wife's work status and motives to the performance of the five measures of family financial management behavior.

In summary, based on past research and judgment we expected that the five financial management behaviors would be more likely to occur among the more highly educated, those with an internal locus of control, families in the middle life cycle stages, and those with higher incomes. We also explored the relationship of sex-role attitudes and wife's work status and motives to our defined family financial management activities.

Method

The city directory in a Midwestern university community identified 82 couples balanced as equally as possible between families with working and nonworking wives and upper and lower income families. (See Rosen and Granbois 1983 for details and rationale.) Usable data were obtained from 76 couples. The interviewer read questions dealing with each of the five behaviors; husband and wife responded jointly. Each respondent separately completed Rotter's (1966) Locus of Control Scale and the Osmond and

Martin (1975) Sex-Role Attitude Scale.

Respondents were found to be uniformly distributed across life cycle stages and across income groups, and were almost equally divided on wife's working status. As is often true in college towns, both husbands and wives were more likely to have graduated from college or to have earned an advanced degree than would be the case in other research settings. This heavy emphasis toward better-educated respondents may have tended to overstate somewhat the incidence of financial management practices, although our analysis revealed virtually no evidence of a relationship between level of education and use of these practices.

Sex-role attitude responses for the total sample showed husbands to be significantly more traditional than wives (means of 74.2 and 69.4, respectively; $t = 2.82$, $df = 69$, $p < .01$), and husbands' and wives' scores to be moderately correlated ($R = .63$). Wives showed a significantly more external locus of control than their husbands (means of 9.21 and 7.34, respectively; $t = 3.40$, $df = 69$, $p = .001$); locus of control scores were only modestly correlated within families ($R = .32$).

Results

Individual Financial Management Behaviors

As we expected, the five financial management practices studied were not employed with equal frequency by our respondents. The rank of frequency of use differed slightly from our predicted rank of importance, as shown in Table 1.

TABLE 1
INCIDENCE OF FIVE FINANCIAL
MANAGEMENT PRACTICES FOR 76 FAMILIES

Practice	Percent Using
Preparing a budget (written or not written)	64.5
Saving regularly	73.7
Planning for surplus funds	34.2
Using special accounts	38.2
Sorting credit card transactions	31.8 ^a

^aCalculated for those using credit cards (66 couples).

A higher proportion of our respondents reported regular savings patterns than has been found in earlier research, which reports a range of 15 to 40 percent (Olander and Seipel 1970). We have no comparable data from earlier studies against which we can compare the level of incidence we found for the remaining four measures.

Intercorrelations among the five measures were very low, as shown in Table 2.

TABLE 2
INTERCORRELATIONS AMONG FIVE
FINANCIAL MANAGEMENT PRACTICES

	Budgeting	Saving Regularly	Planning Surplus Funds	Using Special Accounts
Saving Regularly	-.00			
Planning Surplus Funds	-.21	.18		
Using Special Accounts	.19	.04	-.11	
Sorting Credit Transactions	.09	-.04	.10	.16

The modest negative correlation between formal budgeting and planning for surplus funds suggests a reasonable pattern. Those who do not use overall budgets nonetheless have prior planning procedures for the part of their income left over after paying bills and obligations; those who plan and budget may find planning for "left overs" unnecessary if an adequate budgeting procedure is devised to start with.

We found little evidence that the independent variables included in our study can help predict the incidence of our five financial management practices; one variable appeared to have an effect opposite to that hypothesized. The results of our chi-square analysis of categorical independent variables and t-test analysis of continuous variables can be summarized as follows:

- (1) Family life cycle stage was significantly related to the reported use of a written or unwritten budget ($X^2 = 12.19$, $df = 5$, $p < .05$). Those in the earlier stages of the family life cycle made greater use of budgeting.
- (2) Income was weakly related to the use of written or unwritten budgets with greater use occurring at lower income levels ($X^2 = 6.16$, $df = 3$, $p = .10$).
- (3) Conflicting results were obtained for locus of control. Wives in families that budget were more external than those in families that did not budget ($t = 2.31$, $df = 44$, $p < .05$). However, husbands' in families employing special accounts were significantly more internal than were husbands in families that did not employ special accounts ($t = 2.28$, $df = 60$, $p < .05$).
- (4) Wife's sex role was weakly related to planning for surplus funds with planners more traditional than nonplanners ($t = 1.77$, $df = 43$, $p < .10$). Husbands' sex-role attitude was not related to any of the practices.
- (5) Neither wife's working status nor the motivation of working wives appeared to be related to any of the five financial practices.

Composite Scale Development and Relationship to Independent Variables

We felt justified in assuming that each of the five financial management practices contributed positively to the family's overall financial management behavior. However, since each of the individual families reported different subsets of the five practices, any effort to assess the relative financial management behavior of individual families required that a scale value be associated with each item. Scale values also could be used to confirm the a priori judgment of importance ordering of the five practices that has been previously described. The scale values for each practice were obtained from an ad hoc panel of expert judges. Included were the author of a text on consumer management, professors teaching courses on personal finance and family studies, and others with special expertise in related subjects.

Conjoint analysis was used as an assessment tool. The judges were given a set of profiles of the financial management activities and asked to rank them in order of degree of financial management evident. The budgeting factor was offered at three levels -- no budget, unwritten budget, and written budget. The other four factors were specified at two levels each. This yields $3 \times 2^4 = 48$ combinations. An orthogonal array (Addelman 1962) of 25 combinations was used to reduce the set. Several of the combinations were duplicates, so a unique set of 20 profiles was finally developed. The 20 profiles were typed on 4" x 6" cards with the order of the financial management activities systematically varied across sets of cards (that is, each set of 20 cards used a single ordering of the factors, but this order was different for each judge.)

Eight judges evaluated the financial management profiles. The judges were simply asked to rank the profiles (ties permitted) according to the degree of family financial management indicated by each. The profile rankings submitted by the eight judges were analyzed at the group level using LINMAP (Shocker and Srinivasan 1973). The single set of part-worth values that was obtained is shown in Table 3. LINMAP converted the ranked data to 190 paired comparisons for the eight judges. One element in a pair is considered higher in management behavior if five or more judges ranked the element higher.

The overall fit of the derived conjoint data was indicated by a Kendall's Tau of .83. Of the 190 paired comparisons, 165 were strictly satisfied, 17 were neither violated nor satisfied (due to ties), and 8 were violated. Overall, these results indicated a good fit of the additive conjoint model to the expert judgments. The weights shown in Table 3 were used to assign a scale value on financial management to each respondent in the study. By determining which activities a family conducted, a suitable score was derived, with higher scores representing higher degrees of financial management behavior.

Also shown in Table 3 are the relative importance of the attributes in contributing to management behavior scores. This importance is a simple function of the range of weights on each attribute. The expert judges' ordering was consistent with our hypotheses.

TABLE 3

ATTRIBUTE WEIGHTS FROM CONJOINT ANALYSIS OF EXPERT JUDGMENTS FOR FAMILY FINANCIAL MANAGEMENT ACTIVITIES

Attribute	Level	Part-Worth ^a	Attribute Importance
Budgeting:	None	-46.7	.42
	Yes, not written	- 6.7	
	Yes, written	53.3	
Adding to Savings Regularly:	No	-30.0	.25
	Yes	+30.0	
Planning to Surplus Funds:	No	-20.0	.17
	Yes	+20.0	
Using Special Accounts:	No	-10.0	.08
	Yes	+10.0	
Sorting Credit Cards:	No	-10.0	.08
	Yes	+10.0	

^aFor families that did not use credit cards, weights for the first four activities were adjusted slightly, and a 0.00 weight was given for the last activity, thus enabling a comparable composite scale value.

The composite score for a family was the simple sum of the part-worth weighting it received for each of the five activities. The distribution of our respondent families' scores on the composite financial management scale is shown in Figure 1.

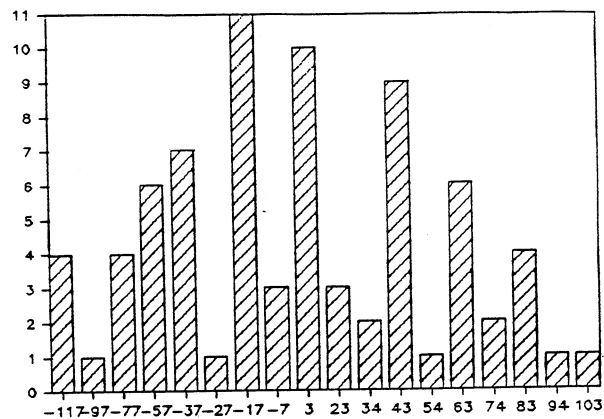
Relationships among the couple's composite management scale values and the independent variables were sought through multiple regression analysis. No association was found between the independent variables and composite scale scores.

Discussion

We were reasonably confident that our exploratory interviews and literature review had uncovered relevant and important measures of financial management practices for investigation, and our analysis of results seems to

FIGURE 1

DISTRIBUTION OF COMPOSITE SCALE SCORES



confirm this assessment. All five practices were used by a significant number of respondents, and we sensed no feelings on the part of respondents who did not use these practices that their use was inappropriate or unexpected. Not all practices were used with equal frequency, so the idea of forming a scale with importance weights assigned to each element seemed reasonable. Our expert judges found our measures to be realistic elements of family financial management and confirmed our a priori ranking of their relative importance. Inter-judge agreement was high and standard tests supported strong confidence in the importance weights devised from conjoint analysis.

The set of demographic variables and sex-role attitude measures used as independent variables were strongly suggested as important determinants of family behavior by other researchers and commentators on contemporary family structure and behavior. Finally, locus of control seemed to have strong intuitive relevance and had been found useful in scattered earlier consumer research and in decision-making studies in other disciplines.

Given the methods employed, the general lack of significant findings for the relationship between the independent variables and financial management behavior is surprising. Although our sample was small and was confined to a single small city, we selected respondents in a very carefully planned and controlled fashion so that our responding couples were distributed over age, income, family life cycle, and wife work status categories. Husbands' and wives' sex-role attitude and locus of control scores differed from each other in predicted ways, and average scores were well within ranges predicted by earlier administration of the instruments as reported by their developers (Osmond and Martin 1975; Rotter 1966). The only obvious flaw in the distributions of our respondents' characteristics was the over-representation of more highly educated persons.

The small size of our sample may have limited our ability to discover significant associations that might be revealed in a larger study. We plan to include these variables in a more extensive future study. Further, there may be additional family or individual respondent characteristics that determine whether our five practices are implemented. The lack of relevant theory hampers identification of these possible determinants, and we welcome other researchers' suggestions of variables for inclusion in our next study.

We find it interesting that the strongest relationships, though inconsistent, were found for locus of control. One finding was the opposite of that predicted with greater indications of the budgeting behavior when wives had a more external orientation. This finding may indicate that internals have confidence in their ability to control finances without the help of such devices as budgets and

special accounts. Externals may see such devices as ways of imposing controls, or protecting their financial status from otherwise uncontrollable external forces and influences. This view is contrary to our hypothesis concerning locus of control, but it is supported by Mueller (1966), who notes:

Budgeting is usually intended to insure that some money is available for major acquisitions or for savings. Various (unsuccessful) attempts to talk to people about their budgeting procedures have led us to the tentative conclusion that determination is a more effective control device than a plan or system developed on paper. Indeed it appears that people who resort to formal budgets may do so because their determination or self-control has not proven sufficient. (p. 33)

The significant findings for locus of control suggests that other personality variables may show a stronger relationship than standard demographics. Further research using personality and lifestyle measures may find that they prove to be more fruitful indicators of financial management behavior.

In addition to theoretical importance, an understanding of the variables most strongly related to family financial management practices should have applied relevance for financial institutions. Deregulation of the banking industry has led these institutions to provide an ever-increasing array of financial planning and management services in an effort to remain competitive in their new environment. Conventional wisdom suggests that demographic variables such as income and education should be related to the use of such financial management and savings options. However, to the extent that the five financial management practices we studied affect the family's interest in or ability to use such services, our findings suggest that conventional wisdom may be incorrect.

Future Research

This study represents a first step in a larger research effort. We hope to investigate appropriate measures of effective consumer performance and satisfaction, which may then be studied as possible outcomes or consequences of applying financial management practices in handling household spending and saving. Our experience with simple satisfaction scales administered for each aspect of respondents' financial practices has been that such scales fail to reveal much variability across respondents or across the various financial practices. Further developmental work in this area is clearly needed.

We intend to explore the possibility that income variability and frequency may be determinants of our budget and savings regularity variables. This follows the tentative suggestion by Deacon and Firebaugh (1975, p. 282 p. 282) that both budgeting and saving may be more important when household income is unstable and received less frequently. A simple measure of income stability included in the present study failed to reveal much variability across responding families, thus indicating the need for additional development of an adequate measure.

Finally, we intend to investigate role structure as a determinant of financial management and control behavior. The literature does not suggest hypotheses in this area, but it seems plausible that formal budgets and savings plans will be more likely if husband and wife tend to exhibit a syncretic (joint) decision-making style.

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AN ANALYSIS OF THE PRESENCE, STABILITY, AN ANTECEDENTS OF HUSBAND AND WIFE PURCHASE DECISION MAKING INFLUENCE ASSESSMENT AGREEMENT AND DISAGREEMENT

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Abstract

Noting the absence of empirical study of husband and wife over- and underestimation of purchase decision making influence assessments, the authors utilize Davis and Rigaux's (1974) and Burns' (1977) conceptualizations. Results confirm presence of a wide variety of disagreement as well as agreement groupings of couples who differ greatly from overall husbands and wives group averages. Some generalized tendencies for stability of agreement and disagreement predispositions across influence dimensions is apparent for one product (family automobile) and financial decisions across two products. Antecedent variable analyses imply differential sensitivity to resource theory with wives overestimating their influence when they make greater contributions and underestimating if they do not. Implications for future research and decision making dynamics are discussed.

Introduction

Researchers working with husbands and wives perceptions of their relative purchase decision making influence have long acknowledged that while influence assessments usually agree in the aggregate, there is often a lack of agreement on the individual couple level. Davis (1976), Burns and Granbois (1979), and Safillios-Rothschild (1969) all point out the need for research which clarifies the nature and reasons for these reporting discrepancies. Thus far, however, scant attention has been given to this problem, and empirical research is almost nonexistent.

In addition to the above authors' comments, some preliminary conceptual thinking has been devoted to the problem. For instance, Heer (1962) and Granbois and Willett (1970) have noted over- and underestimation occurrences. Davis and Rigaux (1974) noted "vanity" and "modesty" in matched spouses and alluded to the need for further research to identify, isolate, and study couples with these perceptual biases. A more detailed model of the comparison of husbands to wives influence assessments has been proposed by Burns (1977) who identified nine different types of outcomes possible in a comparison of husband to wife influence assessments. Both of these conceptualizations serve as frameworks for the research reported in this paper.

Objectives of this Study

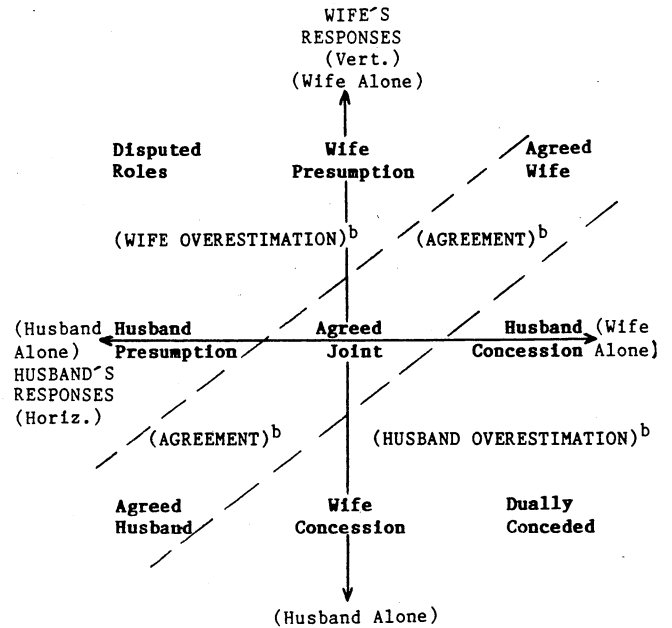
The primary purpose of this study was to investigate instances of spousal agreement and disagreement in purchase decision making influence assessments. In particular, the intent was to assess the efficacy of Burns' (1977) and Davis and Rigaux's (1974) notions as paradigms in identifying the presence and persistence of agreement and disagreement. Four specific research questions served as the objectives of the study.

1. Can groupings of couples be identified who are similar in agreement or disagreement yet dissimilar from others and the aggregate?
2. If so, do couples maintain stable agreement and disagreement dispositions across independent influence dimensions?
3. What, if any, are the antecedent variables associated with certain matched influence assessment predispositions?

The rationale for this study stems from corroborated findings in husband and wife influence assessment

FIGURE 1

AGREEMENT AND DISAGREEMENT REGIONS FROM MATCHED HUSBAND AND WIFE RESPONSES^a



^aAdapted from Burns (1977)

^bAdapted from Davis and Rigaux (1974)

research (Davis, 1976). Namely, purchase influence distribution between husbands and wives varies as a function of personal attributes, product-specificity, and type of decision. It seems reasonable to expect that disagreements may obey some regularities as well, and if determined empirically, future research will be better equipped to separate out or otherwise adjust for systematic perceptual differences.

The Davis and Rigaux (1974) and Burns (1977) models are not competing; they simply differ in detail. Davis and Rigaux suggest that three groups can be found: (1) those in agreement; (2) husbands overestimating relative to their wives; and (3) wives overestimating relative to their husbands. In contrast, the Burns model compares a husband's to his wife's assessments of decision making influence in a consensus-nonconsensus framework mapped onto a two-dimensional grid. In the instance of a three-point response scale ("husband," "joint," or "wife"), the comparison generates nine cells, each of which is assigned a descriptive label. Figure 1 relates both models applied to a 100% influence scaled-response measure. The dotted lines define Davis and Rigaux's agreement area and two disagreement areas. Also, it can be seen that Burns has identified the three different "regions" within each of Davis and Rigaux's areas. These two models constitute basic paradigms for this study.

Method: Sample and Instrument

Data was collected as part of a larger study using a convenience sample of 85 married couples living in Baton Rouge, Louisiana. Respondents were asked to take part in a study on how husbands and wives make purchase decisions. The study involved filling out a series of questionnaires at home with an administrator present to give the questionnaires and provide instructions. Husbands and wives were prevented from comparing answers in two ways: (1) questionnaire segments were administered randomly to each spouse, and (2) the administrator, ostensibly involved in administration paperwork, remained with respondents throughout the session.

Respondents were asked to estimate the amount of influence of each spouse, defined as "...the amount of persuasion..." on a 100-point constant sum scale. This scale was chosen as it has been claimed by Jenkins (1978) to be more reliable and valid than other scale types. The spouses were told to consider the purchase of two major durable products: (1) the family automobile and (2) family room furniture. These products were selected as they are customarily used in husband and wife purchase decision making influence studies (Burns and Granbois, 1979) and both are products in which over- and underestimates have been reported. For each product, several subdecisions were specified: (1) price to pay; (2) where to buy; (3) model/brand; (4) how to pay; (5) style; and (6) when to purchase. Each subdecision was separated into a search for information stage and a final decision stage as influence differences have been found across stages in the purchase decision (Davis and Rigaux, 1974). A final item pertaining to initial recognition and suggestion to replace the old product completed the set of thirteen response items for each product.

The sample exhibited a profile similar to those often reported in husband and wife purchase decision making studies: it was upscale in terms of education and income. Husbands and wives averaged 5 years and 4 years of schooling beyond high school, respectively. Forty percent of the husbands earned more than \$35,000 per year. Husbands were 40 years old, and wives were 38 years old, on the average. Marriage length averaged 15 years.

Analysis and Findings

Determination of Influence Dimensions

The raw data was comprised of 170 spouses' influence distribution responses to each of thirteen subdecision items for each of two products. For convenience, it was decided to analyze the influence attributed to the wife. (Since a constant sum scale was used, husband influence was the complement.) As it was highly probable that multicollinearity existed in the responses, a principal components factor analysis was applied for each product to determine the dimensionality of influence perceived by husbands and wives. The eigenvalue "equal to or greater than one" rule was used to determine the number of factors, and varimax rotation was applied to assist in interpretation. Both the automobile and furniture influence assessments yielded two factors which were quite similar. In particular, for each product one factor defined Financial considerations (price, how to pay, when to buy) and the other pertained to Nonfinancial considerations (where, brand/model, style, and suggesting the need to buy). Rotated factor loadings for items associated with each factor were .60 or higher. Cumulative variance explained was 79% and 82% for Family Room Furniture and Family Automobile, respectively.

Cronbach's alphas were computed to assess the internal consistency of the items loading on each factor, and these were determined to be as follows: Automobile Financial (.93); Automobile Nonfinancial, (.96); Furniture Financial, (.83); and Furniture Nonfinancial (.97). These values indicated that sufficient reliability of measurement had been attained to warrant further analysis. Next, Pearson product moment correlation coefficients were computed on the sum scores of the items for each factor to confirm that the dimensions were independent. The highest correlation was found to be .64 for husbands Financial to Nonfinancial Automobile sum scores and .61 for wives in the same pairing. All other correlations ranged from -.18 to .54, signifying little covariation was present across the four perceived influence dimensions.

Identification of Agreement and Disagreement Groupings

Comparison of the husbands group and wives group means corroborated previous findings of agreement in the aggregate. These means are presented as part of Table 1, signified as "TOTAL" for each Influence Dimension, where the greatest difference between the husbands group and the wives group means was 2.8% in the case of the Furniture Financial decision.

TABLE 1
CENTROIDS OF CLUSTER ANALYSIS RESULTS FOR INFLUENCE DIMENSIONS

PRODUCT/DIMENSION	CLUSTER NO.	SIZE	HUSBANDS' MEAN ^a	WIVES' MEAN ^a	DESCRIPTION ^b
Automobile/Nonfinancial					
	1	9	31.6 (2.1)	45.6 (3.1)	Husband Presumption
	2	9	35.3 (8.9)	15.4 (6.7)	Wife Concession
	3	16	44.6 (3.8)	42.2 (3.5)	Agreed Joint
	4	15	52.1 (4.6)	52.0 (3.4)	Agreed Joint
	5	18	37.9 (5.0)	30.8 (3.8)	Agreed Husband
	6	10	20.5 (6.5)	36.3 (6.4)	Wife Presumption
	7	7	9.1 (6.1)	11.0 (8.4)	Agreed Husband
	8	1	88.5 (N.A.)	50.0 (N.A.)	Husband Concession
TOTAL	85		36.9 (14.5)	35.9 (14.0)	AGREED HUSBAND
Furniture/Nonfinancial					
	1	20	65.9 (4.3)	55.0 (4.4)	Husband Concession
	2	10	53.6 (5.4)	49.0 (3.6)	Agreed Joint
	3	18	55.2 (5.3)	65.1 (5.4)	Wife Presumption
	4	10	70.9 (4.5)	68.7 (2.6)	Agreed Wife
	5	8	83.4 (4.5)	56.8 (6.2)	Husband Concession
	6	5	65.9 (2.0)	82.9 (5.8)	Wife Presumption
	7	11	87.3 (6.4)	85.8 (6.1)	Agreed Wife
	8	3	26.2 (4.4)	48.6 (17.9)	Husband Presumption
TOTAL	85		65.8 (14.6)	63.4 (13.2)	AGREED WIFE

Table 1 continued on next page

TABLE 1
CENTROIDS OF CLUSTER ANALYSIS RESULTS FOR INFLUENCE DIMENSIONS

Automobile/Financial				
1	16	41.9 (2.3)	37.0 (3.5)	Agreed Husband
2	25	46.4 (5.0)	49.2 (3.2)	Agreed Joint
3	14	27.9 (2.7)	42.9 (6.7)	Wife Presumption
4	6	33.5 (4.6)	23.3 (6.2)	Wife Concession
5	7	42.0 (4.1)	10.2 (4.2)	Wife Concession
6	7	55.4 (6.8)	37.1 (5.0)	Wife Concession
7	7	9.5 (5.6)	8.2 (7.2)	Agreed Husband
8	2	12.0 (2.8)	35.0 (4.2)	Husband Presumption
9	1	34.0 (N.A.)	82.0 (N.A.)	Disputed
TOTAL	85	38.0 (13.1)	36.3 (15.3)	AGREED HUSBAND
Furniture/Financial				
1	26	56.1 (3.4)	50.8 (4.1)	Agreed Joint
2	5	46.0 (3.7)	13.2 (6.1)	Wife Concession
3	19	47.2 (3.6)	52.1 (3.4)	Agreed Joint
4	12	47.1 (6.7)	40.0 (4.2)	Agreed Joint
5	10	70.1 (4.7)	57.4 (7.0)	Husband Presumption
6	3	60.0 (5.2)	87.3 (9.5)	Wife Presumption
7	6	49.0 (8.1)	66.7 (5.6)	Wife Presumption
8	3	22.7 (3.1)	32.3 (6.5)	Husband Presumption
9	1	100.0 (N.A.)	74.0 (N.A.)	Disputed
TOTAL	85	52.9 (11.6)	50.1 (14.6)	AGREED JOINT

^aStandard Deviations in Parentheses
^bBased on Burns (1977)

The next phase of the analysis was the application of cluster analysis to matched husbands-to-wife responses. Although not without its critics and problems, cluster analysis does reveal the presence of heterogeneous subgroups within a sample based on the ratio of within-group to between-group variance and seemed the most appropriate numerical taxonomy procedure available under the objectives of the research (Punj and Stewart, 1983). A technique with the potential to identify widely differing subgroups was especially desirable in light of Burns' model which presupposes several types of agreement and disagreement couples.

A separate cluster analysis was run for each of the four purchase influence dimensions. Ward's method was used, and the cubic clustering criterion (CCC) was graphed against cluster steps to determine the final number of clusters (SAS Institute, 1982, p. 420). Inspection revealed that the CCC peaked at 8 clusters for Nonfinancial decisions for both products and at 9 clusters for Financial decisions in both instances. Figure 2 presents graphs of the cluster centroid locations while Table 1 compares their descriptive statistics. Table 1 also contains designations of the Burns' model regions they occupy. Unfortunately, neither Davis and Rigaux (1974) nor Burns (1977) indicated a relevant criterion to judge the separation of agreement and disagreement, so we adopted the rule that any difference between husbands' and wives' cluster centroid means of 10% or greater constituted disagreement. In addition, it was necessary to define range limits for agreed wife-, joint-, and husband-influence regions. We decided on limits of 61%-100%; 40%-60%; and 0%-39%, respectively.

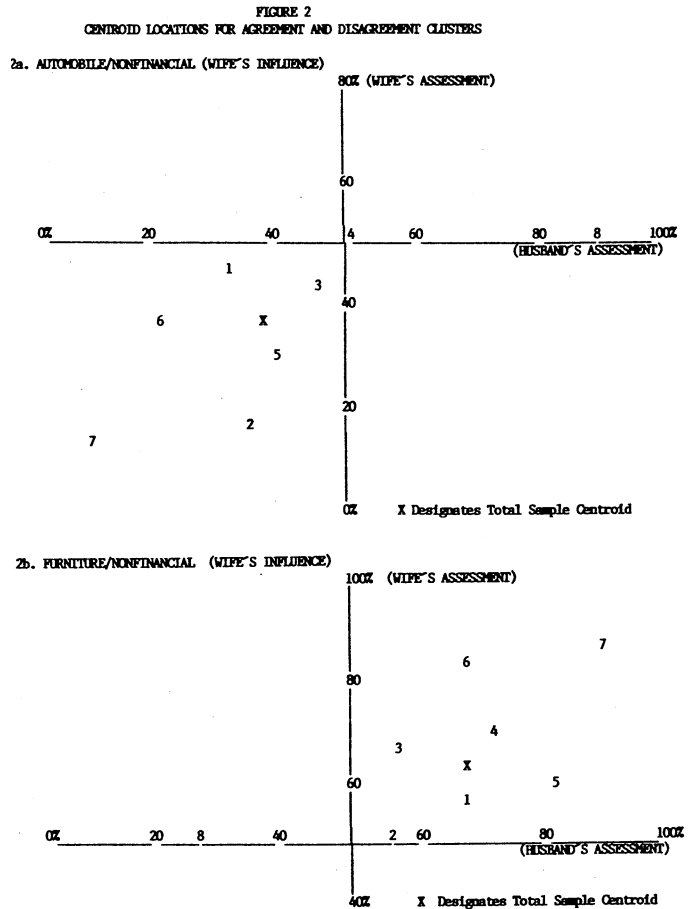


FIGURE 2 (CONTINUED)

21. FURNITURE/FINANCIAL (WIFE'S INFLUENCE)

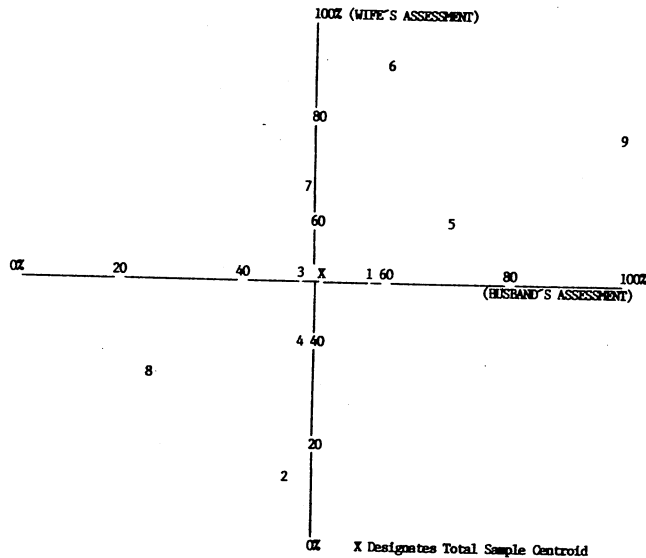


TABLE 2

CENTROIDS OF CLUSTER ANALYSIS RESULTS FOR INFLUENCE DIMENSIONS (4 GROUP SOLUTIONS)

PRODUCT/DIMENSION	CLUSTER NO.	SIZE	HUSBANDS' MEAN ^a	WIVES' MEAN ^a	DESCRIPTION ^b
Automobile/Nonfinancial					
	1	19	25.8 (7.5)	40.7 (6.9)	Husband Presumption
	2	27	37.0 (6.5)	25.6 (8.8)	Husband Concession
	3	32	49.5 (9.0)	47.3 (6.9)	Agreed Joint
	4	7	9.1 (6.1)	11.0 (8.4)	Agreed Husband
TOTAL	85	36.9 (14.5)	35.9 (14.0)		AGREED HUSBAND
Furniture/Nonfinancial					
	1	48	59.3 (7.5)	57.5 (7.8)	Agreed Joint
	2	23	74.1 (8.2)	67.7 (10.8)	Agreed Wife
	3	11	87.3 (6.4)	85.8 (6.1)	Agreed Wife
	4	3	26.2 (4.4)	48.6 (17.9)	Husband Presumption
TOTAL	85	65.8 (14.6)	63.4 (13.2)		AGREED WIFE
Automobile/Financial					
	1	49	46.0 (6.5)	44.1 (8.9)	Agreed Joint
	2	16	25.9 (6.0)	41.0 (6.7)	Husband Presumption
	3	13	38.1 (6.1)	16.3 (8.4)	Wife Concession
	4	7	9.5 (5.6)	8.2 (7.3)	Agreed Husband
TOTAL	85	38.0 (13.1)	36.3 (15.3)		AGREED HUSBAND
Furniture/Financial					
	1	45	52.4 (5.7)	51.4 (3.8)	Agreed Joint
	2	20	43.2 (10.4)	32.0 (12.3)	Husband Concession
	3	11	72.9 (10.1)	58.9 (8.3)	Husband Concession
	4	9	52.7 (8.8)	73.6 (12.2)	Wife Presumption
TOTAL	85	52.9 (11.6)	50.1 (14.6)		AGREED JOINT

^aStandard Deviations in Parentheses
^bBased on Burns (1977)

The figures and Table 1 reveal the great degree to which the aggregate-level means mask disagreement as well as other forms of agreement. For instance, in the case of Automobile Nonfinancial decision, determined as an Agreed Husband influence area in the aggregate, only 2 of the 8 cluster centroids fell into this region, while 2 were found in the Agreed Joint Region. In other words, only 29% of the sample fell into clusters consistent with the aggregate result designation. Presumption and Concession by both spouses were also apparent. A great variety of agreement and disagreement groups was evident across all four of the purchase influence agreement dimensions.

Investigation of the Stability of Agreement and Disagreement

These independent descriptive result comparisons were insufficient, however, as they did not address the stability of couples across cluster results. If couples exhibit stable dispositions, they should be in similar regions from influence dimension to influence dimension. If stability is not found, the phenomena of agreement and disagreement are either random variables or highly specific to the influence dimensions studied. Consequently, an attempt was made to determine the degree of stability of couples across influence dimensions.

Since cluster membership is a nominal variable, the Chi Square test for independence was appropriate. It became apparent at this point that the 8- and 9-cluster solutions could not be used due to the small sample size relative to the number of cells. Consequently, it was decided to use collapsed cluster analysis results in the forms of 4-cluster solutions to overcome the Chi Square cell-size problem. Table 2 reports these results and reveals that with the exception of Furniture Nonfinancial decisions, over- or underestimation disagreements were still prevalent.

Chi Square results determined significant associations between Automobile Nonfinancial and Financial decisions (Chi Square = 66.5; df = 9; prob. = .0001) and between Automobile Financial and Furniture Financial decisions (Chi Square = 19.2; df = 9; prob. = .02). Inspection of these two crosstabulation tables revealed that agreement, overestimation and underestimation was relatively stable except in the case of wife overestimation relative to the husband for Financial decisions. Approximately one-third of the couples remained in agreement that the decision would be jointly decided in both comparisons. Another five percent agreed on husband autonomy in both Automobile influence dimensions. Other subsets of couples exhibited stable disagreement predispositions across the Family Automobile purchase. Fourteen percent maintained a posture of wife overestimation while nine percent retained a husband overestimation disposition. Husband overestimation of the wife's influence also held for nine percent of the sample in the Financial decision area across both products. Although seemingly inconsequential percentages, when compared to the relatively small cluster sizes for disagreement couples, these value take on more significance.

Associations of Antecedent Variables

The final analysis undertaken addressed the question of antecedent variables which might assist in identifying and/or understanding agreement or disagreement between spouses' purchase influence assessments. Two reasons compelled this analysis. First, Punj and Stewart (1983) contend that a gauge of the usefulness of cluster analysis is the demonstration that the clusters are meaningfully related to variables other than those used to generate them.

The second reason stemmed from prior research which has relied on demographic, work status, and attitudinal variables as determinants of husband-wife role structure. Findings have supported the notion that wives tend to assume greater decision making influence as a function of greater resource contributions to the family. Also, more liberal sex role attitudes held by either spouse are often associated with more wife influence (Davis, 1976; Burns and Granbois, 1979).

Consequently, several demographic variables were selected with the expectations that agreed wife influence and wife overestimation relative to the husband would be positively associated with her work status, education, or liberal attitudes. In the latter case, the Brogan-Kutner sex role orientation scale (1976) was used. Cronbach alphas were found to be .71 for husbands and .67 for wives. Correlations between the several candidate variables revealed the highest to be .38 between years married and husband income level, revealing overall low multicollinearity.

Table 3 presents the results of significance tests performed using the 4-cluster groupings. Individual ANOVA's were performed rather than MANOVA's due to low correlations. Duncan's multiple range analysis was the post hoc test applied to the cases of significant ($p < .10$) computed F values. These are not presented to conserve space, but two patterns were clearly evident. First, corroboration of past findings of agreement occurred. That is, agreed joint decision making was associated with shorter marriages and more liberal wife sex role orientation attitudes for both spouses. Similarly, agreed decision making autonomy for either spouse was associated with longer marriages, higher income, and more traditional wife sex role orientations for both spouses.

The second pattern concerned spouses disagreeing on relative purchase decision making influence. Wife overestimation of her influence relative to the husband's assessment was associated with greater: (1) wife education level; (2) wife income; and (3) wife hours worked per week. Husband overestimation of the wife's influence relative to her assessment was associated with less: (1) wife income; (2) wife hours worked; and (3) husband education. Interestingly, with the single exception of husband education, the significant antecedent variables for disagreement were all wife attributes. They were also largely specific to the Furniture Financial dimension. The implication here is that both spouses credit amounts of decision making influence to the wife as a function of two factors: (1) the product under consideration, and (2) her personal characteristics which are related to her contributions to the family socioeconomic status. However, the wife is seemingly more sensitized to these factors than is the husband.

Discussion

This study sought to clarify the nature, stability, and antecedents of agreement, over- and underestimation of husband and wife purchase decision making influence assessments. A brief summary of the findings is in order here. As predicted by the conceptualizations of Davis and Rigaux (1974) and Burns (1977), a substantial proportion of the sample of husbands and wives did not agree.

TABLE 3
RESULTS OF SIGNIFICANCE TESTS FOR ANTECEDENT VARIABLES^a

VARIABLE	AUTOMOBILE		FURNITURE	
	NONFINAN.	FINAN.	NONFINAN.	FINAN.
Years Married	.27	1.55	2.21 ^b	.38
Husband Income	.54	2.22 ^b	1.87	.63
Wife Income	.82	.50	.89	2.34 ^b
Husband Education	.98	.39	1.70	2.46 ^b
Wife Education	.70	.95	2.78 ^b	1.06
Husband Workweek Length	.04	.12	.34	.72
Wife Workweek Length	.18	.06	.11	2.33 ^b
Husband Sexrole Orientation	3.39 ^b	5.44 ^b	1.07	.76
Wife Sexrole Orientation	1.07	2.18 ^b	.36	1.13

^aF-values from 4-group analysis of variance; all df=3
^bProbability $\leq .10$

Moreover, there was a great variety of disagreement and agreement groupings for any single influence assessment dimension. Within certain couples, there appeared to be a generalized tendency for spouses to maintain agreement, over- or underestimation postures across decisions for the family automobile purchase and to some extent for financial considerations across products. As noted in other studies, agreement was related to length of marriage and sex role attitudes. On the other hand, resource contributions appeared to figure into wives' overstatements of wife decision influence relative to their husbands. At the same time, a reverse effect could be seen operating for wives with less resource contributions, for they tended to understate their influence. These occurrences were concentrated in the financial decision of furniture purchase.

There are two sets of implications evident from the results which require brief discussion. The first is methodological, and the second is specific to husband and wife purchase decision making dynamics. In the first case, this study has demonstrated that a comprehensive paradigm such as the one suggested by Burns (1977) is a viable means of separating out agreeing as well as disagreeing couples. The relatively stable predispositions found make clear that perceptual differences are not random variables and must be explicitly taken into account in future husband and wife purchase decision making research. The paradigms used in this research can assist in separating out individual differences, and the antecedent variable associations suggest covariate relationships which should be considered.

The second set of implications concerns the impact of wife resources on the decision making process. Resource theory interpretation of husband and wife decision making implicitly assumes that spouses perceive these contributions equally. However, the findings of significant associations of wife resource characteristics with wife overestimation point to the conclusion that she views her contributions more extremely than does her husband. Assuming that resource theory underlies husband and wife decision making, the differences between spouses' sensitivities to the wife's contributions provide ample opportunity for spirited interaction over financial decisions for certain household durables. This interaction might be especially interesting to study in couples where the wife has recently entered the workforce, acquired more education, or received a pay increase. Subsequent research would be well advised to consider these perceptual differences in resource contributions as possible determinants of influence strategies, distributions, and outcomes.

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TELEVISION ADVERTISING AND INTERPERSONAL INFLUENCES ON
TEENAGERS' PARTICIPATION IN FAMILY CONSUMER DECISIONS

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Abstract

This paper presents the results of a study designed to test the effects of television advertising and interpersonal communications on the teenager's consumer behavior. Unlike previous studies, however, the effects of such communication processes on teens are evaluated in the context of household decision making. Specifically, the research examines the effects of television advertising, family and peer communications about consumption on the child's participation in household decision making.

Introduction

Previous research on the effects of communications has focused either on the youth's consumer behavior and socialization or on second-order consequences. The first type of research usually deals with the effects of interpersonal communication and advertising on the youth's consumption-related cognitions, attitudes, and behaviors (e.g., Adler 1977). The second deals with subsequent effects of these communications on others and their behaviors. For example, research has examined the effects of advertising on the child's product requests from parents and parental yielding as a result of these requests (Adler 1977; Henderson et al. 1980; Ward and Wackman 1972). Considerably less attention has been devoted to the examination of second-order consequences of commercial communications on family decision making. The limited research on the effects of second-order consequences of commercial communications focuses on the outcomes of parental denial (e.g., parent-child conflict, child's disappointment) rather than on family decision-making processes.

Although critics charge advertising with creating "selling agents" within the home by persuading the child to request products s/he sees advertised, little evidence exists to support the contention that such second-order influence extends to household consumer decisions. Studies of household decision making are usually confined to spousal influence (e.g., Kollat and Blackwell 1983). Although some studies have investigated the influence of children in household decisions (e.g., Szybillo et al. 1977), such influence has not been investigated as a second-order consequence of the child's exposure to persuasive communications and other influences outside the home. Studies of advertising effects on the child's requests and parental yielding, on the other hand, are mostly confined to products consumed by the child rather than products consumed by the entire family (e.g., Henderson et al. 1980; Ward and Wackman 1972).

Conceptual Framework

Research on the effects of communications on the consumer behavior of the youth has been based primarily on conceptual and theoretical models of socialization. For example, communication researchers have examined the effects of cognitive development of the child's evaluation of advertising messages (Adler 1977). Similarly, consumer behavior researchers have investigated the effects of mass media interpersonal communications on the development of consumer behaviors (e.g., Moschis and Moore 1982; Ward and Wackman 1971).

When consumer behavior of the youth is approached from a socialization perspective, the emphasis is placed upon sources of consumer information--often known as

"socialization agents"--influencing the development of the individual's values, norms, and behaviors. Such development or learning often occurs in various social settings defined by the person's socio-demographic environment.

Although the outcomes of socialization may include changes in or the development of values, attitudes, and behaviors, several aspects of such learning have consequences on the youth's family (Riesman and Roseborough 1955). Specifically, results of learning effects from socialization agents on the youth's family may be in the form of product requests, information seeking, or even influence and eventual modification of parental behaviors. In the context of household decision making, the influence of children may conceivably be at the stages of need recognition, information seeking, product evaluation, and/or actual purchase.

The general research hypothesis in this study is that the extent of the child's influence on the family decision process is conditioned by selected socialization processes and antecedent variables defining the child's social environment.

Hypotheses

Research in consumer socialization suggests three important agents: family, television, and peers (e.g., Moschis 1981; Ward 1974).

Television

Television advertising effects are often assessed either at the individual level or at the interpersonal or group level. With respect to the first type, one finds studies of TV advertising effects on perception, attitudes, and actual behavior of the viewer. TV advertising effects have also been studied in terms of how they may affect the behavior of individuals other than those exposed to advertisements. For example, research has examined television advertising effects in a two-step flow of communication/influence; and more recently, research on children and adolescents examined children's influence attempts as well as parental mediating role of television advertising (e.g., Adler 1977; Moschis and Moore 1982).

If advertising plays an important role in family decision making by influencing the child who, in turn, influences household decision making, one would expect the youth's exposure to advertising messages to be reflected in his/her greater participation and influence at various stages in the decision making process:

H1: Television advertising viewing is positively related to the youth's propensity to play a more influential role than his/her parents in: (a) mentioning the need for products, (b) discussing purchase of products, (c) deciding what should be purchased, and (d) actually buying products.

Family. Family influences on the consumer behavior of young people is often viewed in the context of interpersonal communications. These communications include learning processes such as reinforcement (positive and negative), modeling, and social interaction which often incorporates both reinforcement and modeling. Most of the studies of consumer socialization have used the social interaction mechanism in the form of parent-child communication about consumption (Moschis 1985).

While the frequency of family communication about consumption often fails to predict the expected outcome, measures of communication structures and patterns of interaction were found to be good predictors of the youth's consumer behavior (Moschis 1985). Analysis of family communications about consumption and other matters has consistently found two relatively uncorrelated dimensions of communication structure (McLeod and Chaffee 1972). The first (which is analogous to the types of social power) is called socio-oriented, the type of communication that is designed to produce deference and to foster harmonious and pleasant social relationships at home. The child in homes characterized by such a communication structure may be taught to avoid controversy and to repress his/her feelings on extrapersonal topics, for example, by not arguing with adults and giving in on arguments rather than risk offending others.

The second type of communication structure is called concept-oriented, a pattern that focuses on positive constraints in helping the child to develop his/her own views about the world. The parents may, for example, encourage the child to weigh all alternatives before making a decision or may expose him to controversy -- either by differing openly on an issue or by discussing it with guests at home (McLeod and Chaffee 1972).

Extensive research evidence has lead researchers to assume that such family communication processes help guide the individual in coping with various situations he encounters outside the immediate family context--for instance, situations in relation to public affairs issues and mass media use (e.g., Chaffee, McLeod, and Atkin 1971; Chaffee, McLeod, and Wackman 1966; McLeod and Chaffee 1972). In addition, the evidence suggests that "the influence of family communication, as generalized to other situations, persists well into adulthood; it appears to become part of the developing individual's personality that he carries outside the home" (Chaffee et al. 1971, p. 331).

In the context of household decision making, previous research suggests that concept-oriented family communication structures will foster greater participation in such decisions, while socio-oriented structures will deter participation (Moschis 1985). Specifically, the child's influence as result of these family communication structures can be hypothesized as follows:

- H2: Concept-orientated family communication structure is positively related to the youth's propensity to play a more influential role than his/her parents in: (a) mentioning the need for products, (b) seeking information, (c) deciding what should be purchased, and (d) actually purchasing products.
- H3: Socio-oriented family communication structure is negatively related to the youth's propensity to play a more influential role than his/her parents in: (a) mentioning the need for products, (b) seeking information, (c) deciding what should be purchased, and (d) actually purchasing products.

Peers

Peer influence appears to be important in early life, especially during adolescence. The youth's desire to conform to peer norms is often exemplified in terms of product ownership, making the child more likely to purchase or to request the purchase of such products. Thus, it is not surprising to find evidence indicating that young people who frequently interact with peers about consumption matters are likely to get ideas from peers regarding the products they should own (Caron and Ward 1975); they are likely to discuss peer consumption behavior with their parents (Churchill and Moschis 1979); they are likely to play an important role

regarding the kinds of products and brands they or their family should buy (e.g., Moschis et al. 1983); and they are actively involved in the purchasing process (Moschis et al. 1977). Thus, it is hypothesized that:

- H4: The youth's frequency of communication with peers about consumption will be associated with greater influence in the family decision making process by increasing his/her likelihood of (a) mentioning the need for products, (b) discussing products with parents, (c) deciding to purchase products, and (d) actually purchasing products.

Antecedent Variables

Previous research suggests that several antecedent variables affect consumer learning. Some of these are related to the child's characteristics (such as age, sex, and social class) (Moschis 1981; Ward 1974).

In this research it is expected that age, available money, sex, and social class will affect the child's involvement in, and influence on, family decision making. Specifically, with increasing age, the child's competence as a consumer increases (e.g., Moschis and Moore 1979), and s/he may assume greater responsibility in purchasing products both for individual as well as for family use. Also, with increasing age, youngsters are likely to find alternate sources of income (e.g., work), thus decreasing his/her financial dependence upon parents for purchases of products (Sanders et al. 1973).

- H5: Age is positively related to the adolescent's propensity to play a more influential role than his/her parents in (a) mentioning the need for products, (b) discussing consumption with parents, (c) deciding whether to buy certain products, and (d) independently purchasing products.
- H6: With increasing money earned outside the home, young people are less likely than their parents to (a) mention the need for products, (b) discuss the purchase of products, (c) decide whether to buy certain products, and (d) independently purchase products for individual or family use.

Furthermore, research shows that male adolescents are more likely to obtain independence in the consumption process than their female counterparts (Moschis et al. 1977). Such independence may be reflected in terms of lower participation in the decision making process involving the youth and his family. Finally, research suggests that youths from lower socioeconomic backgrounds are more likely than their upper socioeconomic counterparts to contribute to the family's income (Sanders et al. 1973). This may indeed increase their influence in consumer decisions. The preceding discussion suggests the following hypotheses:

- H7: Female adolescents are more likely than their male counterparts to have influence over his/her parents in (a) mentioning the need for products, (b) discussing purchase of products, (c) deciding what should be purchased, and (d) actually buying products.
- H8: Lower socioeconomic status adolescents are more likely than their counterparts to have influence over his/her parents in (a) mentioning the need for products, (b) discussing purchase of products, (c) deciding what should be purchased, and (d) actually buying products.

Method

Sample

Adolescents from several cities and towns in five counties in urban, suburban, semi-rural, and rural Georgia in junior and senior high schools were asked to complete anonymous self-administered questionnaires. Specific schools were selected after personal interviews with school officials to ascertain schools demographically representative of their respective regions.

Respondents were also given a questionnaire to take home to their parents. This questionnaire was addressed to the child's mother. Specifically, the questionnaire asked the mother to indicate demographic characteristics of the child who brought the questionnaire to her, including his/her birthday, sex, grade in school and name of school attended by the child. This information was used to match the parent's anonymous questionnaire responses to anonymous responses given by the child at school, using primarily the child's birthdate and, whenever necessary, other demographic characteristics.

While most previous research in this area has used responses solicited either from the child or from the mother, this study solicited responses from both. Specifically, measures of the independent variables (e.g., television viewing, family and peer communication about consumption) were obtained from adolescents, whereas measures of dependent variables were solicited from the child's mother. The rationale for using this method, instead of surveying only parents or children, was based on the assumption that the youngster is in a better position to provide accurate information on his/her interaction with TV, peers, and family and motives for such interactions while the mother is in a better position to assess the child's influence on the outcome of various types of consumer decisions over which she is expected to exercise control and authority.

A total of 161 parent-child pairs were obtained from this effort. The "nonrespondents" were adolescents who did not deliver the questionnaire to their parents, and parents who did not respond to questionnaires for several reasons (e.g., "household without mothers"), but the specification of nonresponse rates in these groups was not possible. The sample, however, was representative with respect to the adolescent's sex, age, race, and socioeconomic status.

Definition and Measurement of Variables

The dependent measures addressed several aspects of the role(s) a person can play in the decision making process within the family. These included measures of the roles of (a) purchase initiator, (b) influencer, (c) decider, and (d) purchaser of the product. This conceptualization produced respective measures. Specifically, relative parent-child measures were obtained by asking mothers to indicate the person(s) who usually (a) mention(s) the need, (b) discuss(es) buying, (c) decide(s) what/whether to buy, and (d) actually buy(s) eight products. The products were soft drinks, child's clothing, shampoo, school supplies, auto repairs, kitchen appliances, records for the child, and grooming products for the child's use. These products were selected to represent various levels of relevance to the child's vis-a-vis family's consumption or use, providing several opportunities for parent and child involvement; in addition, the products cover the complete spectrum of consumer goods classifications -- convenience, shopping, and specialty goods. The response alternatives were "parent(s)", "child" (who brought the questionnaire home), or "both parent(s) and child," with these alternatives treated as nominal scales. Thus, the dependent variables are (a) the extent to which the child mentions the need, (b) discusses buying, (c) decides, and (d) actually purchases products for child's and family's use in relation to other family members.

The child's role as purchase initiator refers to the adolescent's relative propensity to mention the need for a product. It was measured by summing responses to those products the mother indicated the child usually mentions the need for. The alpha reliability coefficient of this 0 to 8 point scale was .67.

The child's role as influencer refers to the adolescent's relative propensity to "discuss buying" a product with others. It was similarly measured by summing responses to those products the mother indicated the child usually discusses buying. The alpha coefficient of this 0 to 8 point scale was .58.

The child's role as decider refers to the adolescent's relative propensity to decide what/whether to buy. It was measured by summing responses to those products the mother indicated the child usually decides what/whether to buy. The reliability coefficient of this 0 to 8 point scale was .69.

Finally, the child's role as purchaser refers to the adolescent's relative propensity to buy products. It was measured by summing responses to those products the mother indicated the child usually actually buys. The reliability coefficient of this 0 to 8 scale was .71.

Following the rationale presented in a previous study (Moschis and Moore 1982), television advertising viewing was a direct measure of the adolescent's frequency of viewing TV commercials for the purpose of gathering information for consumer decision making as well as information about life styles and behaviors associated with consumer products. Respondents were asked to indicate on a four-point "very often-never" scale the extent to which they watched television ads for seven reasons such as "to find out about things to buy to impress others" and "to find out how good a product is." Responses were summed across the seven items to form a 7-to-28 point index, which had a reliability coefficient of .80.

Peer Communication about consumption was operationally defined as overt peer interaction concerning goods and services (e.g., Churchill and Moschis 1978). It was measured by summing responses to eight items such as "My friends and I talk about buying things," on a five-point "very often" (5) to "never" (1) scale; the alpha reliability coefficient of this 8 to 40 point scale was .76.

Concept-oriented and socio-oriented family communication structures were measured in line with previous research (e.g., Moschis and Moore 1978; Moschis et al. 1983) by asking the adolescent to indicate how often certain types of parent-child communications occur; six items were designed to measure each communication structure. The reliability coefficients of these 6 to 30 point scales were .72 and .51, respectively.

Results

Table 1 shows relationships among dependent and independent variables. The two measures of family communications are unrelated, as expected. Age is negatively associated with television advertising viewing and family communications; it is positively associated with peer communication. These relationships are in line with previous theory and research (Moschis 1985).

Table 2 shows partial correlations between measures of child's participation in consumer decisions and the independent variables. Contrary to our expectations, advertising viewing frequency is not associated with any one of the four measures of the child's participation in consumer decisions, providing little support for Hypothesis 1.

In addition, concept-oriented family communication structure was not significantly related to any of the

dependent measures, providing no support for Hypothesis 2. Socio-oriented family communication structure, on the other hand, was negatively associated with the child's propensity to decide what products to buy ($r=-.13$, $p<.05$) (Hypothesis 3c) and actual purchase of these products ($r=-.20$, $p<.01$) (Hypothesis 3d), as posited.

Peer communication about consumption was positively related to most dependent measures. Specifically, the more frequently the adolescent interacts with his/her peers about consumption matters, the more likely s/he is to play a major role in mentioning the need for products ($r=.20$, $p<.01$), discussing purchase ($r=.14$, $p<.05$); peer communication was not significantly associated with actual purchase ($r=.07$, n.s.). These results provide support for Hypotheses 4a, 4b, and 4c; they do not support Hypothesis 4d.

Age was positively associated with all four dependent measures, as posited. Specifically, the older the adolescent is, the more likely s/he is to play a major role in mentioning the need for products ($r=.20$, $p<.01$), discussing purchase ($r=.15$, $p<.05$), making the purchasing decision ($r=.31$, $p<.001$), and actually buying products ($r=.21$, $p<.01$). These data offer support for Hypothesis 5. The data also offer partial support for Hypothesis 6, showing that with more money available adolescents have more say in consumer decisions. Although they are not necessarily more likely to mention need for products ($r=.02$, n.s.) (Hypothesis 6a), discuss purchases ($r=.05$, n.s.) (Hypothesis 6b), or participate in product decisions ($r=.09$, n.s.) (Hypothesis 6c), with increasing money availability adolescents are more likely to have greater purchasing independence ($r=.21$, $p<.01$) (Hypothesis 6d).

The data also provided support for Hypothesis 7 concerning the effects of sex. Specifically, female adolescents appear to be more likely than their male counterparts to mention need for products ($r=.24$, $p<.05$), discuss purchase ($r=.27$, $p<.001$), make product decisions ($r=.26$, $p<.001$), and actually purchase such products ($r=.16$, $p<.05$), offering support for Hypotheses 7a, 7b, 7c, and 7d, respectively.

The effects of socioeconomic status on the teenager's participation in consumer decisions were generally weak, with only one significant positive relationship (opposite those expected) shown between social class and the youth's propensity to mention need for products ($r=.13$, $p<.05$). Thus, hypothesis 8 was not supported.

Discussion

Television advertising viewing was not associated with any dependent measure of the child's relative participation and influence in consumer decisions. Although previous studies have shown television advertising effects on the youth's cognitions, attitudes, and behaviors, the results of the present study suggest that TV advertising viewing has no effect on household consumer decisions. If, indeed, the adolescents acted as a "selling agent" for the seller of advertised products, our data should have shown significant relationships between the frequency of viewing of such ads and measures of the youth's relative participation in consumer decisions. Thus, the second-order consequences of television advertising effects found in previous studies (e.g., Adler 1977) may only apply to young children and/or products for child's use (e.g., toys, candy). The findings appear in line with the results of a study by Henderson et al. (1980).

A number of reasons can account for the inconsistency in the present results with those of previous studies. First, previous research exploring second-order consequences of television advertising effects dealt almost exclusively with children and not with adolescents. Since requests have been found to decline with age among

children (Ward and Wackman 1972), it is possible that adolescents make fewer attempts to influence family decisions. Second, previous studies evaluated advertising consequences in the context of the child's consumption behavior rather than household decision making. Third, measures of advertising effects in the majority of previous studies were based on self-reported influences rather than on correlational evidence; and they based on samples of either parents or children. Fourth, previous research has focused on relatively few types of product categories. Fifth, measures of advertising exposure have normally used amount of time spent viewing TV, rather than time and motivations for viewing TV ads. Finally, measures of the child's influence in previous studies were absolute--i.e., the extent to which the child requested the advertised product; the measures in this research were relative--i.e., the child's influence in relation to parental influence.

The adolescent's involvement in consumer decisions appears to be a function of social processes, with the effects of social interactions with parents and peers playing an important role. When parents discourage (constrain) the child's involvement in the world of ideas (socio-oriented family communication structure), they may also discourage the child's participation in consumer decisions. However, encouragement (concept-oriented communication structure) does not necessarily lead to greater participation in the form of autonomous decision making. Thus, although other studies have shown significant effects of family communication structures on the youth's cognitions (Moschis et al. 1983), the results of this study suggest that such effects may not be carried to behavioral levels defining the youth's participation in family consumer decisions.

The adolescent's frequency of interaction with his/her peers about consumption matters was a fairly good predictor of involvement in the early stages of consumer decisions. Such influence, however, declines with movement toward actual purchase, suggesting that parents may mediate the effects of peer influence.

With increasing age, adolescents show greater participation in consumer decisions. This may be due to their increasing knowledge of the marketplace, to the removal of factors constraining their ability to purchase (e.g., ability to drive), or to increasing responsibility granted by their parents. With increasing money, however, adolescents appear to acquire independence in consumer decisions from their parents, since they are more likely to actually purchase products without prior consultation with them.

Finally, female adolescents appear to be more likely to be involved in consumer decisions than male adolescents. This is possibly due to the early learning of sex roles associated with gender and/or to parental encouragement.

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TABLE 1
MEANS (\bar{X}), STANDARD DEVIATIONS (SD), RANGES, AND CORRELATION MATRIX
FOR DEPENDENT AND INDEPENDENT VARIABLES

VARIABLES	\bar{X}	SD	RANGE	CORRELATION MATRIX													
				1	2	3	4	5	6	7	8	9	10	11	12		
1. Child Mentions Need	2.8	1.7	0-6	1.0													
2. Child Discusses Purchase	.9	1.2	0-5	.54	1.0												
3. Child Decides What/ Whether to Buy	1.0	1.4	0-5	.52	.57	1.0											
4. Child Actually Buys	.8	1.2	0-6	.33	.39	.66	1.0										
5. Television Viewing Motives	15.0	4.2	7-28	-.10	-.04	-.15	-.05	1.0									
6. Socio-Orientation	18.0	4.6	7-30	-.07	-.12	-.22	-.08	.26	1.0								
7. Concept-Orientation	19.7	3.8	9-30	.09	.03	-.05	.03	.03	-.01	1.0							
8. Peer Communication	23.2	5.2	9-36	.26	.22	.05	-.01	.19	.05	.28	1.0						
9. Socio-Economic Status	44.7	26.6	8-99	.18	-.06	.01	-.21	.07	-.05	.10	.12	1.0					
10. Sex	1.5	.5	1-2	.17	.31	.20	.12	-.03	-.06	.21	.33	-.08	1.0				
11. Age (Grade in School)	8.1	1.9	6-12	.33	.32	.33	.35	-.34	-.28	-.09	.18	-.07	.13	1.0			
12. Money Earned (Weekly \$)	6.6	15.9	1-99	.28	.21	.37	.39	-.26	-.10	-.22	.20	-.16	.11	.76	1.0		

Note: Correlations of approximately .14 or greater are significant at beyond .05 level.

TABLE 2
RELATIONSHIPS BETWEEN MEASURES OF CHILD'S PARTICIPATION IN
CONSUMER DECISIONS AND INDEPENDENT VARIABLES

Independent Variables:	Dependent Variables			
	Child Mentions Need	Child Discusses Purchase	Child Decides What/Whether to Buy	Child Actually Buys
<u>Socialization Processes</u>				
TV Advertising Viewing	-.06	-.05	-.01	-.01
Socio-Orientation	.00	-.06	-.13*	-.20*
Concept-Orientation	-.01	-.08	.08	.07
Peer Communication	.20**	.14*	.14*	.07
<u>Antecedent Variables</u>				
Age	.20**	.15*	.31***	.28***
Money Earned	.02	.05	.09	.21**
Sex	.24**	.27**	.26***	.16*
SES	.13*	-.04	-.03	-.05

Note: Table entries are partial correlation coefficients.

* P .05
** P .01
*** P .001

THE ROLE OF RADICAL BEHAVIORISM IN
THE EXPLANATION OF CONSUMER CHOICE

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Abstract

Insofar as the psychodynamic assumptions which currently dominate consumer research exclude alternative explanations they impede scientific progress. In line with Feyerabend's advocacy of the proliferation of tenaciously-held, incommensurable theories as essential to progress, this paper maintains that an important role of radical behaviorism in consumer research is the provision of a critical stance, a counterpoint to the prevailing paradigm. Radical behaviorism exposes the taken-for-granted assumptions that underpin current explanations and suggests an alternative interpretation based on different assumptions.

Introduction

The theory-ladenness of observation raises problems for theoretical and scientific progress (Peter and Olson 1983; Popper 1980). A theory ultimately has meaning and explanatory significance only within the paradigm wherein it is derived and there is no consensus on how theories belonging to separate paradigms might be compared or how competing paradigms can be comparatively evaluated (Borger and Cioffi 1970). Neither the view that paradigms are successively established (Kuhn 1970) nor the suggestion that research programs can be systematically compared (Lakatos 1970) appears appropriate for the social sciences. The approach to scientific progress adopted here owes more to the 'epistemological anarchy' of Feyerabend (1975). He argues that scientific progress depends on the deliberate proliferation of competing explanations, engendering an 'active interplay of tenaciously held views', forcing into open articulation the taken-for-granted assumptions which underlie conventional wisdoms, and thus stimulating critical comparison and debate. Contradictory, even incommensurable perspectives are thus to be welcomed since the evidence required to test one may not be generated but for another. The alternative approach, in which one paradigm assumes a preeminent status, encourages adherence to fixed viewpoints and methodologies; it is inimical to progress because it restricts the scope of intellectual enterprise. The resulting 'anything goes' approach involves the purposeful development of novel explanations and the resuscitation of those which appear outmoded and even irrational. Complete knowledge requires that nothing be excluded.

This paper is intended to contribute to the progress of consumer theory by considering (i) an analysis of choice which accords explanatory power exclusively to environmental consequences of behavior, denying causative significance to intrapersonal events: radical behaviorism; and (ii) the relationship between that analysis and the prevailing paradigm for consumer research which derives principally from the cognitive psychology of human information processing. The focal point of recent interest in radical behaviorism's potential role in marketing has been the search for novel prescriptions for managerial action, notably the more effective exploitation of promotional stimuli based on operant conditioning principles. Whether radical behaviorism can play a significant role in improving managerial practice or modeling consumer choice remains an unanswered empirical question. Behavior modification through operant conditioning has been most demonstrable in small, manageable situations and with individuals - in therapeutic and training communities, for example. The manager or researcher has little control over purchase and consumption which are governed by many competing stimuli. The import of this paper is that radical

behaviorism has much to offer the explanation, rather than the manipulation of consumer choice.

The Prevailing Paradigm

The prevailing approach to the explanation of consumer behavior may be characterized as teleological (in that its explananda are assumed to exhibit purpose and design) and psychodynamic (in that the predominant sources of explanation are found in antecedent mental events and processes). This stance assumes two types of concepts: those which relate to an observable realm of consumer behavior from which explananda are derived, and those which relate to an unobservable mental or conceptual realm of prebehavioral, intrapersonal events in terms of which the explicans is couched.

The comprehensive models of consumer choice are firmly founded on this duality, taking for granted that cognitive processes determine consumer choice. The explanation of consumer choice in terms of information processing and its outcomes extends beyond these models, however, and includes the near-ubiquitous assumption that cognitions and cognitive changes are inevitable precursors of behavior and behavioral change.

The philosophical stance offered by this psychodynamic paradigm is often uncritically accepted despite mounting contrary evidence. In the twenty years of comprehensive modeling which has formed the backbone of the paradigm, several intellectual challenges have arisen which might have led to a thorough reassessment of its fundamental assumptions. For instance: models have been extensively criticized, notably for their lacking correspondence rules necessary for empirical testing (Bagozzi 1984); where empirical testing has been possible, it has produced fragmentary and disappointingly weak support (Holbrook 1974); empirical investigations in social psychology generally as well as consumer research reveal low correlational consistency between measures of the central, prebehavioral components of those models (attitudes, intentions) and overt choice (Foxall 1984); some research points unambiguously to the prior explanatory significance of behavioral measures over cognitive intermediaries (Fredericks and Dossett (1983); it has been persuasively argued that consumers make smaller and less rational use of information than the paradigm assumes and the whole notion of consumer decision making has been called into question (Olshavsky and Granbois 1976); the assumption that consumers are ego-involved while purchasing and consuming has also been queried (Krugman 1965); and sequences other than cognition-affect-conation have been shown to describe more accurately the consumer choice process (Ray 1973).

Some limited change has been accommodated within the paradigm but its assumptions have remained intact. Models have been revised without deviating from their basic philosophical stance and even the potentially subversive concept of low involvement consumer behavior has been integrated into the existing framework and explained in terms of cognitive mediation (Engel and Blackwell 1982). The possibility that low involvement might be represented as the direct result of environmental stimuli has been overlooked or ignored by modelers and textbook writers.

The dominant status of the paradigm is evident above all from its adherents' response to the intellectual challenge of alternative paradigms based on antithetical assumptions about the explanation of behavior, eg. radical behaviorism. Writers who have seriously employed this paradigm (e.g. Berry and Kunkel 1970) have been largely ignored.

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Recent advocates of behavior-based perspectives (Nord and Peter 1980; Peter and Nord 1982; Rothschild and Gaidis 1981) have avoided commitment to radical behaviorism itself, opting for social learning theories (e.g. Bandura 1977) which admit cognitive mediation; their principal quest has, in any case, been for managerial prescriptions rather than explicative systems. Authors who have discussed radical behaviorism have distorted its character by failing to emphasize the rejection of mentalistic causation demanded by its philosophical stance: some consciously or unconsciously blend cognitive concepts such as needs and attitudes with their accounts of operant conditioning; some misdefine and confuse basic concepts such as negative reinforcement and punishment; some appear to think that operant behavior is under conscious control yet claim that radical behaviorism fails to consider internal states (see variously Engel and Blackwell 1982; Hawkins et al. 1983; Loudon and Della Bitta 1983; Markin and Narayana 1976; Nord and Peter 1980; Schiffman and Kanuk 1983).

This state of affairs constrains and impedes scientific advance which depends on paradigms responding to, rather than absorbing intellectual challenges. The psychodynamic paradigm which now provides the normal science component of consumer research avoids effective confrontation with alternative philosophies. The first stage in the constructive criticism of that paradigm is the clear statement of the nature of an alternative explanatory mode such as radical behaviorism.

Radical Behaviorism

The experimental analysis of behavior comprises three separable elements: operant conditioning (the influence of environmental factors on behavior); a single subject research strategy (which proceeds inductively through the intensive study of individuals); and a philosophical stance, radical behaviorism (which explains responses by reference to their contingent consequences) (Blackman 1983). Radical behaviorism thus presents a philosophical base which is antithetical to the psychodynamism of the prevailing paradigm and thus a standpoint from which the assumption of the current models of consumer behavior can be exposed and subjected to criticism in the manner suggested by Feyerabend. Social behaviorism (Bandura 1977) assumes the reciprocal determinism of individual and environment and is thus less parsimonious and more complex in its approach to explanation. Because it includes the cognitive mediation of behavior, social behaviorism does not provide so unambiguous a yardstick. Second, radical behaviorism has certain advantages over methodological behaviorism and the classical conditioning on which it rests experimentally. Radical behaviorism does not exclude intrapersonal events but reinterprets them as responses rather than as causes of behavior. It also makes central explanatory use of the concept of reinforcement and is thus of greater relevance than other behaviorisms to the analysis of consumer choice which is usefully explained in the marketing context by reference to its consequences.

Radical behaviorism proceeds from the assumption that once the environmental factors which affect the rate at which behavior occurs have been identified the behavior in question has been explained (Skinner 1950). Notions of intrapersonal causes may have provided useful 'mental way stations' before the establishment of a behavioral analysis, but the latter can now replace cognitive hypotheses with statements which link the performance of behavioral responses to their contingent consequences; as the contingencies investigated have become more complex they have taken over 'the explanatory functions previously assigned to personalities, states of mind, feelings, traits of character, purposes and intentions' (Skinner 1972, p.18). When the probability of a response's being repeated under similar conditions increases, its contingent consequences are termed 'reinforcers' and the response is known as an 'operant'. Reinforcement refers always to the strengthening of a response, i.e. to an increase in the probability of its being repeated. A contingent consequence which is followed by a decrease in the frequency of

response is a 'punisher'. Operants and reinforcers/punishers are, therefore, defined in mutually dependent ways: responses are not operants unless their rate of emission is influenced by their consequences; and no event is a reinforcer or punisher unless it consistently affects the rate of emission of a preceding response. Since reinforcers/punishers are functionally related to operants in this way, it is incorrect to speak of them as having intrinsically rewarding, pleasant or painful properties.

The contingencies of reinforcement which provide the basis of radical behaviorist explanation comprise the behavior in question, the setting conditions or situation in which it occurs, and those of its consequences which affect the rate at which it is subsequently performed. Skinner (1953) defines a three term contingency in which the action of the reinforcing stimulus (Sr) is contingent on the emission of a response (R). Any element of a situation in the presence of which that response has previously been reinforced may come to signal the availability of reinforcement in future; such an element or setting condition is known as a discriminative stimulus (Sd). The individual performs the response only in its presence, discriminating behaviorally between situations in which it is present and others. The three term contingency, usually depicted as $Sd \rightarrow R \rightarrow Sr$, summarises the paradigm.

It is important to emphasise that the explanation of behavior in terms of contingencies of reinforcement is distinct from that based on classical conditioning (McSweeney and Bierley 1984). In classical conditioning, the pairing of two antecedent stimuli results in each separately having the ability to elicit a given response, whereas previously only one did so. By contrast, in operant conditioning, 'Behavior is shaped and maintained by its consequences' (Skinner 1972, p.18). More technically, the rate of emission of a response is explained in terms of reinforcement contingencies. While, within the radical behaviorist framework, behavior may be described as coming under stimulus control when responses are differentially reinforced in the presence of separate antecedent stimuli, the relationship between a discriminative stimulus and an operant does not involve automatic elicitation of reflex behavior as is the case in classical conditioning. Rather, the discriminative stimulus is represented as increasing the probability of an individual's emitting the operant. If the accompanying reinforcing stimulus is withdrawn, the response will cease (extinguish).

Because operant behavior is said to be emitted by the individual rather than elicited by a preceding stimulus, it is sometimes said to be 'voluntary' but (pace Nord and Peter 1980, p. 38) this does not imply that it is under conscious control. When the other variables which control behavior (notably succeeding reinforcers) are known, that behavior can be fully explained in terms of environmental factors. Like the involuntary behavior which is elicited in the course of classical conditioning, operant responses are externally controlled; in neither case is consciousness involved in the explanation of behavioral causation and the only difference is in the sort of external control assumed (Skinner 1953, p. 112). While radical behaviorism rejects explanation in terms of unobservables, it is not accurate to depict it as failing to consider (pace Nord and Peter 1980, p. 36) covert and private processes within the individual. It interprets feelings and sensations as aspects of the physical body, responses which are subject, like their publicly ascertainable and verifiable counterparts, to environmental control (Skinner 1974).

Some radical behaviorists have argued for a clearer statement of their paradigm. Terms such as 'discriminative stimulus' and 'punishment' are both emotive and open to misinterpretation (as attempts at delineating the paradigm in the marketing literature show only too well). Blackman (1980) introduces a less elaborate formulation of the three-term contingency: A:B:C, in which A=antecedent conditions (the setting in which behavior occurs), B=behavior, and C=consequences. Of greater importance than the simpler terminology is the novel relationship between

behavior and consequences proposed. The colons denote a correlational relationship in each case, the first fully-supported in Skinner's (1953) statement, the second additional to it. The import of the second colon is to relax the assumption of automaticity found in most accounts of radical behaviorism.

Because operant responses and reinforcing/punishing stimuli are traditionally functionally defined, radical behaviorists have often been accused of circular reasoning in their explanations. Blackman points out that reinforcing or punishing consequences may follow behavior only occasionally or after delay; they may fail to reinforce behavior or decrease rather than increase its rate of emission. The formulation of reinforcement contingencies presented earlier in terms of Sd, R and Sr is simply a subset of Blackman's A:B:C, that in which the antecedent conditions act as discriminative stimuli and in which the consequences of behaviour reinforce it. The import of this reasoning is to stress that behavior and its consequences are related in a correlative rather than contiguous way (Baum 1973).

Radical Behaviorism and Consumer Choice

Theory in Radical Behaviorism

Radical behaviorism does not avoid theory as long as it is couched in similar terms to those in which observations are described. But it denies emphatically that explanations of observed behavior in terms derived from another realm of discourse or understanding are necessary. It rules out mental, neural or conceptual explanations on two grounds. First, while apparently explaining observed behavior, they simply raise the necessity of explaining the neural or mental event in terms of which the explanation itself proceeds. Second, they encourage wasteful research since they are based upon 'explanatory fictions', mental events which are simply inferred from the behaviors they purport to explain, thereby precluding investigation of more directly available (environmental) determinants of action (Skinner 1950, 1963).

These general criticisms could well be applied by radical behaviorists to consumer research. The comprehensive models exclude the possibility of explaining behavior by direct reference to the effects of environmental factors: having accepted from the start the assumption that causation is mental, they apparently obviate the necessity of looking for other possible sources of influence. Such models are replete with abstract unobservables which, according to a behavioral analysis, add nothing to observation but simply redescribe it. Herein lies the danger of the prevailing paradigm and the source of its impediment to theoretical development. Once its psychodynamic assumption has been accepted, ready-made 'explanations' of any observed behavior can be effortlessly found in alleged intrapersonal causes conveniently inferred from the behavior itself. As Skinner (1963, p. 957) comments, 'It is too easy to say that someone does something "because he likes to do it", or that he does one thing rather than another "because he has made a choice".'

Consumer Decisions

Some of the implications of this perspective for explaining consumer choice are apparent from consideration of its treatment of two central building blocks of the comprehensive models, information and choice. Advertising and other persuasive/informative messages embody discriminative stimuli which signal the availability of reinforcement contingent upon the operant performance of specified purchase and consumption behaviors. Such discriminative stimuli take the form of rules, norms, promises, prompts and various additional verbal and nonverbal descriptions of contingencies. Although these antecedent stimuli exert partial control over behavior, the contingent consequences of operant responses are the principle source of behavioral control since, in their absence, the response will extinguish. Thus, the individual must have some tendency to behave in the advocated manner before the stimuli

contained in the message can exert any control by marking the occasion for reinforcement. The individual's unique reinforcement history determines whether a message's discriminative stimuli signal reinforcing, punishing or neutral contingencies and, unless the appropriate behavioral discriminations have already been learned, advertising cannot alter behavior.

There is thus no need to posit unobservable mental processes to explain consumer choice. In contrast to cognitive psychology in which the formation of attitudes and intentions is a necessary mechanism of prebehavioral choice, behaviorism has no place for concepts of underlying or true mental processes which consistently mediate verbal statements of attitude and intention as well as overt behavior. The problem of attitudinal-behavioral relationships thus disappears in a behavioral analysis: behaviors which belong to different classes, such as the consumer's verbal responses to an attitude questionnaire and his actual purchasing, will be consistent only when the contingencies applicable in each situation are functionally equivalent (DeFleur and Westie 1963).

Nor need choice itself be conceived as an outcome of internal cognitive deliberation or decision making. It is simply a behavior, the only way of acting in a given set of circumstances defined by the prevailing contingencies. Situations in which individuals report that they have to make choices are those in which several responses are equally probable. Since such situations are usually aversive, any behavior which is followed by the strengthening of one response or another is reinforced (Skinner 1974, p. 22-23). Freedom thus consists in the avoidance of aversive consequences (Skinner 1972).

Consumer Innovativeness

The radical behaviorist critique of psychodynamic approaches can be further illustrated by reference to Midgley and Dowling's (1978) conceptualization of consumer innovativeness. These authors argue that the various measures of consumer innovativeness and their apparent relationships to distinct definitions of this construct (Robertson and Myers 1969; Summers 1971) indicate degrees of innovativeness: each extent of innovative behavior measured requires explanation in terms of successively more abstract constructions of a personality trait, 'innovativeness'. At the observational level, 'actualized innovativeness' is adequately represented by the idea of the relative time of adoption (Rogers 1983, p. 22). The adoption of several innovations within a product category (Robertson and Myers 1969) must be explained by a deeper and more abstract construct of innovativeness. Consumer innovation across several product fields (Summers 1971) necessitates a third, yet more abstract construct, 'innate innovativeness'.

Innate innovativeness is 'the degree to which an individual makes innovation decisions independently of the communicated experience of others', where 'decision-making' is an unobservable, a prebehavioral event not accessible to measurements of overt behavior, yet it is assumed to be possessed to a degree by all individuals.

As noted, radical behaviorism objects to theory of this kind on the grounds that it raises new problems of explanation which are usually not pursued and that it leads to wasteful research which ignores the controllable determinants of behavior. How is 'innate innovativeness' itself explained? Midgley and Dowling (1978, p. 235) say only that it is 'plausible to view it as a function of a number of (yet to be specified) dimensions of the human personality'. Yet the belief that behavior has been explained by this device can easily direct attention from other interpretations, explicative variables and the environmental factors that control the extent of new product purchasing.

Radical behaviorism would draw attention to the external antecedents and consequences of consumer choice, the contingencies of reinforcement, rather than to conceptual

traits of character. Complex innovative behavior does not suddenly appear. It is shaped as successive approximations to the terminal response of new product purchasing are differentially reinforced. A consumer who appears suddenly to purchase a wardrobe of fashionable clothes does not do so spontaneously but as the endpoint in a process in which increasingly similar behavior has been successively reinforced. The investigator would look for a pattern of responses (say, the purchase of fashionable shoes, a trend-setting suit, and so on), a pattern of antecedent discriminative stimuli and succeeding reinforcing stimuli, to explain and predict the purchase of new clothes.

Managers actively use shaping in order to increase the likelihood of a final response by such means as the distribution of free samples. Their expectation is that the consequences of usage will increase the probability of subsequent purchases. Initial purchase of newly-marketed products is also differentially reinforced by means of coupons, offers and other promotional deals; consumer behavior is thereby shaped, as the terminal response - purchase of the brand at the full retail price - becomes more likely. Complex behavior, which appears innovative to on-lookers who are not familiar with the individual consumer's reinforcement history, may also be explained as the final link in a chain of reinforced responses which culminate in the observed response; the chain is created and maintained as discriminative stimuli come to function as conditioned reinforcers (Skinner 1953, p. 91; cf. Kazdin 1980, p. 39).

The endpoint of either shaping or chaining might be the purchase of one or more products in one range or more. The extent of purchasing can also be viewed in terms of the extent to which discriminative and reinforcing stimuli determine the generalization of responses. Studies of operant conditioning have drawn attention for several decades to the tendency for humans to discriminate and generalize in their behavior. A response may only ever be performed in the presence of a specific Sd (discrimination) as when an employee works hard only when his boss is there. Another response having been reinforced in the presence of one Sd may subsequently be performed in the presence of similar stimuli even though immediate reinforcement is not available (stimulus generalization): a child who is praised for singing by a teacher may do so in the presence of any adult. Sometimes several similar responses, one of which has been reinforced in the presence of an Sd, may be emitted when that stimulus is available (response generalization): a neighbor whose wave is returned may smile and chat when next we see him (Kazdin 1980).

The extent to which consumers' purchases of recently-launched products comes under stimulus control, and the circumstances in which discrimination and generalization occur with respect to such items is unknown and is likely to remain so as long as consumer researchers are satisfied that innovative behavior is explained by innate traits. How many consumers only buy specific new products from one store, or when a given person is present? How often is a new product bought from a range of stores and what element of the buying situation is similar in each case? Under what circumstances do consumers who have purchased a new product at a store return to talk about, try on or try out and/or buy similar new items? In each case, what are the stimuli which control discrimination and generalization? Only the adoption of an alternative perspective is likely to generate research which makes the environmental control of purchasing intelligible.

The adoption of that perspective offers other insights into the interpretation of observed buyer behavior. The radical behaviorist analysis of consumer new product purchasing suggests a reevaluation of the concept of innovativeness. If the purchase of recently-launched products within and across product ranges can be explained in terms of the generalization of existing responses, the whole notion of innovative behavior is called into question. If 'new' patterns of purchasing consist in whole or part of

existing behavioral elements, in what sense are they new? Radical behaviorism tends to play down the whole idea of innovation because its explanation stresses the continuity which results from a relatively stable controlling environment. In the case of discontinuous products, novel responses may be learned accidentally in a process akin to that of the evolutionary development of the species (Skinner 1974, p. 114). But there is little discontinuity in practice. Most products permit trial in which the consequences of purchase and consumption become apparent before adoption or rejection occurs.

The analysis of new product purchasing in terms of its environmental consequences anchors the researcher's frame of reference more closely to observable behavior than does analysis in terms of inborn personality traits. The authors cited by Midgley and Dowling actually disconfirm the hypothesis that personality variables strongly influence purchase behavior and draw attention to the need to investigate situational influences. Midgley and Dowling's own quest for the situational factors that influence consumer behavior appears to have lost out to the attempt to explain innovation by reference to innovativeness.

Conclusion

The existence of a well-defined paradigm providing the normal component of scientific inquiry has had advantages for the development of consumer research. Yet the very success of the psychodynamic paradigm now threatens to impede theoretical progress. New bases of explanation are required which offer a standpoint from which to conduct a critique of the taken-for-granted assumptions on which psychodynamic explanation rests. Models derived within alternative paradigms should be amenable to the rigorous empirical testing which has often proved elusive in the case of the comprehensive models. It is important, therefore, that unobservables have greater empirical content than hitherto and that any core of theoretical assumption which cannot be directly subjected to empirical test should be logically evaluated by reference to competing explanations.

The most obvious contribution that radical behavioral analysis can make to the development of empirically-testable consumer theory stems from the relative closeness of its explanations to observed behavior. It promises to be a source of hypotheses which are amendable to relatively straightforward and unambiguous empirical test, e.g. with respect to the comparative efficacy of primary vs. secondary, and immediate vs. delayed reinforcers (Rothschild and Gaidis 1981). Its lesson is that theoretical development does not necessarily require high levels of abstraction: whatever unobservables are necessary for explanation should not be treated as immutable but so constructed as to allow their critical evaluation. Unobservables are a convenience to researchers and ought not to be used to reify currently-fashionable modes of explanation. If this is recognized, then radical behaviorism may provide a more direct route to understanding than paradigms which rely excessively on untestable hypothetical constructs.

The usefulness of radical behaviorism in consumer research depends, however, on researchers' capacity to recognize the totally different nature of its philosophical stance from that generally employed. In every instance in which cognitive and trait psychologists speak of changing behavior by acting on states of mind, the radical behaviorist speaks of changing the probabilities of action through the manipulation of reinforcement contingencies. As a result, many of the familiar analytical terms disappear and are replaced with concepts more closely related to observation (Skinner 1972, p. 94).

This is not to argue that radical behaviorism be pursued to the exclusion of other perspectives. First, like any way of seeing, radical behaviorism involves ways of not seeing; it rests like any paradigm, on an incomplete model of man. It offers explanation of a particular aspect of behavior, the rate at which responses are emitted; the

extrapolation from simple to complex actions on which its explanations of human conduct often rely involves extensive theory-dependency and, therefore, limitation. Second, insofar as scientific progress requires a proliferation of competing views, other paradigms will undoubtedly be needed to express fully the diverse nature of consumer choice. Methodological and social behaviorism have a role here. Nor has the paper argued against psychodynamic explanation per se. Apparent human capacities - for self-consciousness, for verbalizing the attention given to contingencies of reinforcement, and for modifying those contingencies to produce specific behaviors - encourage teleological explanation.

But, while so much consumer research is marked by an uncritical psychologistic reasoning, based on the automatic assumption that overt behavior implies intrapersonal causation, it will be necessary to prescribe an antidote. Just as radical behaviorism has provided a counterpoint to the 'loose mentalism' sometimes apparent in general psychology (Valentine 1982), so it now offers to play a similarly constructive role in consumer research.

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THE OPPOSITE OF SATIATION: MOTIVATIONAL PRIMING AS AN
AFTEREFFECT OF A PLEASURABLE CONSUMPTION EXPERIENCE¹

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Abstract

A recent focus of interest in consumer research has been on satiation, the process by which consuming a product leads to a temporary decrease in the person's desire to consume the same product again. This paper explores the possibility that there are circumstances under which consumption can have the opposite aftereffect -- a transient increase in motivation to continue consumption.

Introduction

In contrast to the traditional emphasis on information processing, a recent focus of consumer research has been on non-cognitive aspects of consumption, such as emotions and experiences (Hirschman and Holbrook 1982; Holbrook and Hirschman 1982). One example of this interest is a series of articles on satiation (McAlister 1979, 1982) and related constructs such as variety seeking (Faison 1977; McAlister and Pessemier 1982), novelty seeking (Hirschman 1980), and optimal stimulation level (Raju 1980).

Satiation can be described as a process by which consumption of a product results in a temporary reduction in motivation to consume the product again. The decrease in motivation may generalize to an entire product class (e.g., finishing a big meal suppresses desire for all kinds of foods), or, as in McAlister's models, the effect may be specific to particular attributes (e.g., the regular cola drinker chooses the "Uncola" as a change of pace).

Satiation effects appear to be noncognitive and nonassociative in the sense that they require neither information acquisition nor instrumental learning nor classical conditioning. For example, food-satiated persons stop eating even if they have not acquired any new, unfavorable information about the food (cognitive learning). Likewise, satiation occurs even if eating has not had any punishing consequence (instrumental learning), and did not happen to occur at the same time as some unpleasant external event (classical conditioning). Instead, the satiation is simply the result of the direct physiological consequences of eating a certain amount within a certain period of time. Furthermore, since satiation does not depend on either information acquisition or conditioning, it should be independent of the consumer's level of involvement with the product.

The concept of satiation seems to be especially applicable to products which provide hedonic experiences, such as foods, movies, and games. This paper explores the possibility that consuming these kinds of products can have a noncognitive effect that is in the opposite direction -- an increase in motivation to consume the product again. Consider, for example, the common-sense idea that if one wants to avoid eating too many potato chips at a party, one should not eat any at all. The rationale for this idea seems to be that eating a small amount of chips induces a "taste craving" (Solomon 1977b), i.e., arousal of one's desire to eat more of them. In the words of an old potato chip commercial, "I bet you can't eat just one." In experimental psychology, the term "priming" has been given to the enhancement effect of exposure to a reinforcer on operant behavior motivated by that same reinforcer (for a review see Eiserer and Ramsay 1981).

Analogous priming effects, though in dramatically different form, appear in drug addiction. Sufficient exposure to pharmacologically addictive substances such as opiates results in physical dependence, as evident in the withdrawal syndrome. The symptoms of withdrawal, which appear soon after the "high" from the last dose of the drug is gone, are extremely unpleasant but they can be eliminated by taking another dose of the drug (Jaffe 1980). Hence, it is assumed that the withdrawal state motivates the addict to use the drug again. Another illustration is the advice commonly given to recovering alcoholics: to abstain from alcoholic beverages entirely instead of trying to become "social drinkers" (Miller 1983). This advice presupposes that even a small amount of alcohol might make it hard for the individual to resist taking another drink, thus initiating a vicious cycle that could reinstate problem drinking. These considerations imply that, for the addicted individual, the immediate effect of a drug dose is priming rather than satiation.

This is not to imply that motivation to eat potato chips should have the same intensity or the same physiological substrates as motivation to consume pharmacologically addictive drugs. Nonetheless, snack foods and addictive drugs both can function as reinforcers, and it is reasonable to hypothesize that they can engender some analogous patterns of behavior. Further, within the past decade, researchers in the behavioral and biological sciences have begun to examine seriously the possibility of important similarities among phenomena as diverse as opiate addiction, alcoholism, obesity, compulsive gambling, and the habitual consumption of coffee and cigarettes (Levison, Gerstein, and Maloff 1983).

Moreover, some commonalities found among drug and nondrug habits actually are physiological. One example is the recent discovery that the brain contains naturally occurring, opiate-like substances (for a review see Adler 1980). These neurochemicals, called endorphins, may mediate a variety of habitual behaviors such as opiate use, social attachment (Herman and Panksepp 1978), and exercising (Dearman and Francis 1983). Another example is the development of physical dependence and withdrawal symptoms in people whose diets contain too much of a specific food (Randolf 1978).

In the 2 x 2 classification in Table 1, the effects of consumption on subsequent motivation to consume the same product are categorized according to the direction and nature of the effect. The two top panels represent processes which can be considered associative. On a cognitive level, the consumption experience permits the individual to acquire information about the product's attributes. Whether subsequent motivation is increased or decreased depends on the extent to which the attributes that the individual associates with the product are or are not satisfying. From the perspective of behavioral learning theory, consuming a product permits operant and classical conditioning to occur. Although operant and classical conditioning need not involve cognition (Hull 1951), both can be viewed as associative processes (Mackintosh 1974). For example, the response of using a product may become associated with a pleasurable consequence through operant conditioning. Likewise, through classical conditioning, an otherwise neutral stimulus such as a package can become a conditioned stimulus through association with unconditioned stimuli (UCSs) such as food within the package or the presence of companions with whom the product is consumed. The direction of the conditioning effects would depend on whether the consequences or UCSs correlated with consumption are reinforcing (rewarding) or punishing (aversive).

¹The video game experiment reported in this article was funded by a Summer Research Fellowship from the University of Missouri-St. Louis.

TABLE 1
CLASSIFICATION OF EFFECTS OF CONSUMPTION
ON MOTIVATION TO RESUME CONSUMPTION

NATURE OF THE EFFECT	DIRECTION OF THE EFFECT	
	Increase	Decrease
Associative Learning, Relatively Permanent	cognitive learning (satisfying attributes)	cognitive learning (unsatisfying attributes)
	operant conditioning (reinforcement)	operant conditioning (punishment)
	classical conditioning (rewarding UCS)	classical conditioning (aversive UCS)
Nonassociative, Transient	priming	satiation

In contrast, the effects in the two bottom panels of Table 1 appear to be nonassociative. Eating enough of a food at one sitting eventually will satiate the individual, whether or not any new associations involving the food are acquired during the meal. The party-goer fears that eating one potato chip will prime him (i.e., reduce his "will power" to avoid eating too many potato chips), even though he may be so familiar with that brand of chips that he is unlikely to learn anything new about them.

A second way in which conditioning and information acquisition may differ from satiation and priming is in the duration of the effects. Whereas learned associations seem to be able to persist for years in long-term memory, priming and satiation seem to dissipate within a relatively short time. For example, some priming effects can dissipate in a matter of minutes (DePaulo and Hoffman 1980). Some may last much longer: withdrawal symptoms of an opiate addict undergoing "cold turkey" treatment may persist more than a week (Jaffe 1980), but even that parameter is short compared to how long the addict can be expected to remember what the drug states were like. Hence, learning theorists typically postulate that relative duration is one variable that separates true learning from other experienced-based behavioral changes, such as satiation and fatigue (Hilgard and Bower 1981).

Theories of Priming

Opponent-Process Theory

One theoretical approach that deals explicitly with addiction and priming is the opponent-process theory of motivation and emotion (Solomon 1977a, 1977b, 1980; Solomon and Corbit 1973; Hoffman and Solomon 1974). The theory assumes that functionally similar physiological processes underlie virtually all emotional reactions. These processes ensure that when a pleasurable experience is repeated with sufficient intensity or frequency it will have an unpleasant motivational aftereffect. For example, the pleasurable sensations from drug "highs," tasty foods, and companionship are assumed to be followed by aversive states that can be called drug cravings, taste cravings, and loneliness, respectively. The aftereffect is assumed to motivate the person because the unpleasant feeling can be eliminated by resuming contact with the pleasurable stimulation (e.g., re-dosing with the drug). The theory also assumes that unpleasant experiences can produce pleasurable aftereffects.

A full description of opponent-process theory is beyond the scope of this paper, but two key assumptions will be noted here because of their special relevance to the study of priming and habitual consumption. One is that prior experience with the emotion-arousing stimulus strengthens the aftereffect so that it is more intense and longer lasting. Thus, the first few times a person takes an addictive drug, each "high" is followed by only a slight, short-lived craving to consume it again. However, after the individual has had the drug often enough, then the end of a high is followed by the long, intense craving known as the withdrawal syndrome (unless, of course, the addict avoids or stops the withdrawal syndrome by re-dosing).

The second key assumption is that the motivational aftereffect can be classically conditioned to environmental stimuli that are present when the emotion-arousing stimulus is experienced. Opiate addicts who have gone through withdrawal and have abstained from opiates for extended periods seem to experience withdrawal symptoms when they enter places where they have consumed the drugs in the past, and when they encounter companions who had been present during prior drug use (Wikler 1971).

Opponent-Process theory has been introduced to the marketing literature by Oliver (1980), in his analysis of affective reactions of consumers to disconfirmation of expectations in retail settings. In basic research, the theory has been examined in a variety of laboratory and field studies involving both human and animal subjects (e.g., Benton, Banks, and Vogler 1982; Craig and Siegel 1980; DePaulo and Hoffman 1980; Solomon 1980; Piliavin, Callero, and Evans 1982). Generally these studies have supported the model.

Consumption-Induced Moods

A second theoretical approach that may help in explaining priming is the analysis of consumers' moods (for a review see Gardner and Vandersteel 1984). In a typical mood-induction study, subjects are observed immediately after an experience that might affect mood, such as receiving cookies (Isen and Levin 1972) and winning a computer game (Isen et al. 1978). Since leisure experiences may alter one's mood (Mannell 1980), and since moods, like other emotions, can be expected to have motivational dimensions (Young 1973), it is reasonable to hypothesize that consuming a pleasurable product could result in a mood change that motivates continued consumption of the same product. In other words, using a product might put the individual "in the mood" to keep using it. However, it is also logically possible that a mood change resulting from consuming a product might motivate the person to do something else -- an effect which would be in the direction of satiation. Thus, mood analysis does not make specific predictions about whether the effect of consumption will be satiation or priming. Nevertheless, as will be explained below, mood concepts may be useful tools for description and measurement.

Opponent-process theory can be combined with mood analysis in the study of priming. Specifically, the unpleasant state which opponent-process theory postulates as the aftereffect of a pleasurable experience may be characterized as a mood. Thus, techniques developed to measure moods may be helpful in the empirical investigation of priming. In fact, mood measures have been used to test the prediction of opponent-process theory that unpleasant experiences have pleasant emotional aftereffects (Piliavin et al. 1982).

Empirical Data on Priming

Non-Experimental Data on Product Samples

Evidence of food priming in a marketing context is provided by Steinberg and Yalch (1978). In their field study, obese supermarket patrons who took a free sample of a doughnut while shopping were found to overspend (exceed their planned total purchase for the store visit)

by a greater amount than obese patrons who did not take a sample. The authors' interpretation was consistent with priming: "...eating food heightens its taste salience and this motivates obese persons to go shopping and buy more than intended." However, a satiation effect (less overspending after taking a sample) was observed for nonobese shoppers.

Video Game Experiment

The author has collected laboratory data which suggest that playing a video game can generate both priming and satiation effects. The study described here has been reported in detail elsewhere (DePaulo 1985).

In this experiment, college students who had prior experience with the "Pac-Man" video game were randomly assigned to two groups, and were run individually in a controlled-length session during which they played Pac-Man continuously. Subjects in the "10-minute" group played Pac-Man until at least 9 minutes had elapsed. The experimenter waited until the subject completed the game that was in progress at the end of 9 minutes, then stopped the session. Since a single game of Pac-Man typically lasted 1-3 minutes, the average session length for this group was approximately 10 minutes. In the other condition (the "3-minute" group), subjects played Pac-Man until the end of the game that was in progress after two minutes had elapsed.

Immediately before and immediately after the game session the subjects rated their current desire to play Pac-Man on a Likert scale. Over the next 18 minutes, the subjects completed a lengthy questionnaire, ostensibly to determine their "state of mind" during the game session. Actually, this questionnaire served as a filler activity to keep the subjects occupied for at least 18 minutes. While working on this task, the subjects were interrupted every two minutes and again asked to rate their desire to resume playing Pac-Man.

FIGURE 1
EFFECT OF SHORT VS. LONG GAME-PLAYING
SESSIONS ON DESIRE TO RESUME PLAYING
PAC-MAN (FROM DEPAULO 1985)

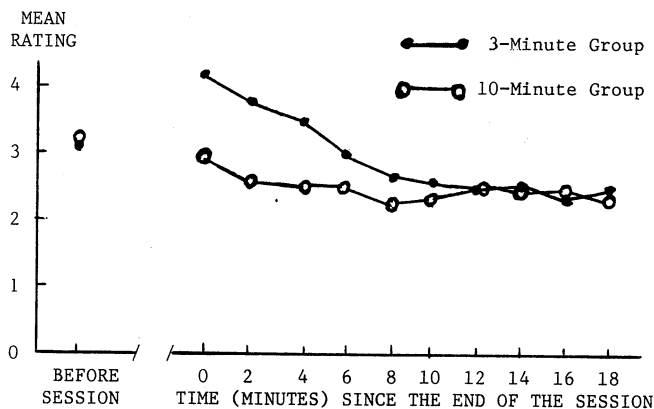


Figure 1 shows the mean ratings. The groups did not differ statistically on pre-game desire to play Pac-Man, but the 3-minute group mean was significantly higher than the 10-minute group mean on the first post-game rating, and significantly higher than the pre-game mean for the 3-minute group. The figure also shows the gradual dissipation of the enhancement effect in the 3-minute group, as confirmed by a statistically reliable interaction of Groups by Time in the data from the 10 post-game ratings.

The effect of the 3-minute game session seems to have been a temporary increase in desire to play Pac-Man. This finding is consistent with a priming model. However, the finding that desire to play was lower immediately after the long session than after the short session is

consistent with a satiation model, because more satiation of desire to play should occur in a longer session.

How can these two findings, which might seem conflicting at first glance, be explained? As proposed by Solomon (1977b) in his analysis of motivational aspects of eating, it is possible that both priming and satiation could be operating during the same consumption experience; the effect that is manifest in the subject's behavior would be the one that happens to be stronger under the circumstances of the observation. This possibility can be illustrated with the intuitive example of eating potato chips. Eating just a very small amount of potato chips seems to be sufficient for inducing a taste craving, but if much more of them are consumed in the same sitting, then satiation becomes strong enough to overwhelm the taste craving and cause the person to stop eating.

Why, then, was taking the doughnut sample followed by a priming effect for some shoppers (those classified as "obese") and a satiation effect for the other, nonobese shoppers? One possible reason is that the doughnut sample was a relatively small amount for an obese person but, for the nonobese, the same size sample was enough to produce more satiation than priming. Another possibility, suggested by Steinberg and Yaich (1978), is that nonobese people are simply not as sensitive to the taste of a food; this would imply that any amount of a food is less likely to produce a "taste craving" (observable priming effect) in a nonobese person.

The results of the video game experiment are consistent with the hypothesis that a priming effect will be manifest in behavior after a small amount of consumption, while satiation will be evident after a larger amount. Hence, playing Pac-Man for three minutes may have been like eating one potato chip at a party -- it induces more priming than satiation. Playing Pac-Man for 10 minutes may have been like eating just enough potato chips so that there was about as much satiation as priming -- there was no significant difference in the pre- and post-game ratings for this group. This analysis simply assumes that a small amount of consumption produces more priming than satiation, while a large amount of consumption produces more satiation than priming.

Basic Research on Operant Reinforcement

Experimental studies of animal behavior have revealed priming effects with a variety of species and reinforcers (for a review see Eiserer and Ramsay 1981). With food or water as reinforcers, the dual priming-satiation effects suggested above are clear. That is, giving the animal "free" (noncontingent) food or water instigates the animal to perform an operant response that it already has been trained to perform, if the free amount is small. Giving the animal a larger noncontingent amount suppresses subsequent operant responding.

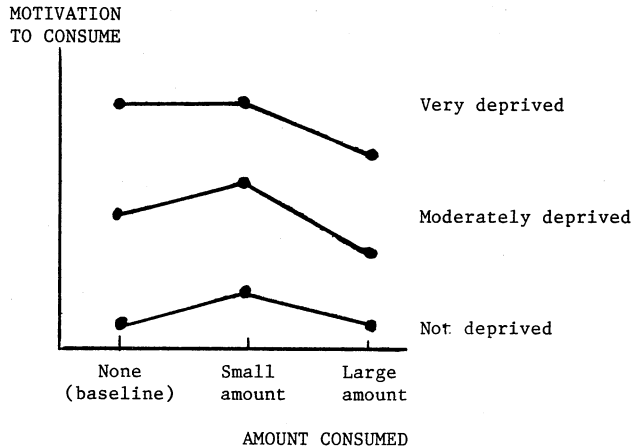
However, there are other reinforcers that generate strong priming effects with little or no satiation. These include presentation of an "imprinting stimulus" to a duckling (Eiserer and Hoffman 1973) and electrical stimulation of so-called "pleasure centers" in the brain (Gallistel 1973; Katz 1979). With these reinforcers, a larger amount results not in satiation but in an even stronger priming effect. A related consideration is the observation that depriving the animal of contact with these reinforcers does not increase motivation to consume them (DePaulo and Hoffman 1980); in contrast, very strong effects of deprivation are obtained with reinforcement by food and water. Thus, priming and satiation seem to be mediated by separate physiological systems. Whether a particular reinforcer engenders priming, satiation, or both would depend on the extent to which each system operates when that reinforcer is encountered.

In the case of foods and other products for which the desire to consume is increased by deprivation, how would priming and satiation be affected by the amount of prior deprivation? The simplest possibility is that depriva-

tion raises the baseline level of motivation and that priming and satiation raise and lower (respectively) this level. In other words, deprivation may produce a main effect on motivation without interacting with priming or satiation. However, it is possible that some interactions will occur due to floor and ceiling effects as illustrated in Figure 2.

FIGURE 2

HYPOTHETICAL INTERACTION OF PRIOR DEPRIVATION WITH PRIMING AND SATIATION



At a high level of deprivation (top curve), the priming effect of a large amount of food may be hard to observe empirically because of a ceiling effect (motivation is already high and cannot be increased much further). This is consistent with a finding obtained by Steinberg and Yalch (1978) when they compared data from obese shoppers who were "deprived" (said that they had not eaten within four hours before entering the store) with data from nondeprived obese shoppers. The increase in overspending associated with eating the food sample (priming effect) was smaller for the deprived than for the nondeprived obese shoppers. At the other extreme (bottom curve in Figure 2), there would be room for a priming effect but not for a satiation effect, since a non-deprived person's motivation to eat is already very low. This suggestion is consistent with another finding by Steinberg and Yalch: the decrease in overspending among nonobese shoppers who took a food sample (satiation effect) was observed only among those nonobese shoppers who were deprived. Thus, it should be easiest to observe both priming and satiation effects at an intermediate level of deprivation (middle curve).

This interpretation of the Steinberg and Yalch (1978) findings rests on post-hoc assumptions. Further research is needed to test the ceiling and floor effects hypothesized here.

Limitations

The aim of this paper is to encourage consumer researchers to investigate the possibility that motivational aftereffects of product use can involve priming as well as satiation. However, there may be difficulties in empirically isolating the effects of priming from associative learning. When subjects' motivation to resume consumption is enhanced as a result of prior consumption, there is always the possibility that they actually did learn something new during the observed or manipulated consumption episode, even if they have had substantial prior experience with the product. Of course, if the observed post-consumption increase in motivation seems very short-lived, one might feel confident in assuming that the effect was due to priming rather than associative learning, but this begs the question: how rapid must the decline in the effect be in order to conclude that this represents the dissipation of a motivational state

rather than the forgetting of a learned association?

It should be noted that this same confounding can occur in studies of satiation. Specifically, if consumption leads to a decrease in motivation to consume the product, it is possible that subjects learned something unfavorable about the product during the consumption episode, and that the recovery of subjects' desire to resume consumption represents the forgetting of the unfavorable association instead of the dissipation of satiation.

Isolating Priming Effects in Experimentation

Three steps could be taken to minimize the confounding of associative and nonassociative effects in experiments on priming and satiation. First, the subject pool could be limited to people who have already had considerable experience with the product under study and are very familiar with its features so that little or no additional learning is likely to occur during the experiment. Second, an attempt should be made to show both priming and satiation in the same experiment by having subjects consume both smaller and larger amounts. It would seem unlikely that subjects discovered something good about the product when they consumed a little of it and then discovered something bad about it when they consumed more of it, especially if the subjects were experienced users of the product. Under these circumstances the nonassociative interpretations (priming and satiation) would be more plausible. Third, an attempt could be made to measure associative effects directly through, say, attitude or perception measures. For example, if consumption during the experiment does not change subjects' ratings of the product's quality but does change their momentary desire to resume consumption, then the effect would appear to be priming or satiation, not associative learning.

Directions for Future Research

A basic objective of further investigation should be to arrive at a better understanding of when the immediate aftereffect of consumption is an increase in motivation to consume again (priming) and when it is a decrease (satiation). Based on the research reviewed in this paper, four factors can be hypothesized.

First, the amount consumed appears to be critical. The greater the amount consumed, the more likely it is that satiation rather than priming would be observed. Second, the animal behavior experiments indicate that the relative strength of priming vs. satiation depends on the type of reinforcer. By analogy this indicates that the type of product may be a determinant. More specifically, the animal studies imply that priming should be evident under a narrower range of conditions for products that replenish biological deficits (e.g., food) than for products that seem unrelated to survival needs (e.g., video games). Replenishing a biological deficit results in satiation, which could mask evidence of priming. Third, opponent-process theory postulates that prior consumption experience increases the strength of priming processes (as in the development of drug addiction). Fourth, the Steinberg and Yalch findings point to personal characteristics such as obesity.

In summary, prior research provides suggestions on what some of the regularities may be, but a more comprehensive model is needed.

Priming and the Satisfaction of Wants

The most favorable view of marketing is that firms which achieve success are those that offer products which satisfy consumers' wants. Implicit in this view is the assumption that, if consumers' use of a product increases their desire to use the product again, then the product must have satisfied some pre-existing want. This assumption implies that the increase in desire to use the product again must be an associative effect, i.e., the consumer learns that the product has want-satisfying capabilities. Galbraith's (1958) classic criticism of

this benevolent view of marketing is that the wants satisfied by products are not necessarily pre-existing but are created by marketers through advertising.

This paper does not take a stand on Galbraith's contention that advertising creates new wants. However, the possibility of priming as an aftereffect of consumption suggests another way, besides advertising, in which a want can be created. Specifically, consumption by itself may generate a type of motivation (the enhanced desire to consume the same product again) that did not exist before the product was first consumed.

To be precise, we need to distinguish between two sources of a person's total desire to resume consumption of the product: motivation that is independent of the product and motivation that is a result of exposure to the product. For example, a person may start playing a video game out of boredom (motivation independent of the product, or "pre-existing"). After playing for a short time some boredom might still exist, but the person's desire to resume playing may be greater than his or her original desire to start playing (as in the 2-minute group in the video game experiment); a priming process has increased the person's total desire to resume playing. Hence, the person plays the game longer than is necessary for boredom to be relieved, since priming alone can motivate extended playing on that occasion.

The only role that marketing may play in creating this kind of want is indirect: a promotion or some other marketing effort may instigate trial of the product on a particular occasion, and the initial bout of consumption, in turn, instigates prolonged consumption through a priming process. This is in contrast to Galbraith's view that advertising creates new wants directly.

Priming and Compulsive Consumption

As explained above, a priming process can cause a person to consume a product beyond the point where the pre-existing want which initiated the bout of consumption is satisfied. This situation is very clear in drug addiction. Frustration, social pressure, thrill-seeking, or some other drug-independent factor may motivate initial use of drug, but in the addicted individual repeated drug use can be motivated by the aftereffects of drug use itself, i.e., the withdrawal syndrome. Analogously, hunger may motivate a person to start a meal, but priming (taste craving) may be responsible for some overeating.

Thus, a major application of the concept of priming should be in the analysis of consumption which is so compulsive that it is a serious problem. Examples of such phenomena include not only drug abuse but also leisure pursuits that ordinarily seem harmless, such as playing video games and exercising. Arcade video games seem to be so involving that some communities, concerned about truancy, have enacted ordinances to restrict access to arcades by adolescents (Newsweek 1981). Avid joggers, in extreme cases, choose to run even when they have injuries that make running painful, and their "exercise addiction" seems to disrupt their interpersonal relations (Morgan 1979). Several scholars recently have called for consumer researchers to address such problems (Bloch and Bruce 1984; Shimp and Dyer 1979). Priming processes, which can motivate consumers to continue consumption beyond the point where pre-existing wants are satisfied, may play a key role in compulsive consumption.

What can a person do to avoid this kind of excessive consumption? One solution lies in the fact that a priming effect is relatively transient. Thus, if a person can just refrain from further consumption for a relatively short time, the priming aftereffect should dissipate and no longer motivate resumption of consumption on that occasion. This solution is consistent with advice typically given to dieters on how to avoid eating too much at one meal: walk away from the table after you have eaten your caloric allocation for that meal and stay away from food. It is assumed that within minutes you will feel

less hungry than you did immediately after you stopped eating. However, while this tactic may be relatively easy for the dieter, it can be agonizing for the opiate user, for whom the "cold turkey" cessation of drug intake initiates a withdrawal syndrome that can last for days.

Conclusions

Certain conditions exist under which consumption of a pleasurable product temporarily increases motivation to consume it again (priming) instead of decreasing the motivation (satiation). This proposition is supported by intuitive considerations as well as by experimental and nonexperimental data from both human and animal studies. Priming cannot be understood with reference to the concepts of cognition and information processing that traditionally have been the dominant focus of the consumer behavior literature, nor can it be attributed to classical or operant conditioning. However, priming can be studied through two theoretical approaches which have recently attracted the attention of consumer researchers: opponent-process theory and mood analysis. Since priming can motivate prolonged or repeated consumption on a particular occasion, this kind of process may underlie compulsive consumption habits. More research is needed to identify the conditions under which the immediate aftereffect of consumption is priming rather than satiation.

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CLASSICAL CONDITIONING EFFECTS IN PRODUCT/CHARACTER PAIRINGS PRESENTED TO CHILDREN

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Abstract

An experiment was designed to test for effects of classical conditioning in children's product preferences. Eighty-four children participated in one of six conditions. The color of a pencil (orange or yellow) was presented with a picture of Smurf in one of three temporal arrangements. The preschoolers saw the pictures of the pencil and Smurf together (simultaneous condition), sequenced separately (forward condition) or unpaired (control). Results indicated no behavioral choice impact. However, a measure indicating cognitive activity resulted in statistical differences among the conditions. Children in the forward conditions were less likely to trade the pencil selected for a sticker. Implications to the classical conditioning framework and to children's advertising are discussed.

Introduction

A basic principle of learning, classical conditioning, has received increased attention in the marketing literature (Nord and Peter 1980; Gorn 1982; McSweeney and Bierley 1984; Gresham and Shimp 1985; Allen and Madden, forthcoming). As Nord and Peter (1980) pointed out, advertisers appear to make frequent use of the principles of classical conditioning when repeatedly pairing exciting or sexy voices, music, etc. with a product.

Pavlov's (1927) work stands as the basic paradigm for classical conditioning. Pavlov arbitrarily selected a stimulus, a metronome, to be presented to a hungry dog. The metronome, labeled the conditioned stimulus (CS), was then followed by food, the unconditioned stimulus (US). The US, the food, automatically caused the dog to salivate, the unconditioned response (UR). With pairings of the metronome (CS) with the food (US), the dog responded to the metronome (CS) by salivating, now called the conditioned response (CR), even in the absence of food. The events are illustrated as follows:

CS(metronome)/US (food) ----- UR (salivation)
CS(metronome)-----CR (salivation).

The above ordering is referred to as forward or traditional conditioning. The CS and US can be presented together (simultaneous conditioning), or the US can precede the CS (backward conditioning).

McSweeney and Bierley (1984) presented an excellent review of recent developments in classical conditioning. They reported changes in assumptions about the form of the CR and the temporal arrangement of the CS and US needed to establish a CR. In terms of form, the CR does not have to resemble the UR. Second, the sequencing of the CS and US is less restrictive. The traditional, temporal priority view suggested that a CS must precede a US in time for conditioning to occur. That is, the metronome must precede the food or a product must precede the music in an ad (forward conditioning). Rescorla (1967) argued for a predictiveness view suggesting that the CS (the metronome) must predict the US (the food), but the CS must not necessarily precede the US in time. His reformulation requires the use of a control group to ascertain whether true conditioning has occurred as distinct from CS or US familiarity or interaction. [The reader is referred to McSweeney and Bierley (1984) or Moore and Gormezano (1977) for a fuller explanation.]

McSweeney and Bierley (1984) cautioned consumer researchers against assuming that people respond like

rats. They argued that consumers behave in more complicated settings than do animals in the laboratory. Many studies are needed before "translations" from the laboratory work with animals, upon which this literature is built, are made to consumer behavior.

The potential usefulness to consumer behavior of the classical conditioning paradigm appears encouraging by the work of Staats and Staats (1957, 1958, 1959) who suggested that the learning paradigm is applicable to humans. The Staats' work resulted in evaluative meaning being successfully conditioned. For example, Staats and Staats (1957) associated visually presented nonsense syllables with auditorily presented evaluative adjectives over a number of trials. They reported that the nonsense syllables that had been paired with positive meaning (e.g., happy) were considered more pleasant than those nonsense syllables paired with negative evaluation (e.g., ugly). Their work offers promise that the underlying mechanisms for automatic transfer are applicable to human settings that involve stimuli more approximate to advertising applications.

Empirical work on the classical conditioning paradigm in a marketing context is in the pioneering stage. Gorn's (1982) offered support for the usefulness of the classical conditioning paradigm. He reported two experiments testing whether the framework could account for the impact of music, a background feature, on product choice. Subjects saw a slide of either a blue or beige pen and listened to one minute of either pleasant or unpleasant music. They were asked to select a pen "for their help." Gorn reported a clear-cut impact of the music (pleasant or unpleasant) affecting the selection of the pen. Those subjects who heard the pleasant music were more likely to select the color of pen they saw on the slide, while those listening to the unpleasant music selected more often the color they had not seen. In the second experiment, Gorn (1982) manipulated the decision-making context and argued that classical conditioning accounted for choice behavior when the decision-making context was uninvolved.

Allen and Madden (forthcoming) questioned whether Gorn's findings would be replicated with a stronger experimental design. While acknowledging Gorn's important introduction of the neglected topic to the marketing literature, Allen and Madden (forthcoming) suggested that Gorn's processing of subjects in groups in a classroom setting could have resulted in either group interaction and/or awareness of other experimental conditions. Allen and Madden (forthcoming) designed an experiment to be administered on an individual basis in which pleasant or unpleasant humor was paired with a color slide of a pen (green or black). They did not find support for the classical conditioning paradigm. In both the pleasant and unpleasant treatment groups, a majority ended up selecting the color viewed on the screen.

Allen and Madden (forthcoming) extended the theoretical inquiry by designing a clever buy-back procedure to assess whether a conditioned response, affect, would manifest itself in a decision that engaged more active cognitive processes. A statistically significant difference appeared between the pleasant and unpleasant humor groups with a greater percentage of pens sold back by those who listened to the unpleasant humor. They explained the results by suggesting that humor created feeling states in which those in pleasant humor condition were more likely to generate positive thoughts. Thus, they were more resistant to the buy-back attempt. Although no direct measures of the thought processes were taken, Allen and Madden (forthcoming) interpreted their finding as congruent

with the "mood" literature (cf., Bower 1981; Clark and Isen 1982) suggesting that an affective state can influence people's judgments and behaviors indirectly by prompting and biasing cognitive activity.

Therefore, the two empirical efforts in a marketing context, both involving simultaneous conditioning, provide contradictory indications for the applicability of the classical conditioning framework to marketing phenomenon. Gorn's (1982) work with music offered strong support. However, Allen and Madden (forthcoming) reported none. In fact, the results from their buy-back measure, which may have produced a mood that biased cognitive activity, advised that no automatic responses occurred as expected under the classical conditioning paradigm.

The current research to be described consisted of another effort to witness conditioning effects. Both forward (or traditioning) conditioning and simultaneous conditioning were tested. An advantage of the present study was the use of young children as subjects. A major problem for consumer researchers to consider is subject awareness (Allen and Madden, forthcoming). Because young children are less likely to intuit a researcher's purpose, concern for this potential demand artifact is minimized.

Research Hypotheses

An experiment was designed to assess whether a favorable source paired with a product would directly affect children's product preferences. Two temporal arrangements between the CS and US were tested. First, it was hypothesized that children who saw a picture of a pencil together with a picture of a favorable character (simultaneous conditioning) would not evidence choice preference based on the simultaneous pairing. The second hypothesis predicted, however, that children who first saw a picture of the pencil followed by a picture of the favorable character (forward conditioning) would be more likely to select the pencil "advertised."

The rationale for the two hypotheses is as follows. The research literature grounding the first hypothesis is contradictory in terms of anticipated results. In general, laboratory work with animals suggests that simultaneous conditioning does not provide optimal conditioning (Smith, Coleman, and Gormezano 1969). Moore and Gormezano (1977) asserted that instances of simultaneous conditioning that have appeared have failed to include proper controls or have employed stimuli of too long a duration.

In terms of human conditioning, Gorn's (1982) work indicated success. As discussed, Allen and Madden (forthcoming) did not find effects. Thus, the first hypothesis is stated in a fashion consistent with the work based on animals and with Allen and Madden's (forthcoming) failure to find an effect with people.

In terms of the second hypothesis, effects from the forward conditions were predicted in accord with the literature based on animal literature. None of the human studies have included forward conditions, although Staats and Staats (1957, 1958, 1959) found effects from forward delay conditioning of adult subjects. As discussed in the introduction to this paper, Rescorla (1967) argued for a "predictiveness" view rather than just a temporally-based one. It is generally agreed that both views dictate the use of a control group to ascertain true conditioning. It should be noted that the issue of what constitutes an appropriate control has received considerable attention. An unpaired control group procedure assumes randomized sequencing of CS (alone) and US (alone) presentations at intervals larger than that of the conditioning group(s). Rescorla (1967) argued for a truly random control procedure in which CS and US were independently programmed so that the US would have equal probabilities of occurring

in the presence or absence of the CS. Gormezano and Kehoe (1975) pointed out both empirical and theoretical difficulties with the truly random control procedure. In recognition of the problems (Holland and Rescorla 1975), the more traditional, unpaired control has once again become favored. Procedures will be described in the next section of this paper that incorporated an unpaired control for the current study.

It should be noted that designing an acceptable control procedure is particularly challenging when dealing with human subjects who may find unpaired or truly random exposures absurd and/or who may intuit the researcher's purpose. Subject awareness, or lack thereof, is a major consideration for the researcher. As discussed in the introduction of this paper, one advantage of working with preschoolers is that they are probably less likely to determine the researcher's purpose as compared to college students who may become "sophisticated" in their participation in projects.

Method

A 3 x 2 factor design was created to test for evidence of classical conditioning effects on children. Three levels of the first factor, temporal condition, were as follows: 1) simultaneous conditioning, CS and US presented together, 2) forward conditioning, CS presented sequentially followed by US, and 3) unpaired control, CS and US presented alone, randomly and in a long interval in relation to each other. The reader will notice that the forward conditioning reflects the traditional view of temporal spacing between the CS and US.

The second factor consisted of two levels of color of the product: 1) an orange pencil and 2) a yellow pencil. This factor was included to mock Gorn's (1982) and Allen and Madden's (forthcoming) behavioral measure of a pen selection.

Therefore, the six groups were as follows: 1) simultaneous conditioning - orange pencil, 2) simultaneous conditioning - yellow pencil, 3) forward conditioning - orange pencil, 4) forward conditioning - yellow pencil, 5) unpaired control - orange pencil, and 6) unpaired control - yellow pencil.

Subjects

Arrangements were made with the directors of a daycare center and a preschool in two adjacent suburban communities of a large, Midwestern city. Eighty-four subjects were recruited and randomly assigned to the conditions. The subjects were 4 and 5 years old (44 were four years, 40 were 5 years; mean age = 58.1 months). Boys and girls were approximately equal (43 boys, 41 females), and they were mostly white (77 white, 7 black). The subjects could best be described as coming from suburban, middle to upper-middle income homes surrounding an outerbelt highway of the city.

Stimuli

Brightly colored pencils were selected as the CS. Fifteen preschoolers, from similar socioeconomic backgrounds as the test children, compared four colors (black, blue, yellow, and orange) in side-by-side tests of actual pencils (the four colors were narrowed down from an original pool of eight). Orange and yellow were decided from the pairwise comparisons on an equal preference basis (53.3% preferred orange and 46.6% preferred yellow).

The source for pairing was also pretested. The same fifteen children rated nine characters on a four-point interval felt board illustrating smiling to frowning faces. The source rating task was systematically rotated with the pencil comparisons.

A picture of Smurf was clearly favored (n = 15, mean rating = 4.0 on a 1 to 4 scale). Indeed, the ceiling score indicated strong popularity. Other characters evaluated included Cabbage Patch's Otis, Cabbage Jack, Care Bear, Gargamel, Pink Panther, Prune Face, A Big Bad Wolf, and Pie Man who received the lowest score of 1.8.

Pictures of Smurf and the pencils (color photocopies of the actual pencils) were transferred to individual 9" by 12" laminated posters. Multiple copies were made for ease of administration of the three exposures included for each child in each condition.

Procedure

Individuals were randomly assigned to one of the six treatment groups. Each child saw the poster of Smurf associated with a poster of either an orange or yellow pencil. As described earlier, the three temporal arrangements of the associations were either simultaneous, forward, or unpaired (control). Three exposures were included to strengthen the manipulation and were consistent with previous efforts in psychology (McSweeney and Bierly 1984). All interviews were conducted on an individual basis.

Children were told that they would be asked to answer some questions and play a game with the experimenter. In fact, the three exposures to the CS and US were buried in another study about children's understanding of advertising. At intervals appropriate to the conditioning treatment, children were asked to look at some pictures the experimenter "brought along." The subjects in the simultaneous conditions viewed the posters held side-by-side. The three exposures were approximately equally spaced during the 20 minute session. Children in the forward conditions saw the poster of the pencil immediately followed by the poster of Smurf, once again, at intervals approximately equally spaced. Children in the unpaired control condition saw one poster at six different breaks (approximately equal) in the 20 minute session. The six posters used in the unpaired control conditions were shuffled before each child entered the test room. The length of exposures, five seconds, was held constant across all conditions.

Each child rated his/her liking for Smurf on a four-point interval faces scale at the end of his/her session. Smiling to frowning faces were illustrated on a felt board which had also been used for the pretest. In addition, each child answered how good he/she thought Smurf was, and how good a feeling Smurf gave him/her. A four-point interval scale was vertically displayed on a board with the following anchors **GOOD** **good** **bad** **BAD**. Each child received at least two practice trials. The experimenter asked the child to "try the boards out" by indicating answers about such other familiar characters as Santa Claus, Strawberry Shortcake, Luke Skywalker, Pie Man, and so forth. The experimenter asked about Smurf after she judged the child to be proficient in the use of the boards.

The key measure for the study was taken at the very end of the session. The experimenter said that she wanted to thank the child for being in the study. She showed the child a yellow and orange pencil held side by side and asked the child to select one. (Pretests of the procedures indicated the importance of presenting the pencils precisely side by side. During one pretest session, the experimenter asked the child why he picked a particular color. He responded, "because it is longer." The experimenter was careful to hold the pencils directly next to one another.)

A buy-back procedure was modified from Allen and Madden (forthcoming). The experimenter said to the child after his/her selection, "I can only give you one thing, but I want to be sure you get something you like--the pencil is yours now. But, would you like to trade me for a

sticker?" The experimenter then opened a small box filled with a variety of stickers that were very popular during the time of the study.

This "buy back" procedure was included with the rationale provided by Allen and Madden (forthcoming). Whereas the choice between an orange and yellow pencil (that were equally desirable as based on a pretest) would probably not stimulate much cognitive activity, a decision to trade for a sticker would probably evoke some thought.

The experimenter placed each child's selection in an envelope that was sealed in his/her presence noting, "so it won't be lost." Thus, the child's selection was kept out of view from the other children. The child then returned to his/her classroom and joined in the ongoing activities. Teachers were asked not to discuss the study with the children but to listen for comments. Few comments were relayed; however, teachers reported such as the following, "it's fun to talk to the lady; you get to play a game, etc." No teacher reported children's awareness of the study's purpose; indeed, few comments were expressed by the children.

Results

Pencil color selection

The data were analyzed in a fashion consistent with prior work in marketing (Gorn 1982; Allen and Madden (forthcoming). As can be seen in Tables 1 and 2, the treatments did not yield statistical differences in color selection.

The results depicted in Table 1 suggest that there may have been an overall color preference for orange. Of the 14 control subjects who saw yellow, 10 selected the orange pencil. However, only 6 out of the 14 orange control group picked orange.

TABLE 1
ANALYSIS OF SUBJECTS' PENCIL COLOR CHOICES
SIMULTANEOUS VERSUS FORWARD VERSUS CONTROL

	Simultaneous		Forward		Unpaired Control	
Color Chosen	Color Subject Saw	Color Subject Saw	Color Subject Saw	Color Subject Saw	Color Subject Saw	Color Subject Saw
	Orange	Yellow	Orange	Yellow	Orange	Yellow
Orange	8	10	18	7	8	15
Yellow	6	4	10	7	6	13
	14	14	28	14	14	28
	$\chi^2 = .62, df=1$		$\chi^2 = .144, df=1$		$\chi^2 = 2.33, df=1$	
	sign. = .43		sign. = .71		sign. = .13	

More importantly, Table 2 illustrates the data in Gorn's (1982) fashion. The key concern is not what color was picked per se, but whether the source influenced the choice based on the color paired. Table 2 displays a crosstabulation of the pencil selected ("advertised" versus "nonadvertised") by condition. No statistically significant difference appeared ($\chi^2 = .686, df = 2, n.s.$).

Thus, the first hypothesis received support. Children who viewed Smurf simultaneously with the pencil evidenced no choice preference based on the pairing (simultaneous condition). The second hypothesis did not receive support, however. It will be remembered that children who first saw the pencil then viewed Smurf were

predicted to show choice preference for the "advertised" pencil (forward condition). The data offered no support. Therefore, the form of conditioning, simultaneous or forward, provided for no statistical differences from the control group who saw Smurf and the pencil in an unpaired fashion.

TABLE 2
ANALYSIS OF SUBJECTS' ADVERTISED/NONADVERTISED CHOICES AND CONDITION

Condition	Pencil selected		
	"Advertised" pencil	"Nonadvertised" pencil	
Simultaneous	12	16	28
Forward	13	15	28
Control	10	18	28
	35	49	84

$$X^2 = .686, df = 2, n.s.$$

In short, no support was indicated for automatic behavioral responses to a favorable character, Smurf, being associated with a product. This finding is consistent with Allen and Madden's (forthcoming) failure to establish a simultaneous conditioning effect with adult females. It is inconsistent with Gorn's (1982) results in favor of the simultaneous conditioning hypothesis.

The trading results

Allen and Madden's (forthcoming) buy back procedure was mocked in that children were provided the opportunity to trade the pencil selected for a sticker. This measure was included to gauge whether Smurf would create a positive feeling state that would bias the cognitive evaluation of the pencils. In the procedure section of this paper, it was argued that a trade for a popular item would be more likely to stimulate thought as compared to a choice between two pencils that varied only in color.

The percentages who traded the sticker for a pencil were compared among the simultaneous, forward, and control groups. The following trades were made: simultaneous group, 82.1% (23 out of 28); forward group, 60.2% (17 out of 28); and control subjects, 89.3% (25 out of 28). The difference between the forward group and the control group ($z = -2.18, p < .05$) was statistically significant, and the one between the traditional and the simultaneous group ($z = -1.53, p < .07$) was nearly so at the traditional .05 level. Nearly the same percentage of the simultaneous (82.1%) and control subjects (89.3%) traded, $z = -.71, n.s.$ Therefore, the treatments yielded one statistical difference in the children's willingness to trade. Apparently, the children who saw the pencil, then Smurf, were more reluctant to trade the selected pencil for a sticker. It will be argued that this procedure biased positive evaluations. Although no direct measures of thought processes were taken, children in the forward group appeared more resistant to trade.

At first glance, the trading results seem to lend support to the conditioning mechanism. As one would anticipate with conditioning, children in the forward group appeared more resistant to trade. For this interpretation to hold, however, one would expect that within the forward group, those children who selected the color of pencil paired with Smurf (consistent selectors), would have been more resistant to trade as compared to those children who selected the color they had not seen paired. Yet, within the forward group, 8 (61.5%) traded of the 13 who appeared consistent with their exposure, while 9 (60%) traded of the 15 who picked the color that they had not been shown. Thus,

the difference in percentages of traders was not statistically significant ($z = .06, n.s.$), as one would expect with a true conditioning result. In addition, differences within the other groups were statistically insignificant [simultaneous ($z = -.74, n.s.$): 9 (75%) traded of 12 consistent selectors versus 14 (87.5%) traded of the 16 inconsistent selectors; control ($z = -.95, n.s.$): 8 (80%) traded of the 10 consistent selectors versus 17 (94.7%) traded of the 18 inconsistent selectors. Therefore, the color selected in terms of its exposure did not appear to relate to the trading variable.

The interpretation for cognitive activity is consistent with Allen and Madden's (forthcoming) finding with adults. They reported that pleasant humor, simultaneously presented with a slide of a pen, resulted in subjects' reluctance to accept money for the pen selected. Allen and Madden (forthcoming) argued that their finding was bolstered from indications from the "mood" literature. Humor resulted in an affective state that had an impact on subjects' judgments and behaviors indirectly by biasing cognitive evaluations of the pens.

The same argument is relevant to the current finding. However, only children who saw the items in a traditional temporal arrangement (CS before US) were cognitively stimulated. The procedure used in the current study may have precluded a "cognitive" result from those in the simultaneous condition. It will be remembered that all exposures were held constant at five seconds. Therefore, the children who saw the pencil and Smurf held together had less time, as compared to children in other conditions, to view the stimuli. If they had been provided a longer exposure, then a trading result may have been significant. On the other hand, as compared to the control children, the ones in the forward group appeared more reluctant to trade. The length of exposure during the control and forward conditions was equivalent. Nevertheless, the trading results are best viewed as offering no support for conditioning in absence of a difference within the forward group in terms of resistance to trade and consistency of selection. In short, children who selected a color consistent with their exposure should have been more reluctant to trade, but were not. Thus, no support is offered for a conditioning result in absence of such a difference to trade within the forward group.

Discussion

The research findings offered no support for automatic responses to classical conditioning manipulations on children. In fact, results from an offer to trade suggested that cognitive activity may have been biased among children who saw a traditional, forward pairing. Limitations on the confidence of this interpretation include several methodological concerns in addition to the length of exposure already discussed.

First, it should be stressed that the current study contributes only one small piece of evidence on conditioning effects, or more precisely, the lack thereof. Many empirical studies are needed. Cell sizes of fourteen in the current study are not large. Moreover, children completed this exercise during a twenty minute session. Although the procedures probably minimized awareness, fatigue may have occurred (other tasks across subjects were held constant, however). Therefore, as is wise when interpreting any findings from one experimental setting, caution is warranted.

In addition, a US pre-exposure effect may have occurred. Familiarity has been found to decrease the effectiveness of the stimulus as a US (Mis and Moore 1973; Rescorla 1973). Smurf was not only familiar to the children but highly liked (pretest subjects' mean = 4.0, all experimental subjects mean = 3.8; 4-point scale). One could argue that an unfamiliar character should be paired before concluding a failure of conditioning. On the

other hand, findings from the trade measure indicated that a forward pairing did have an effect--on cognitive evaluation, which is the antithesis of an anticipated automatic response. Therefore, an interpretation for a pre-exposure effect is questionable.

The current research provides some implications for those interested in issues of children's advertising. Little empirical work has been conducted on source effects. Yet, critics of television advertising allege that the use of characters takes unfair advantage of the younger viewer. Rossiter (1980) presented an excellent overview and research agenda on source effects in children's advertising. He pointed out that NAB restrictions on endorsements to children can be interpreted as a reflection of concern for the allegedly negative effects.

The current research findings cannot be interpreted as support for the critics' concern. Children in the traditional, forward conditioning group were more reluctant to trade; however, one can argue that Smurf stimulated positive evaluations through active thought processing. Based on the data, one cannot argue for children's automatic responses to Smurf. Thus, a passive view of children's viewing, which is reflected in critics' concern, received no support.

Until recently, attention to television has been conceptualized as reactive in nature with the child being passively controlled by the medium. More recent work in children's television viewing does not lend support to this passive view. Instead, children appear to be active processors (c.f. Anderson and Lorch 1983; Wright and Houston 1981). It should be stressed, however, that the current research addresses these broader issues in only a most peripheral way. The present study consisted of a limited manipulation of sequencing of posters with likenesses of pencils and Smurf. Needless to say, television advertising consists of vastly more complex stimuli.

Nevertheless, the current findings lead to future research questions. Audiovisual manipulations of source effects are needed to decipher critics' concerns. The classical conditioning framework provides one path of inquiry to study whether children's responses are automatic or more active in nature.

To conclude, no empirical support was indicated for behavioral effects when pictures of pencils were paired with Smurf in three temporal arrangements (simultaneous, forward, and unpaired control). Simultaneous effects were not predicted (first hypothesis); however, children in the forward conditions were predicted to exhibit automatic responses (second hypothesis). Results from a trade-back measure were more equivocal. This study contributes just one small piece of evidence in an area of research worthy of attention. Future research efforts should include manipulations of media, background features, temporal arrangements, and research settings. Hopefully, evidence will accumulate on the viability of the classical conditioning framework in a marketing context including its application, or lack thereof, to issues of children's advertising.

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SEX-LINKED TRAIT INDEXES AMONG BABY-BOOMERS AND PRE-BOOMERS:
A RESEARCH NOTE

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Abstract

This paper presents an examination of sex traits in two female age cohorts: Baby-Boomers and Pre-Boomers. Relationships between variables and trait indexes past research considered sex-linked were assessed. Findings indicate that the past interpretations of femininity still hold true. However, current perception of masculinity traits seems socially redefined to self-assurance and to incorporate femininity as well, which may explain much contradiction in prior sex research. Indications are that the two cohorts do interpret sex role traits differently.

Introduction

The relationship of sex traits, sex roles and sex-linked characteristics has long been of interest in multidisciplinary research. Within the past decade, these topics have surfaced in marketing literature; while the relationship of sexual identity and consumer behavior has been investigated to some extent, much more remains to be discovered. This paper presents a reexamination of sex traits in an age-related social context.

Sex traits are treated in two ways: one, as simple unidimensional self-descriptions--either "feminine" or "masculine"; two, as multi-trait indexes of self-linked identity--FEMININITY or MASCULINITY.

The currently accepted sex role categories of Feminine, Masculine, and Androgynous, all based on combinations of these FEMININITY and MASCULINITY trait indexes (Bem 1974), have not been especially useful to consumer behaviorists. We felt that a reexamination of the uncombined indexes might provide more practical results than the combined typology has done so far. Additionally, since the central changes in society concerning appropriate role stereotyping have occurred since World War II, and have mainly impacted on the roles of women, we also felt that concepts of FEMININITY and MASCULINITY might very well be associated with the dimensions of age in women consumers.

We thus decided to conduct an exploratory study to examine the way selected demographic, psychographic, and behavioral variables relate to self-perceived sex traits in two female age cohorts: Baby-Boomers (25-39) and Pre-Boomers (40-64).

Sex Role Research

Pre-1970's sex role research assumed that "healthy" individuals adopted the sex role appropriate to their gender, and demonstrated only those traits judged desirable for that gender by society (Robinson and Green 1981). Traditional sex role theories, however, were unable to accommodate the dynamic changes in America's cultural milieu dating from the late 1960's (Bem 1974, 1975, 1977; Bem and Lenney 1976; Robinson and Green 1981). The shattering of cultural stereotypes in the wake of the women's liberation movement forced the conclusion that sex roles and biological gender are not necessarily the same.

Self-Perceived Sex Concepts

The theoretical framework for measuring combinations of feminine and masculine traits to determine sex role concepts is the Bem Sex Role Inventory (BSRI; Bem 1974). The BSRI is a self-descriptive survey instrument relying on a 7-point true-untrue scale to measure respondents' identification with 60 characteristic qualities. Independent panels of judges in the early 1970's established these attributes as either feminine, masculine, or non-gender

related--for example, helpful or happy. Each of the BSRI role typologies is measured by 20 of the attributes; a respondent's identification with these qualities provides insight about his/her self-perception as feminine or masculine.

BSRI research has been used to assign individuals to four categories: Feminine, Androgynous, Masculine, and Undifferentiated. This categorization relies on various combinations of the femininity and masculinity scores, minus the non-gender subscale. Most of the BSRI based sex research (e.g., Bem 1974, 1977; Bem et al 1976; Robinson and Green 1981) is concerned with the Androgynous sex role--high scores in both femininity and masculinity--and its difference from the Feminine role--high femininity and low masculinity scores. Few differences have been found between Androgyny and either the Masculine--low femininity, and high masculinity--or Undifferentiated--low femininity and low masculinity--sex roles. Bem's widely used research has led to the reevaluation of femininity and masculinity as separate and blendable constructs, not bipolar opposites.

There has been growing marketing interest in the sexual revolution's impact on the American woman's interpretation of femininity and masculinity (e.g., Caffetera 1984; Kanter and Wortzel 1985; Kilbourne 1984). Some consumer studies have been done on product and brand usage (e.g., Allison et al. 1980; Gentry et al. 1978). Marketers have also examined sex roles and stereotypes on the mass media, with particular emphasis in advertising portrayals (Coughlin and O'Connor 1985). Past research emphasis, when the BSRI was employed, has been almost exclusively on combinations of traits, especially the Androgynous. Results, however, have been disappointing: the Androgynous role, like the 1960's Unisex one, seems to be a fad (Caffetera 1984).

The Study

We felt that a reexamination of the sex traits of femininity and masculinity in the light of a woman consumer's age might be especially useful. The role changes concerning education, employment, and sexuality seemed likely to affect the Baby-Boom woman differently from the Pre-Boomer woman. We thus conducted an exploratory study to investigate the way sex traits, measured by BSRI items, correlate with a number of variables in the two female populations.

Variables Selected

Multidisciplinary sex-role research has established sets of variables associated with self-perceived sexual roles measured in various ways. Contradictory evidence has characterized such research, perhaps caused in part by differences in sampling procedures and populations studied. Even when contradictory findings occur, however, certain variables often show significant relationship to sex traits. Tested relationships are listed in Tables 1 and 2; where male and female populations were analyzed separately, only female ones are shown.

In addition, one other hitherto untested potential correlate was also selected on the basis of logic: Opinion Leadership in grooming and cosmetic products.

Research Methodology

From 1982/84, a convenience sample of 698 women in the New York Metropolitan area completed a ten page, 30-45 minute self-report questionnaire. Marketing students trained in

Table 1
SEX TRAITS* VIS-A-VIS VARIABLES CONSIDERED LIKELY CORRELATES**

VARIABLE	FEMINITY	MASCILITY	FEMIN	ANDROG	MASCLL	INDIFF	SOURCE
CHRONOLOGICAL AGE	-	-	-	-	-	-	Barak and Gould (1985) Hyde and Phillips (1979) Sinnott (1982)
IDEAL AGE	n.s.	n.s.					Barak and Gould (1985)
SELF-PERCEIVED AGE	n.s.	-					Barak and Gould (1985); Barak and Stern (in press)
MARITAL STATUS			-	n.s.	+	n.s.	Sinnott (1985)
EDUCATION			-	+	+	-	Hoffman and Fidell (1979); Sinnott (1982)
OCCUPATION			-	+			Clarey and Sanford (1982)
EMPLOYMENT			-	+	+	-	Hoffman and Fidell (1979)
INCOME			-	n.s.	+	n.s.	Hoffman and Fidell (1979) Sinnott (1982)
NUMBER OF CHILDREN			+	+	-	-	Sinnott (1982)
HEALTH			-	+	+	-	Sinnott (1982)
SELF-ESTEEM/ SELF-CONFIDENCE					+	-	Bew et al (1976) Hoffman and Fidell (1975) O'Connor et al (1978); Spence et al (1978)
LIFE-SATISFACTION/ MORALE	+	+	+		+		Flaherty and Dusek (1980) Rotherman and Weiner (1983)
FLEXIBILITY (Perceived Risk)				+		+	Bew (1975) Bew et al (1976) Flaherty and Dusek (1980)

* FEMINITY = Femininity trait; MASCILITY = Masculinity trait; FEMIN = Feminine; ANDROG = Androgynous;
MASCLL = Masculine; INDIFF = Indifference category
** Nature of association ---) + = positive; - = negative; n.s. = no significant; blank = no findings

Table 2
LEISURE TIME AND ITS RELATION TO SEX ROLE*

LEISURE TIME ACTIVITIES	FEMINISTS	MODERATES	TRADITIONALISTS
Outdoor sports	+		
Engage in sports in free time	+		
Leisure activities	+	+	

* Venkatesh (1980) categorizes women into "Feminists," "Moderates," and "Traditionalists" and reports on associations with leisure activities as shown here. Other researchers (Gentry et al 1978) report on associations between femininity and masculinity factors with leisure time activities, but they do not provide clear findings.

survey techniques distributed and collected the questionnaires. An age quota sampling procedure ensured a representative population of women 25 to 64, with a median age of 40. The total population sample was edited down to 280 Baby-Boomers (25-39) with a mean age of 31.25, and 334 Pre-Boomers (40-64) with a mean age of 50.88, who completed the BSRI. The questionnaire, used for other purposes as well, incorporated numerous variables.

Survey Instrument (Questionnaire)

Sex Traits. Four sex traits are employed in this study. Two of these are sex-linked trait indexes, FEMININITY and MASCULINITY, the dependent study variables. Varimax rotated factor analysis of feminine and masculine BSRI (Bem 1974) characteristics--a common technique in such research (e.g., Gaudreau 1977; Whetten and Swindells 1977)--led to the selection of items with a loading of .55 or higher for either a FEMININE or a MASCULINE trait index. Appendix A shows the 20 specific items identified by factor analysis as having sufficiently high loadings to be included in these indexes. Scoring relies on a simple summation of the ten factor-loaded feminine items for FEMINITY, and the ten masculine items for MASCULINITY. There are two additional sex-traits measured: self-ascribed "feminine" and "masculine," single items on the BSRI scale (factor loadings < .55), scored from 1 to 7 by the respondent.

Age Variables. Four age measures were selected.

(1) Chronological Age, measured directly in years;
(2) Identity Age (Cutler 1982), measured by a respondent's self-perception as "young" (score=0) or "middle-aged" (score=1); (3) Cognitive Age (Barak and Gould 1985) measured by a respondent's assessment of personal age identity

in terms of four age dimensions (Feel/Age, Look/Age, Do/Age, and Interest/Age) expressed in years; and (4) Ideal Age (Barak and Gould 1985), measured by a respondent's answer to the question, "What do you consider to be a person's IDEAL age?" in years.

Demographics. Five demographic variables were selected. These were scaled dichotomously to avoid empty cells. (1) Education, scored in years; (2) Occupation scored as a dummy variable, with "professional" or "executive" = 1, all others = 0; (3) Employment outside the home also a dummy variable, "fully-employed" = 1, "not fully employed" = 0; (4) Income, with personal income under \$20,000 = 0, \$20,000+ = 1; and (5) Health Status, measured by the question, "How would you describe the state of your health?" Scoring was "Excellent and Good" = 1, "So-So, Bad and Terrible" = 0.

Family Measures. Three variables concerning household and offspring were selected. (1) Marital Status, with "marrieds" = 1, "widowed, separated, divorced, and singles" = 0; (2) Household Size, based on the question, "How many persons are presently in your household, including yourself?" and (3) Number of Children, based on a straightforward question: "How many children do you have?" Both (2) and (3) were scored numerically.

Psychographics. Each of the two scales employed, (1) Self-Confidence (Reynolds and Darden 1971) and (2) Morale (Barak and Gould 1985), is based on four Likert summation items to which respondents indicated agreement/disagreement. Responses were then factor analyzed to establish the specific AIO scales employed (see Wells 1975). A typical Self-Confidence scale statement is, "I think I have a lot of personal ability." Morale measures a condition of well-being, particularly happiness with one's age-status, as indicated by a statement such as "These are the best years of my life."

Social Traits. Three social traits were selected. (1) Perceived Risk (Error-Tolerance; Schiffman 1972) differentiates between respondents who, when shopping in a supermarket, prefer to try a new brand of product when it first comes out, and those who prefer to wait and learn how good a product is before trial. Perceived risk is thus a dummy variable: error-tolerant who try products first = 1, others = 0. (2) Opinion Leadership (Katz and Lazarsfeld 1955); another dummy measure was scored dichotomously, since the "not-sures" and non-opinion leaders are distinct from those who identify themselves as opinion leaders. This measure thus scores respondents who agree that "friends and neighbors often ask my advice about grooming and cosmetic products" = 1, all others = 0; (3) Risk Inclination scores respondents 1 to 7 according to their degree of self-perception as "willing to take risks."

Leisure Time Behaviors. Four leisure time variables were selected. Respondents are scored numerically in terms of their answers to "How many times did you engage in the following activities in the last three months?" (1) Running, (2) Swimming, (3) Dancing, and (4) Going to a Bar.

Propositions

We decided to investigate the following Propositions in both age cohorts:

Proposition I - All sex-related traits are significantly interrelated.

On the basis of variables assessed for relationship with sex roles/traits (see Tables 1 and 2), Propositions II and III were set forth:

Proposition II - Femininity will correlate negatively with: Chronological Age, Education, Employment Status, Occupation, Income, Health, Marital Status, Perceived Risk, and Risk Inclination. Femininity will correlate positively with: Number of Children, Self-Confidence and Morale. Femininity will not significantly correlate with Self-Perceived Age, Leisure Time Activities and Ideal Age.

Proposition III - Masculinity will correlate negatively with: Chronological Age, Self-Perceived Age, and Number of Children. Masculinity will correlate positively with: Education, Occupation, Employment Status, Income, Health, Marital Status, Self-Confidence, Morale, Perceived Risk, Risk Inclination, and Leisure Time Activities. Masculinity will not significantly correlate with Ideal Age.

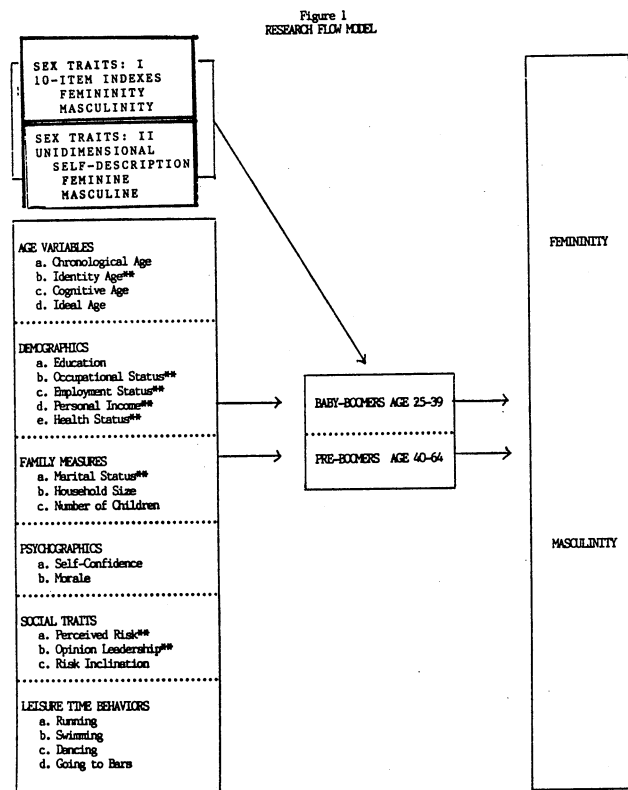
On the basis of logical association with sex roles/traits, Proposition IV was set forth:

Proposition IV - Femininity will not correlate significantly, and Masculinity will correlate significantly with Opinion Leadership.

Since the relationship between sex traits and other consumer variables has not previously been considered in an age cohort context, the study also set out to compare and contrast relationships found in both age groups.

Research Procedures and Results

All statistical procedures relied on the Statistical Package for the Social Sciences (SPSS--Nie et al. 1975; Hull and Nie 1981). The first procedure, reliability tests, showed all multiple-item scales in the study to be sufficiently reliable: only measures with a coefficient ALPHA >.5 were included. The research flow model tested is shown in Figure 1.



* Independent research variables considered WITHOUT as well as WITH sex traits.
** Dummy Variables (scored 0/1).

Correlation and Regression Procedures

To assess the propositions, three separate stages of investigation took place. The first stage, testing Proposition I, used Pearson correlations between the four types of sex traits. The results of this intercorrelation are in Table 3.

Table 3
CORRELATION MATRIX SEX TRAITS

SEX TRAITS	BABY-BOOMERS AGE 25-39				PRE-BOOMERS AGE 40-64			
	FEM (r)	MASC (r)	Feminine (r)	Masculine (r)	FEM (r)	MASC (r)	Feminine (r)	Masculine (r)
FEMININITY	1.00	+.27***	+.47***	-.26***	1.00	+.27***	+.52***	-.21***
MASCULINITY		1.00	+.14*	---	1.00	+.19***	+.12*	---
Feminine (self ascribed)			1.00	-.55***		1.00	-.28***	---
Masculine (self ascribed)				1.00			1.00	---

* p (.05)
** p (.01)
*** p (.001)

Part of Proposition I must be rejected for the Baby-Boomer cohort: no significant relationship was established between MASCULINITY and self-ascribed "masculine." One surprising finding was that in the two cohorts the correlation between both FEMININITY and self-ascribed "feminine" vis-a-vis MASCULINITY was positive: we expected these relationships to work in opposite directions. All other relationships were in logical directions.

The second stage, testing Propositions II, III and IV, used Pearson and Bi-Serial (dummy variable) correlations between the two trait-indexes and the independent variables. The resulting correlates shown in Table 4 establish the independent variables for which Propositions II, III and IV were accepted.

Table 4
SEX TRAIT CORRELATES

INDEPENDENT VARIABLES	BABY-BOOMERS AGE 25-39			PRE-BOOMERS AGE 40-64		
	(N)	FEM (r)	MASC (r)	(N)	FEM (r)	MASC (r)
Chronological Age	(288)			(334)		
Identity Age****	(279)			(315)	-.19***	-.16**
Cognitive Age	(275)		-.13*	(323)		-.15**
Ideal Age	(251)			(308)		
Education	(278)			(329)		+.24***
Employment Status****	(288)			(327)		
Occupational Status****	(288)		+.16***	(334)		+.22***
Income Status****	(268)			(292)		+.17**
Health Status****	(288)	+.12*		(333)		+.12*
Marital Status****	(275)			(331)		
Household Size	(288)			(334)		
Number of Children	(288)	+.19***		(334)		-.18***
Self-Confidence	(288)		+.57***	(334)		+.48***
Morale	(288)		+.15**	(334)		+.15***
Perceived Risk****	(275)			(331)		
Opinion Leadership****	(288)	+.18**		(334)		+.19***
Risk Inclination	(288)		+.48***	(333)	+.21***	+.39***
Running	(271)			(327)	-.15**	
Swimming	(275)			(328)		
Dancing	(271)		+.14*	(327)		+.13*
Going to a Bar	(274)		+.15*	(328)		

* p (.05)
** p (.01)
*** p (.001)

**** Dummy variables for which the correlational analysis is Bi-Serial.

The third stage, to confirm the Propositions and compare findings in both cohorts, used Forward Stepwise Regression. A total of eight multiple regressions were performed, four in each cohort. The collinearity index (Chapman and Staelin 1982) was <.05 for all eight functions.

Table 5 presents the FEMININITY functions in both cohorts, WITHOUT (Functions I and II), and then WITH sex traits (Functions III and IV). MASCULINITY functions are presented in the same order: WITHOUT (Functions V and VI) and WITH sex traits (Functions VII and VIII). Function VII was developed without self-ascribed "masculine," since that was not a MASCULINITY correlate.

Table 5
FORWARD STEPWISE MULTIPLE REGRESSIONS

BABY BOOMERS (25-39)				PRE-BOOMERS (40-64)			
FEMININITY FUNCTIONS				FEMININITY FUNCTIONS			
I. (WITHOUT sex traits):				II. (WITHOUT sex traits):			
Steps	Independent Variable	BETA	t	Steps	Independent Variable	BETA	t
One	Number of Children	.28	+ 3.39***	One	Identity Age	-.19	- 3.48***
Two	Opinion Leadership	.17	+ 2.95***	Two	Running	-.16	- 3.81***
Three	Health Status	.13	+ 2.18*	Three	Risk Inclination	+.16	+ 2.98**
R SQUARE = .081 F value = 8.36*** ; d.f. (3, 276)				R SQUARE = .091 F value = 10.34*** ; d.f. (3, 383)			
III. (WITH sex traits):				IV. (WITH sex traits):			
Steps	Independent Variable	BETA	t	Steps	Independent Variable	BETA	t
One	Feminine	+.43	+ 8.52***	One	Feminine	+.47	+ 9.60***
Two	MASCULINITY	+.21	+ 4.11***	Two	MASCULINITY	+.18	+ 1.99*
Three	Number of Children	+.16	+ 3.15**	Three	Running	-.13	- 2.65**
Four	Health Status	+.11	+ 2.26*	Four	Identity Age	-.11	- 2.29*
R SQUARE = .311 F value = 38.42*** ; d.f. (4, 274)				R SQUARE = .331 F value = 29.57*** ; d.f. (5, 383)			
MASCULINITY FUNCTIONS				MASCULINITY FUNCTIONS			
V. (WITHOUT sex traits):				VI. (WITHOUT sex traits):			
Steps	Independent Variable	BETA	t	Steps	Independent Variable	BETA	t
One	Self-Confidence	+.50	+18.49***	One	Self-Confidence	+.48	+ 8.36***
Two	Risk Inclination	+.29	+ 6.49***	Two	Risk Inclination	+.26	+ 5.32***
Three	Dancing	+.12	+ 2.64**	Three	Occupational Status	+.15	+ 3.28**
Four	Cognitive Age	-.18	- 2.26*	Four	Identity Age	-.11	- 2.48*
R SQUARE = .471 F value = 56.53*** ; d.f. (4, 258)				R SQUARE = .341 F value = 33.91*** ; d.f. (4, 389)			
VII. (WITH sex traits):				VIII. (WITH sex traits):			
Steps	Independent Variable	BETA	t	Steps	Independent Variable	BETA	t
One	Self-Confidence	+.51	+11.03***	One	Self-Confidence	+.38	+ 8.34***
Two	Risk Inclination	+.28	+ 6.11***	Two	Risk Inclination	+.28	+ 4.23***
Three	FEMININITY	+.23	+ 5.27***	Three	FEMININITY	+.17	+ 3.12***
Four	Dancing	+.12	+ 2.74**	Four	Occupational Status	+.14	+ 3.88**
R SQUARE = .511 F value = 67.38*** ; d.f. (4, 258)				R SQUARE = .391 F value = 28.95*** ; d.f. (7, 315)			

* = (.05)
** = (.01)
*** = (.001)

Discussion of Results

Functions I and II show that when FEMININITY is developed without the sex traits, the variance explained is rather limited: R square = .08 for I, and R Square = .09 for II. Furthermore, the variables in both Functions differ totally.

Functions III and IV show that when sex traits enter the regressions, the first step in both cohorts is "feminine," and the second step, MASCULINITY. The variance explained in both cases increases nearly fourfold: R Square = .31 for III and R Square = .33 for IV. The other independent variables remain basically the same, except that Opinion Leadership drops out in the Baby-Boom cohort. The entry of "feminine" and MASCULINITY in III and IV shows that FEMININITY indeed measures a sex-related dimension. The strength of the relationship between "feminine" and FEMININITY is shown by the relatively high correlation between the two, and first step entry. MASCULINITY also shows correlations of similar strength in both cohorts. Moreover, III and IV show not only a significant relationship

between FEMININITY and MASCULINITY--step 2 in both--but also a positive one.

Functions V and VI show that when MASCULINITY is developed without the sex traits, a fair amount of variance is explained: R Square = .45 for V, and R Square = .34 for VI. In both functions, Self-Confidence and Risk Inclination form the first steps. The fourth step is also similar, in each case a form of self-perceived age. The major difference between the functions is in step 3: in the Baby-Boomer cohort, Dancing, and in the Pre-Boomers, Professional and Executive status occupy this step.

Functions VII and VIII show that when sex traits enter the regressions, the first two steps are again Self-Confidence and Risk Inclination, which confirms these variables as the main determinants of the MASCULINITY trait index. The third step in both functions is FEMININITY, again a positive association. The entry of FEMININITY raises the variance explained in the Baby-Boomer cohort: R Square = .51 for VII. The addition of sex traits in the Pre-Boomers also helps raise the variance explained: R Square = .39 for VIII. In VIII, both "masculine" and "feminine" enter, as steps 5 and 7. All three sex traits thus show a positive relationship. This implies that the MASCULINITY trait index is still slightly associated with the sex-linked masculine dimension in the minds of respondents 40+.

Implications

It is clear that when MASCULINITY is the dependent variable all of the independent variables (except Number of Children as step 6, Function VIII) reflect a form of SELF-ASSURANCE. The ten items that form this trait index (Appendix A) are all traits characteristic of a highly self-assured woman. We thus suspect that this trait index is NOT sex-linked as originally thought, but, rather, a NON-SEX related self-concept measure. These ten traits might have been considered stereotypically masculine in the early 1970's, but the sexual revolution seems to have wrought a shift in perception. We therefore suggest the reinterpretation of the MASCULINITY index as SELF-ASSUREDNESS.

As the correlations and regressions show, many more useful consumer-related variables emerge for the new SELF ASSURANCE trait index than for FEMININITY. FEMININITY alone seems to have few such correlates: it shows both small explained variance and only a few different correlates in both cohorts. On the other hand, the MASCULINITY index, reconsidered as SELF-ASSURANCE, even without sex traits, is quite relevant to consumer behavior because of the high variance explained and many correlates.

Past sex role research, in the light of the study findings, can now be viewed from a different perspective. Bem's typologies used in a consumer behavior context seem inapplicable. The difference between FEMININE (high femininity and low masculinity scores) and ANDROGYNY (high femininity and high masculinity) simply boils down to the difference in Self-Assurance scores. The difference between ANDROGYNY and MASCULINE (low femininity and high masculinity) depends mainly on femininity scoring. Since FEMININITY is relatively independent of consumer behavior variables, it is not surprising that few differences between the Androgynous and Masculine types have been reported.

Our findings seem to shed light on the problems associated with interpretation of Androgyny. If Androgyny really means a mix of high FEMININITY and high SELF-ASSURANCE, then it is not a true sex-role self-concept, as Bem's original research implies. The differences between FEMININITY and ANDROGYNY might be differences in self-assurance rather than sex-role, and the lack of differences between MASCULINITY and ANDROGYNY might reflect limited differences between high and low FEMININITY trait index scores.

Another implication is that unlike the FEMININITY trait-index which, though appealing, is not useful for marketing purposes, the new measure of SELF-ASSURANCE shows great promise. It has high reliability ($\text{ALPHA} > .88$), and can be used to identify potential innovators in the marketplace.

While full implications of the self-assurance measure require further study, some current fashion trends provide an example of the self-assured woman who considers herself feminine. The apparent paradox of the declining interest in mannish styles and fabrics at the same time as women are increasingly entering the formerly purely masculine world of career commitment makes sense, if one reinterprets self-assuredness as incorporating, rather than denying, femininity. The trend away from "menswear styling" (*Harper's Bazaar*, July 1985, p. 160), in fact, seems to be spreading in the mid-1980's from the innovative few to the masses. Liz Claiborne often considered the most important designer for the large middle-class and middle-price market, proposes to take women out of "neat little suits that erase the fact that they're women" in Fall 1985 (*Harper's Bazaar*, June 1985, p. 129).

The creators of promotional appeals might thus take note of the feminized self-assured woman: images of confident women can, for example, be shown in highly romantic settings.

Thus social changes have culminated in reevaluation as feminine of "Self-Assuredness" traits which a decade ago were judged masculine. This shift explains why positive relationships between FEMININITY and SELF-ASSURANCE traits have been so clearly established in this study. It also explains why the Baby-Boomer cohort shows no correlation between SELF-ASSURANCE and self-ascribed "masculine." To some extent, this study confirms that the sexual revolution has won a major battle: women who are aggressive, forceful, competitive, and ambitious view themselves as not losing one bit of their femininity!

Appendix A
FACTOR ANALYSIS OF BSRI TRAITS: FORMING SEX-LINKED INDEXES*

BSRI TRAIT ITEMS	item number in BSRI	FEMININITY (factor loadings)	MASCULINITY (factor loadings)
AFFECTIONATE	11	.59	.21
ASSERTIVE	13	.14	.69
STRONG PERSONALITY	16	.26	.69
LOYAL	17	.68	.13
FORCEFUL	19	.08	.69
SYMPATHETIC	23	.78	.06
HAS LEADERSHIP ABILITIES	25	.09	.74
SENSITIVE TO OTHER'S NEEDS	26	.62	.23
UNDERSTANDING	29	.69	.18
COMPASSIONATE	32	.76	.16
EAGER TO SOOTHE HURT FEELINGS	35	.68	.06
DOMINANT	37	-.18	.62
WARM	41	.72	.16
WILLING TO TAKE A STAND	43	.24	.59
TENDER	44	.71	.28
AGGRESSIVE	46	-.08	.71
ACTS AS A LEADER	49	.82	.72
COMPETITIVE	55	-.05	.58
AMBITIOUS	58	.21	.55
GENTLE	59	.72	.04

* Varimax Rotation of Bem Sex Role Inventory (BSRI; Bem 1974). If the factor loadings $> .55$ an item enters either the FEMININITY or MASCULINITY indexes. Computation of the two measures relies on a simple addition of scores (1-7) for each sex-linked trait-index (total score range 10-70). Reliability ALPHA for both FEMININITY and MASCULINITY $> .88$.

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SEX ROLES AND CONSUMER PERCEPTIONS OF PROMOTIONS, PRODUCTS, AND SELF:
WHAT DO WE KNOW AND WHERE SHOULD WE BE HEADED?

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Abstract

Sex roles have been a focus of attention in Consumer Behavior because they are believed to have an impact on individual and family decision-making and ultimately the purchase of consumer goods and services. Of special interest to marketers is their effect on perceptions of promotions and products. The present paper examines the influence of culturally prescribed sex roles on individuals' reactions to sex role characterizations in promotions, the gendering of products, and one's self-concept (which purportedly underlies sex role stereotypic perceptions). Avenues for further research which complement and integrate the above streams are suggested.

Introduction

The growing number of women entering the workforce in recent years has triggered a change in sex roles for both men and women. The effect of these changing roles has been studied primarily in terms of how family decision-making has been influenced (Scanzoni 1977; Park and Iyer 1981). Dual-earning families have been a target of investigation because of the increased time pressures felt by "working wives" (Strober and Weinberg 1980) and its expected effect on convenience-oriented consumption such as the purchase of time-saving durables (like a microwave oven), food requiring less preparation (frozen foods), and services. The cause and effect relationships expected were often not found because they were based on demographic characteristics of families (working vs. nonworking wives) rather than perceptual variation of the woman's working status such as the degree of her labor force attachment (Maret-Havens 1977) and professional status in the workplace (Schaninger and Allen 1981).

The importance of understanding consumers' perceptions as they relate to changing sex roles should not be underestimated because of their potential impact on the effectiveness of marketing strategies. As men and women assume different roles, they would be expected to view themselves differently and this change in self-concept would likely influence their perceptions of marketing strategies, in particular, promotional strategies and product positioning. This paper reviews research investigating the influence of changing sex roles on individuals' perceptions of (1) promotions, (2) products, and (3) themselves. Each of the three areas is reviewed individually and future research is proposed in each section which would enhance our understanding of each area and the relationships between the perceptual constructs such that effective marketing strategies may be developed.

Sex Roles as Portrayed in Advertising

Research focusing on sex roles in advertising has arisen from societal as well as marketing concerns. Societal criticisms have centered primarily on women's stereotypical roles in ads and their effect on the socialization of children and the perpetuation of women's "place" in society. Critics contend that women's roles are changing but that advertisers are not keeping pace with these changes or depicting women realistically. Consequently, researchers have attempted to document women's roles in TV commercials (Courtney and Whipple 1974; Dominick and Rauch 1971; McArthur and Resko 1975; Scheibe 1979; Schneider and Schneider 1979; Sharits and Lammers 1983) and print ads (Belkaoui and Belkaoui 1976; Courtney and Lockeretz 1971; Wagner and Banos 1973) to determine the extent to which the criticisms are justified. In the earlier studies, women were found to be portrayed in stereotypically feminine roles, whether in the home or on the job (Courtney

and Whipple 1974; Courtney and Lockeretz 1971; Wagner and Banos 1973; Dominick and Rauch 1972) whereas, more recently, their image relative to that of men seems to have improved (Scheibe 1979; Sharits and Lammers 1983). Men's roles in advertising have also been a target of criticism. Men often serve as announcers or demonstrators of products, and when they are shown "using" a household product, they tend to be depicted as helpless and dependent on a woman for instructions (Scheibe 1979). For example, in a commercial for Aunt Jemima waffles, the father is portrayed as helpless while preparing breakfast in order to promote the product's ease of preparation. Such a stereotypical representation (of men or women); while unflattering, may effectively serve the purpose of emphasizing a specific product attribute.

Marketers' concerns revolve around the effectiveness of traditional versus progressive sex role portrayals in advertising and individuals' preferences for one type of portrayal over another. Most published research focuses on the latter. Lull, Hanson, and Marx (1977) found that women were more sensitive and critical of the sex role stereotyping of females than were men and that their responses were somewhat related to the extent to which they agreed with the sentiment of women's liberations. Other studies indicate that younger and more highly educated women are most critical of such stereotypic portrayals (Lundstrom and Sciglimpaglia 1977; Venkatesh 1980; Witkowski 1977). Some women are so critical of such stereotypical portrayals that they stop using a product. In one of the author's experience, a woman claimed that she stopped using Wisk laundry detergent because the portrayal of women in the commercial was "very demeaning." Bettinger and Dawson (1979), however, did not find traditional roles offensive to women but did find more liberated depictions offensive (women pictured in masculine occupations). An ad for Pittsburgh National Bank in which a woman promoting the bank was featured as a construction worker may be an example of such a "liberated" portrayal and may attract criticism for that very reason.

Wortzel and Frisbie (1974) measured individual preferences for women's role portrayals in ads by having women construct print ads for a variety of products. The women were instructed to match pictures of products with pictures of women who were portrayed in family roles, fashion roles, sex object roles, and career roles. None of the role portrayals were consistently preferred. Instead, subjects matched the product to a role portrayal based on the product's function. For example, family role portrayals were preferred for products used by the family. Similarly, Buchanan and Reid (1977) created ads depicting women in traditional and nontraditional occupations (housewife, teacher, cabdriver, PhD) for a variety of products (instant breakfast drink, bath cleaner, golf clubs, blood bank) and found no one portrayal was evaluated most favorably over all products. Perhaps advertisers are best off depicting women who balance the responsibilities of career and family. Ads for Enjoli perfume portray the user of the product as a housewife and career woman.

Studies examining the effects of sex role modern and traditional women in advertising are generally lacking and additional research is warranted. Future inquiries should focus not only on preferences for each type of portrayal, but on various measures of effectiveness (Debevec and Allen 1984) such as that portrayed in McGuire's (1978) information processing model, Colley's (1961) DAGMAR model or the Lavidge and Steiner (1961) model. Each of these models suggests a hierarchy of communication effects ranging from some type of awareness through an evaluation process to purchase. In particular, McGuire's model

includes attention, comprehension, yielding, retention, and behavior. In the context of this research, it might be suggested that ads featuring women in progressive roles may be more likely to generate attention than ads depicting women in traditional roles because they may be unexpected and different from the norm. Will these ads be better comprehended, however, and lead to purchase intention more often than the traditional ads?

The research to date on sex roles is also limited in that women have been the primary focus of investigation. While their role changes may be the most noticeable because of their increased participation in the work force, men's roles have also begun to change in response. Men to some degree have begun accepting nontraditional household responsibilities (e.g., food shopping and preparing meals) because of time constraints experienced by both members of dual career families. Men also acquire nontraditional household and consumer skills as they delay marriage or remain single (Roberts 1981). Consequently, should we not question the manner in which men are portrayed in advertising? Can men effectively represent household products on their own without the aid of women as supporters? Future research should focus on men's roles as well as women's roles.

Attention should also be directed to the type of product promoted and individual difference variables as they relate to traditional and progressive role portrayals for men and women. These variables have received some preliminary attention in the previous studies cited, however, their relevance will become evident in the forthcoming discussion.

Gendering of Products and its Role in Promotion

The notion that products possess symbolic images is not a new one (Levy 1959). These images are of concern to marketers because consumers not only purchase a product for its functional benefits but they purchase the image they perceive the product to have, whether real or imagined. Several studies have investigated recently the extent to which various types of products possess gender images (Allison, Golden, Mullet, and Coogan 1979; Alreck, Settle, and Belch 1982; Golden, Allison, and Cleo 1977). Products found to have masculine images include a pocket knife, tool kit, shaving cream, cuff links, and a briefcase, to name a few (Allison et al.). Products with feminine images include a scarf, baby oil, hand lotion, bedroom slippers, gloves, and sandals.

Although consumers commonly hold gender images of products, the basis of those gender images is not completely understood. Allison et al. speculate that products may be sex-typed based on the gender of the group most likely to use the product. In addition, cultural norms relating to sex roles may dictate the types of products most appropriate for men and women to use (Morris and Cundiff 1971), implicating a circular relationship. This relationship between a product's use and its gender image is intuitively logical but has yet to be tested.

Marketers have attempted, as well, to form gender images for products and brands. Advertisements for cosmetics and diet soda have traditionally been aimed at women; however, in an attempt to expand the market for these products, ads have more recently been directed at men. The Pepsi Cola Company is positioning its Diet Pepsi brand to a male market by enlisting the aid of two well-known male athletes to promote the product. Not surprisingly, they are depicted in a brand choice, usage situation thus providing support for the previous assertion. Can a stereotypically feminine product be perceived as acceptable for men as a result of two men promoting the product? To what extent can marketers alter the gender image of a product, whether it is one they have created or one which has been culturally determined? In the maturity stage of a product's life cycle, marketers often try to "ungenderize" a product or brand. The Lowenbrau beer campaign with its "Here's to good friends" slogan may be an example of this strategy. Beer has traditionally been positioned as a masculine product, but Lowenbrau has developed ads featuring men and

women in neutral social situations supposedly consuming the product. Do consumers weigh promotional cues on an equal footing with usage cues in forming gender images for products? We would hypothesize that usage cues are critical and the effectiveness of promotions could be enhanced by featuring the targeted gender in a "usage" situation. Are there other variables not mentioned which may influence a product's image, such as the gender of the person most likely to purchase the product? These inquiries should be subject to empirical testing.

Although a product's gender image up to this point has been characterized as either masculine or feminine, this dichotomous distinction has been questioned and tested (Allison, Golden, Mullet, and Coogan 1979). Earlier studies conceptualized a product's gender as a bipolar construct (Aiken 1963; Fry 1971; Morris and Cundiff 1971; Vitz and Johnson 1965) while later studies began treating the masculinity and femininity of products as separate dimensions, prompted somewhat by Bem's (1974) research on sex roles (Gentry, Doering, and O'Brien 1977; Golden, Allison, and Cleo 1977).

Bem was interested in classifying individuals according to their sex role orientation as masculine, feminine, androgynous, or undifferentiated. Individuals rate themselves on a series of masculine, feminine, and neutral trait dimensions and are subsequently categorized as high masculine, low feminine (a masculine orientation), high feminine, low masculine (a feminine orientation), high masculine, high feminine (androgynous), and low masculine, low feminine (undifferentiated).

The logic then followed that if people could be classified along these dimensions based on their sex role orientation, so too may products be perceived along these dimensions. Allison, et al. tested this assertion by having subjects rate 24 products on two separate 9-point scales, one tapping the products' perceived femininity and the other tapping the products' perceived masculinity. They hypothesized that if masculinity/femininity is a dichotomous construct, the scores for each product should sum to ten (e.g., a product rated as a 7 on the masculine scale should be rated as a 3 on the feminine scale). The majority of products did not satisfy this unidimensional criteria and they concluded that masculinity and femininity are two separate constructs. These findings therefore suggest that products may be perceived as androgynous (high masculine, high feminine) and undifferentiated (low feminine, low masculine). Androgynous products may be those which are "used" equally by men and women while undifferentiated products may simply be those which have not yet established a gender image. When attempting to classify products along these dimensions, Golden, Allison, and Cleo (1977) found that none of the products they tested could be labeled as androgynous or undifferentiated. They formed three product groups instead, high masculine--low feminine, medium masculine--medium feminine, and low masculine--high feminine.

Additional evidence supporting the gender classification of products is desirable. Potentially, marketers may be able to draw up a typology of products along gender dimensions which may provide insight into how classes of products may be characterized. Exploring the roles men and women play in society, trait characteristics commonly assigned to men and women, and potential usage situations (Dickson 1980) may provide a starting point in such a classification scheme. For example, "household cleaning" products may be perceived as highly feminine because of women's traditional role as homemaker. "Financial services" may be considered as masculine because of men's perceived knowledge or expertise in handling financial matters and their traditional assumption of this role. "High technology" products may be perceived as masculine following similar logic. Groups of individuals may differ with respect to such gender stereotyping because of their own set of past experiences. College students and dual career couples may be less likely than those residing in a traditional family structure to assign clearcut gender images to such products and services because of their own personal exposure to household

maintenance, budgeting, and/or computers. Such a classification scheme based on individuals' perceived roles, personal characteristics, and possible usage situations may provide marketers with some generalizable yardsticks upon which they may begin to make strategy decisions.

As mentioned earlier, product gendering has become an issue in developing promotional strategies. Marketers have taken an active stance in gendering products in an effort to target new groups of customers and develop new market segments. Altering the gender of a product or service, however, is not undertaken without some degree of risk. While opening up new market segments, promoters risk alienating their established market. The question arises as to what degree men and women can be credible spokespersons for cross-gender products, given that product usage by men or women (as depicted in such ads) is likely related to the product's overall gender image. This concern is especially critical given the general sensitivity of males to using products with a feminine image (Morris and Cundiff 1971). Can a woman credibly and effectively promote an Individual Retirement Account or a bank charge card? Will the ad for VISA which depicts a woman receiving her own "classic" card and breaking it in by inviting her male friend to dinner be as effective as the one in which the roles are reversed? Since these are "products" which both men and women can certainly buy into, it is critical that the spokesperson not alienate target consumers. Will a woman be effective promoting a personal computer to business people? This product has primarily been promoted by men, whether targeted for the workplace or to parents in the home. Are there certain "types" of masculine products a woman can endorse effectively? Are there certain "types" of feminine products a man can endorse effectively? Will a man be a credible spokesperson promoting dishwashing liquid or laundry detergent, without the presence of a woman? Insights into these questions may be enhanced by considering situational variables, as suggested earlier.

Gender Perceptions of Source Characteristics in Promotions

Are there definable source characteristics which may lend credibility to cross-gender promotions? Some recent work in social psychology may provide partial insight. An individual's appearance in terms of their physical attractiveness, grooming, and physique have been found to affect perceptions of their masculinity and femininity. Gillen (1981) found that individuals are sex-typed based on their physical attractiveness. Attractive women are perceived as more masculine than unattractive women while attractive men were perceived as more masculine than unattractive men. In a followup study, Cash, Gillen, and Burns (1977) conducted further research to determine if attractiveness would be a detriment to women in the workplace, especially relative to stereotypically male occupations (where masculine traits would likely be important for success). They found that highly attractive women were less apt to be recommended for nonmanagerial jobs. For men, however, attractiveness was always an advantage, whether they were being recommended for managerial or nonmanagerial jobs.

Given the link between attractiveness and sex-typing, it might be expected that attractive women will be less effective than unattractive or average-looking women in promoting products with a masculine image because the unattractive women are perceived as relatively masculine. Unattractive men may be more effective than attractive men in promoting products with a female image (since attractive men are perceived as more masculine). This latter suggestion may be faulty, however, given other research which has found that attractiveness is always an advantage for men, regardless of sex-typing (Cash and Janda 1984).

In addition, there is some evidence that an individual's grooming and physique influence perceptions of their masculinity and femininity (Cash and Janda 1984; Deaux and Lewis 1984). Women groomed in a relatively masculine fashion (short hair, little makeup, clothed in a suit) were perceived as more competent and were more likely to be judged as potential managers than women groomed in a "feminized"

style. Individuals who are perceived as tall, strong, and broadshouldered (whether male or female) are judged to have masculine personality traits and thought to be employed in a masculine-type occupation. Even though the "pure" masculine or feminine appearance may be beneficial in the context of promoting certain gender-stereotyped products, on other occasions, the androgynous appearance proves to be particularly successful. It has been argued by some that one of the reasons for Michael Jackson's dizzy success lies in "the high-pitched voice, the androgynous good looks, and the dangling forelock" (Davis and Allen 1985).

Future research should investigate the extent to which these "image" variables interact with the gender of a model and reflect on their perceived masculinity and femininity, thus influencing the model's effectiveness in promoting "gendered" products. We have little, if any, evidence whether a female model can enhance her credibility in promoting a "masculine" product by wearing a business suit rather than a dress or by altering other aspects of her appearance. Studies on impression management suggest that props (such as the suit) and appearance variables (hair, makeup, etc.) can effect impressions formed of others (Schlenker 1980). The use of masculine props may enhance the effectiveness of a woman promoting a product with an otherwise masculine image.

It might also be questioned whether these image variables are more effective with certain classes of products. Given women's entry into the business environment in professional/managerial positions, she may be an effective promoter of business-type products or even financial services (possibly reflective of her financial independence). These categories of products/services may be more malleable in terms of their sex-typed image than others which may be linked to roles women have not assumed in great numbers (e.g., lawncare--lawnmower, repair work--wrench). Similarly, there may be certain types of "feminine" products a man can or cannot endorse effectively (hairspray, over cleaner) and these too may be related to tasks which men have or have not begun to assume in the household. Also of interest would be the extent to which individual personality factors (or one's self-concept) influence acceptance or rejection of the aforementioned traditional and progressive role portrayals. This latter variable will be subsequently addressed.

Self-Schema and Sex Roles

In an attempt to understand individuals' evaluations of and reactions to products and promotions, researchers have tried to identify individual "personality" variables related to sex roles likely to influence their perceptions (Allison, Golden, Mullet, and Coogan 1979; Alreck, Settle, and Belch 1982; Gentry and Doering 1977; Gentry, Doering, and O'Brien 1978; Golden, Allison, and Clew; Morris and Cundiff 1971). These personality variables have been generally referred to as an individual's sex-role orientation or sex-role self-concept and were subsequently measured using a variety of instruments, including Gough's (1952) California Psychological Inventory (CPI) Fe-scale (Aiken 1963; Fry 1971; Gentry and Doering 1977; Gentry, Doering, and O'Brien 1978; Morris and Cundiff 1971; Vitz and Johnston 1965), Spence's et al. (1974) Personality Attributes Questionnaire (PAQ) (Gentry and Doering 1977; Gentry, Doering, and O'Brien 1978; Gentry and Haley 1984), and Bem's (1974) Sex-Role Inventory (Allison, Golden, Mullet, and Coogan 1979; Golden, Allison, and Clew 1977).

Gough's CPI Fe-scale examines masculinity and femininity on a continuum using 38 true-false items. The PAQ treats masculinity and femininity as two separate dimensions and individuals can be classified as masculine, feminine, androgynous (those receiving high scores on both the masculinity and femininity scales), or low-masculine, low-feminine. Bem's Sex Role Inventory, as described earlier, is similar to the PAQ in terms of its separate masculinity and femininity scales but it differs primarily in its measurement of these dimensions. The use of one scale or another appears to have been a choice of individual preference in the studies previously cited. The choice of a scale, however,

should be directed by whether or not masculinity/femininity is unidimensional or multidimensional in nature.

Early studies attempted to relate an individual's masculinity and femininity to their product choices and found positive associations. Individuals classified as masculine (feminine) were likely to smoke cigarettes with a masculine (feminine) image (Fry 1971; Vitz and Johnston 1965). Based on these findings, more recent studies explored the relationship between a person's masculinity-femininity and perceptions of products (Allison, Golden, Mullet, and Coogan 1979; Alreck, Settle and Belch 1982; Gentry and Doering 1977; Gentry, Doering, and O'Brien 1978; Gentry and Haley 1984; Golden, Allison, and Clee 1977), activities (Gentry and Doering 1977; Gentry, Doering, and O'Brien 1978), brands (Gentry and Doering 1977), and promotions (Alreck, Settle, and Belch 1982; Gentry and Haley 1984). The relationship between an individual's sex-role orientation and their attitudes, perceptions, or usage patterns is not yet clearly understood. Some researchers have found that gender is at least as important as an individual's sex-role self-concept in affecting perceptions of products (Allison, Golden, Mullet, and Coogan 1979; Golden, Allison, and Clee 1977) and more important in predicting attitudes and behavior (Gentry and Doering 1977; Gentry, Doering, and O'Brien 1978). Others provide evidence that an individual's gender schema affects recall of gendered ads (Gentry and Haley 1984). Gender schema in this study was operationalized with Markus' et al. (1982) categorization scheme in which individuals are classified as feminine schematics, masculine schematics, or aschematic. Markus (1977) defines self-schema as "cognitive generalizations about self, derived from past experience, that organize and guide the processing of self-related information contained in the individual's social experiences" (p. 64). It is predicted that feminine (masculine) schematics will favor feminine (masculine) stimuli in their processing of incoming information (Markus et al. 1982). Gentry and Haley (1984) exposed subjects to ads featuring masculine, feminine, and neutral products and varied the gender of the model for each product to create sex-role congruent and incongruent ads. They found that masculine females were more apt to recall ads for masculine products than their feminine counterpart, although their results were not statistically significant. They suggest that their results warrant additional research into the effect of one's gender orientation in the processing of advertising information.

The Gentry and Haley study is useful in that it begins to address the interaction between a product's gender and a model's gender but it appears to be limited in two respects. First it focused only on one measure of advertising effectiveness--recall. As mentioned earlier, other measures of advertising effectiveness also warrant attention. In addition, it might be useful to operationalize sex-role traditional and modern portrayals in a more blatant fashion. Print ads featuring a male and female model with masculine and feminine products may not be stimulating enough to evoke sex-role congruent or incongruent images, especially when the accompanying wording focuses only on the features of each product. The models may have been perceived as decorative and functionless. Future studies might depict men and women delivering testimonials for the gendered products, thus linking the model and product in terms of a usage situation. This latter inquiry would be in line with the contention of previous researchers who have suggested that a product's gender image is related to the gender of individuals most likely to use the product. Such portrayals may draw greater attention and be evaluated in a manner consistent with gender schema theory.

Conclusion

Researchers have made considerable progress in broadening our understanding of the effects of changing sex roles on consumers' perceptions of products and promotions. It is clear, however, that marketers are in need of additional information regarding promotional strategies, product positioning strategies, and with respect to individuals to whom their strategies are aimed. An integrated research

effort which examines the synergistic effect of these variables should be undertaken if we are to deepen our understanding of how individuals respond to changing sex roles.

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SEGMENTATION OF WOMEN'S MARKET BASED ON
PERSONAL VALUES AND THE MEANS-END CHAIN MODEL:
A FRAMEWORK FOR ADVERTISING STRATEGY

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Abstract

The purpose of this paper is to examine the various bases for segmentation of women's market. Thereafter a conceptual framework is presented for the application of personal values (Rokeach Value Survey) and means-end chain model for identification of an advertising strategy. For hypothetical purposes Bartos' (1977, 1978) classification of women's market is used as the basis for segmentation. As a result of the hypothetical application of the means-end model for two products i.e. fashion clothing and automobiles, relevant benefits of the two products are identified. Suggestions for advertising strategy are offered; limitations of the study and directions for further research are provided.

Background

Marketers need to identify segmentation variables based on changing demographics, lifestyles, values and expectations of women (Joyce and Gultinan 1978; Lazer and Smallwood 1977). An examination of literature on women's market shows that only in recent years have the consumer researchers begun to conduct detailed examination of the basis of segmentation. Since the 1970s increasing attention has been paid to women's career orientation. The literature on women's segment can be classified into three categories. The earlier studies only compared working women with non-working women. Examples of this category include Anderson (1972), McCall (1977), and Joyce and Gultinan (1978). McCall (1977) compared working and non-working women and found differences with respect to a number of buyer behavior activities. Joyce and Gultinan (1978) conceptualized three categories of women i.e. housewives, non-professional working women and professional working women, and found significant differences with respect to retailing activities.

The second category of studies looked at the attitudinal (political) orientation of women. Douglas and Urban (1977) classified women on two lines i.e. traditionalist versus liberated and found significant differences between the U.S. and France. Reynolds, Crask and Wells (1977) divided women into Modern vs. Traditional lines and found Modern women to be more independent and pragmatic. Venkatesh (1980) divided women into three categories based on Arnott's (1972) Feminism Scale i.e. Feminists, Moderates and Traditionalists. He found significant differences in life style and magazine readership. The major problem with this type of segmentation is that it overlooks the employment status of women and motivation for work.

The third category of studies takes into account the employment status and motivation. Bartos (1977, 1978) went beyond the simple division of working wife vs. non-working wife. She presented a four-way classification: Stay at Home (29%), Plan to Work (20%), Just a Job (32%), and Career-oriented (19%). This classification was based on Yankelevich Monitor Survey at the time and Bartos found significant differences among the four groups with respect to travel, financial and shopping activities. Schaninger and Allen (1981) developed a three-way classification: Non-working Wife, Low Occupational Status and High Occupational Status. This classification is similar to Bartos' in that Low Occupational Status corresponds to the Just a Job type and High Occupational Status corresponds to Career-oriented women. Schaninger and Allen could predict differences among these groups with respect to food, beverage and alcohol consumption, make-up usage, clothing purchases, shopping behavior, media proneness, media wage,

major and minor appliances. Nickols and Fox (1983) posited that income was a better predictor than occupational status for time-saving strategies. Stroeber and Weinberg (1977) and Weinberg and Winer (1983) found wife's employment status to be not related to family's time saving durables. Joag, Gentry and Hopper (1985) maintain that occupational status of the wife is insufficient for prediction of buyer behavior; consequently it is important to consider the work overload and motivation to work. These authors added another dimension i.e. homeward orientation vs. outward orientation to the classification suggested by Schaninger and Allen. Joag et. al. have not presented any empirical evidence for their scheme.

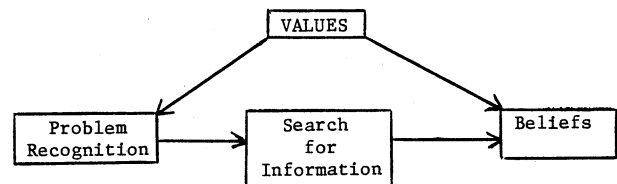
Research Gaps

There is no one best classification of Women's segment and many gaps remain in the area. First, none of the studies have examined various occupations of women i.e. sales, technical, managerial, academics and explored the differences in personal values. Secondly, except for the self-reports on attitudinal survey, there is no objective method of identifying segments. Thirdly, even for the segmentation schemes offered so far no effort has been made to explore the personal value structure on the lines suggested by Rokeach (1973); it is important to study the value structure in order to study the goals of employment. Finally, no attempt has yet been made to develop an advertising strategy based on personal values and means-end model (Gutman 1982).

Women's Segment, Value Structure and Means-End Approach: A Conceptualization

Personal values can be an important basis for segmentation; Personal Values can differ due to age, income, education, sex and social class (Rokeach 1973). Rokeach Value Survey (RVS) a popular methodology, consists of eighteen Terminal Values and eighteen Instrumental Values. Terminal Values e.g. Happiness, Sense of Accomplishment, Comfortable Life are enduring desired modes of existence. Instrumental Values e.g. being Capable, Forgiving, Broad-minded are modes of behavior and are susceptible to change because of the socialization process. It is also possible that differences due to social class, income, education and self-concept would create differences in priorities placed on values by different women.

Just as personal values have antecedents they also have consequences e.g. impact on brand evaluation and choice criteria (Howard and Woodside 1984). Values also impact problem recognition, search for information, brand belief and ultimately brand preference. The impact of values can be visualized as follows:



Values impact choice criteria and are instrumental in determining benefit segmentation (Pitts and Woodside 1984) 1984). Empirically it has been shown that due to the differences in values, ethnic groups differ in product attribute perception of fashion clothing and automobile (Prakash 1984).

We can now draw on Gutman's (1982) means-end chain model.

According to this model, ends are the valued states e.g. Comfortable Life, Exciting Life and products are the means to satisfy those values. In the context of women's market, it may be hypothesized that a study of the personal values can help in the development of an advertising campaign. We will first review the segments suggested by Bartos and hypothetically identify the value structure for each segment. This will be followed by a review of the means-end-chain model and its application for fashion clothing and cars.

Women's Segment and Value Structure¹

The reasons for picking Bartos' (1977, 1978) Segmentation Scheme, i.e. stay at home, plan to work, just a job and career-oriented are as follows. First, this scheme combines occupational status with motivation to work and consequently it can be tied to the value structure. Secondly, this scheme is intuitively appealing from female perspective is our conclusion based on indepth focus group discussions. This scheme is also similar to Schaninger and Allen (1983) and Joag et al (1985) classification. The disadvantages of Bartos' classification are as follows. There is no objective method of measurement of the segments. The classification is based on attitudinal self-reports. Secondly, this scheme ignores income as a criteria; according to Nickols and Fox (1983) income is an important variable for time saving devices. Thirdly, the category of career-orientation is too broad; there could be further segmentation based on various types of careers. Bartos' scheme is selected because of simplicity, convenience and presentation of a hypothetical application of means-end model. The following identification of values is hypothetical based on focus group interviews. In an empirical study the respondents would have been asked to rank 18 terminal values and 18 instrumental values from the Rokeach Value Survey. Thereafter some type of cluster analysis would be performed to examine segmentation differences. Alternatively, one could look at the rank scores and perform analysis of variance to evaluate the differences.

The following is a hypothetical composite of the demographics of each segment along with values extrapolated from the Rokeach Value Survey.

Stay at Home

Even though these women have no intention of working, they may at one time have been in the workforce, either before marriage or thereafter. They have no desire to change their life patterns, but some of them perceive it to be fairly limited. They are the oldest segment with more than half of them being over 50 years. This segment makes up approximately two-thirds of the total housewife segment.

This segment (based on age and social class) is likely to have less than high school education. It predominantly belongs to lower or working class (Coleman 1983). The life-style of this group is mainly traditional. Their lives are primarily bound by family and children. They have a somewhat lower self-concept and a defeatist attitude. They may sometimes long to be in the working woman's shoes in order to achieve self-fulfillment, may envy the latter's wardrobe, stimulating life and independence. On the other hand, they may perceive working women to be neglecting children and housework. They may describe themselves as kind, sociable, below the average in dominance, intelligence, broadmindedness and a sense of humor. Their buying style does not permit much advance planning. They are cautious and brand loyal. They have a mild interest in style and admit being persuasible. They are found to be far less involved in financial activities than the other segments. They are the heaviest viewers of daytime TV, second to "plan to work" in primetime viewing and listen to very little radio.

Based on the preceding description, the following Rokeach values were identified by the focus group to be important for this segment.

¹The discussion in this section is mainly based on Bartos (1977,1978,1981), Rokeach (1973) and Coleman (1983).

Terminal Values

- Family Security
- Comfortable Life
- Self-Respect
- Salvation
- True Friendship
- National Security
- Inner Harmony

Instrumental Values

- Loving
- Self-Controlled
- Cheerful
- Forgiving
- Obedient
- Helpful
- Polite

Plan to Work

Some of the 'plan to work' housewives find that being a homemaker is personally rewarding. They are committed to their role as housewives but they also like to earn money. The plan of the working housewife carries some characteristics of the career woman. They make up the youngest segment with a median age of 32 mostly in the range of 25-24 years of age. They are probably similar to Venkatesh's liberated group with few of the traditional/moderate values thrown in.

The educational profile of plan-to-work women is similar to just-a-job and career-oriented segments. They are slightly more likely to have graduated from college and to have completed high school education than just-a-job women. Assuming that most marriages take place into the same social class, because of the educational characteristics, it may be assumed that this group of women would mainly belong to middle and upper middle classes.

Women in this segment are athletic, cultured and energetic. They also allocate time for personal gratification and future career development. Their sense of the self is expressed in wanting to appear neat and attractive for self-pride. These women are a little more impulsive than "stay at homes". They are involved in financial activities similar to career women but to a lesser degree. They take an active role in shared decisions in the purchase of big ticket items such as cars. They are the heaviest viewers of primetime television and second heaviest readers of magazines (next to career women). This group is second behind career women in the purchase of convenience and time saving appliances.

Based on the above stated description from Bartos (1981), Venkatech (1981), and Coleman (1983), the following Rokeach Values were identified by the focus group for this segment.

Terminal Values

- Comfortable Life
- Exciting Life
- Social Recognition
- Family Security
- Self-Respect
- Sense of Accomplishment
- Equality

Instrumental Values

- Broadminded
- Responsible
- Ambitious
- Loving
- Capable
- Imaginative
- Intellectual
- Forgiving

Just a Job

This group makes up about 60% of the working women. They are not terribly involved with their jobs, but either enjoy the social aspect of self-fulfillment of working, or work due to economic necessity. They usually finish high school and possibly some college, although to a lesser degree than plan to work or career women. The median age of this group is about 36, but a high ratio fall into ages below 25 and over 50, indicating a trend toward remaining at home during the child-rearing years which is confirmed by Yankelovich's claim that there is a movement from "plan to work" to the "just a job" category. Just a job women fall below career women in household income, but based on education/occupation factors, we may expect them to be found mainly in the working and middle classes. They correspond to low-occupational status category of Schaninger and Allen (1981).

This group appears to be split between traditional/moderate and liberated viewpoints. The just a job woman may be described as trustworthy, kind, refined, stubborn,

broadminded and affectionate. They are more concerned than career women with economy but are the least brand loyal and most experimental. They are responsive to new products and competitive promotional campaigns. They along with career women are likely to buy on impulse. They make an average use of financial services except investments where they are below average. They are independent decision makers in the purchase of large ticket items such as cars. Just a job women are a captive market for those using radio as an advertising medium.

Based on this information, the following Rokeach Values were identified by the focus group for this segment.

<u>Terminable Values</u>	<u>Instrumental Values</u>
-Comfortable Life	-Broadminded
-Exciting Life	-Cheerful
-Sense of Accomplishment	-Self-Controlled
-Social Recognition	-Independent
-National Security	-Responsible
-True Friendship	-Polite
	-Forgiving
	-Honest
	-Loving

Career-Oriented Women

They are professionally or technically trained women with a future in their career. Over 55% of them have attended or graduated from college. The median age of this segment is the same as that of "just a job" but they are more likely to be between 25 and 34 years of age. The implied viewpoint of this segment is likely to be liberated/moderate under the Venkatesh study. This group is the most affluent with 60% of those married to the most achieving men. It may be assumed that they are found in the middle, upper middle and lower upper classes (Coleman 1983). This group corresponds to high occupational category of Schaninger and Allen (1981) and Joag et al (1985).

Career women enjoy home surroundings a characteristic of the higher social classes and are brought up with the expectation of living in an orderly fashion. They usually purchase items that allow for convenience without loss of quality. The career women plan their shopping (more so on big ticket items) probably due to time constraints and are cautious and brand loyal. They do impulse shopping in order to reward themselves. They take a strong interest in grooming and style, mostly to maintain a social image. They are athletic and health conscious and are principal consumers of natural cereals.

Career women are the most active users of financial services and are the most likely to have purchased themselves the big ticket items such as a car. They are a prime target for travel both for business and pleasure. They are not heavy viewers of television. They are the heaviest readers of magazines and newspapers, the most active listeners of radio and heavy viewers of outdoor advertising. They may describe themselves as having a strong self-image, trustworthy, kind, refined, broadminded, efficient, intelligent, frank, self-assured, relaxed and creative.

Based on the above stated description, the following Rokeach Values were identified by the focus group for this segment.

<u>Terminable Values</u>	<u>Instrumental Values</u>
-Comfortable Life	-Imaginative
-Exciting Life	-Intellectual
-Sense of Accomplishment	-Independent
-Self Respect	-Ambitious
-Social Recognition	-Broadminded
-Inner Harmony	-Capable
-Mature Love	-Honest
-Wisdom	-Loving
-World of Beauty	-Self-Controlled
-Freedom	-Responsible

The means-end chain model establishes a framework to explain how products are the means to consumers' achievement of desired values. This model offers marketers a method of positioning products by associating product attributes (means) with benefits (consequences) that lead to the satisfaction of values (ends).

The means-end model developed by Gutman (1982) has four underlying assumptions:

1. values are dominant factors in the purchase pattern of consumers
2. consumers group products based on function to satisfy values
3. all actions have consequences (desirable or undesirable)
4. there is a link between consequences and product attributes

Gutman's model is developed on the premise that there are two major links in a consumer's cognitive map:

1. values are linked to consequences since consequences are given positive or negative valence depending on values
2. consequences are directly connected to product attributes since consumers will purchase the products they perceive will produce desirable benefits (consequences)

The linkages when combined have a common terminus i.e. values. Therefore, the basis of the model becomes the product attribute→consequence→value construct.

Based on the preceding model, we propose that the grouping of Rokeach Values within each of the four Bartos' segments would allow concentration on the centerpiece of the model i.e. consequences, in the development of advertising strategy for the target segments. Values, having been predetermined for a segment, become known variables with consequences and attributes being unknown. By utilizing techniques such as repertory grid (Kelly 1955), laddering (Gutman and Reynolds 1979), and product categorization (Gutman and Reynolds 1977, 1979), marketers can focus on the desirable consequences resulting from appropriate product attributes. The advertising message can emphasize the attributes that will help achieve valued end-states and ultimately lead to customer satisfaction.

Illustration of the Means-End Chain Model

To illustrate the model incorporating the previously mentioned value groupings by segments for women's market, two products have been chosen: fashion clothing and automobiles. The set of matrices included at the end of this paper should be referenced to facilitate an understanding of the following analysis.

Fashion Clothing

To draw out the differences among the segments based on the grouping of values, consequences were held constant for the four segments. Values were taken from each segment based on a subjective association with the product class. Assuming that respondents were subjected to a method such as the repertory grid to ascertain level distinctions, a set of consequences similar to those in the attached matrices would be developed. A +1 or -1 is assigned to show the relationship between consequences and values.

In the case of fashion clothing, the following consequences were developed based on a focus group discussion: self-expressive, feel unique, easy care, affordable, personal comfort, practical/lifestyle and classic. These consequences were related to the respective values for each segment. A perusal of this set of matrices shows that for the stay at home segment, the highest consequence is that of easy care which is related to the values of comfortable life, self-respect and inner harmony. The other minor

consequence is affordable which is related to the values of comfortable life and self-control. The "plan to work" segment is high in the consequences of feeling unique and being self-expressive; these consequences are tied to the values of an exciting life and self recognition. The "just a job" group also prefers the consequences of feeling unique and self-expressive. However, the strongest link is with the value of an exciting life. The "career" segment puts a high emphasis on enjoying a classic look, feeling unique and being self-expressive due to the values of being intellectual, imaginative and having an exciting life.

For this product, situations had to be considered as inputs into the system due to the different occasions for which one may purchase fashion clothing. Therefore, the second set of matrices (one for each segment) ties consequences to the situations. Some situations for which women may purchase fashion clothing are listed at the top of the second set of matrices; these are: leisure, sports, in the home, entertaining, appointments, party, evening and meeting. In the matrices the consequences are listed with the algebraic sign determined in the first set of matrices. To indicate the consequences that are relevant to specific situations a 1 is placed in the corresponding square. The column for the situation of interest to the marketer is transferred to the top headings of the third set of matrices which connects the consequences (benefits) to the relevant product attributes. Assuming that a marketer were interested in gearing an advertising message to the "stay at home" segment for fashion clothing to be worn in the home situation, the product attributes to be stressed would be wash and wear, without detailed design and be flexible (i.e. can clean in, lounge in) connecting to the consequences (benefits) of easy care, personal comfort and practical lifestyle. An advertising strategy geared to the "plan to work" segment for fashion clothing to be purchased for a party situation should emphasize the attributes of separate garment, pieces to mix and match tying to the benefit of feeling unique; and also highlight new colors and wash and wear for consequences of self-expression and easy care respectively.

For the situation of entertaining, the "just a job" group is interested in receiving the same benefits as the "plan to work" group is for the party situation. However, the relevant benefits (consequences) have been ranked differently, exhibiting a difference in priority. Therefore, the advertising strategy for fashion clothing aimed at the "just a job" segment would first emphasize new colors, then wash and wear, followed by separates for entertaining. Using the example of an evening out situation for the "career" category, a marketer would target this segment best by featuring product attributes of high styling, followed by current fad and new colors, tying to the benefits of classic, feeling trendy and self-expressive.

Automobiles

For the product category of automobiles it was necessary to construct two matrices for each of the four segments. The first matrix focuses on the values and consequences level to determine what the product class can do for the consumer. The second matrix (for each segment) focuses on the group level to uncover product attributes. The purchase of an automobile is not affected by situations but rather by economic status, social class and life cycle. Therefore, situations as inputs into the system are not used. To draw out differences among the segments based on grouping of values, consequences were held constant for the four segments. The following consequences were identified for cars with the help of focus group interviews: feeling safe, economical, affordable, feel stylish, personal comfort, and practical/lifestyle.

A look at the first set of matrices shows that the "stay at home" puts high importance on feeling safe, being economical and enjoying personal comfort consequences. These benefits relate to the values of family security, comfortable life and inner harmony. The "plan to work" group enjoys an automobile that is practical for their lifestyle,

economical and safe relating to the values of comfortable life, family security and responsibility. The "just a job" segment would prefer the characteristic consequences of sporty, stylish and economical which ties to the values of independence, a sense of accomplishment and social recognition. In comparison the "career" woman ranks high on feeling sporty, stylish and enjoying personal options connecting to the values of intellectual, independence, sense of accomplishment and social recognition.

Transferring the highest ranked consequences to the second set of matrices for each segment, the relevant consequences are related to product attributes. Based on these matrices, the "stay at home" group would receive the greatest benefits from a medium sized car that has low maintenance, high mileage and is sturdy. These are the attributes to be stressed in an advertising message aimed at "stay at home" women. If the advertisers were interested in attracting "plan to work" women, they would gear advertising to emphasize compact yet plenty of room, sturdy, low maintenance but high gas mileage cars. To capture the "just a job" market, the marketers should advertise the qualities of compact, low maintenance, high gas mileage and a sleek design. The "career" oriented women would prefer luxury and sleekness in either a compact or a large car.

Implications for Advertising Strategy

Reynolds and Gutman (1984) show the importance of means-end model for promotional strategy. Basically the identification of values, situations and benefits helps in the development of ad campaign and slogans. For example, for the stay at home segment the important values are family security, comfortable life and self-respect. The plan to work woman values comfortable life, exciting life and social recognition. To the just a job segment important values are comfortable life, exciting life, and sense of accomplishment. Similar values are important to the career women as well. In product attributes stay at home enjoys personal comfort, feeling safe, being practical and economical in clothing. Plan to work desires to feel unique and self-expressive in fashion clothing and enjoying personal comfort in car. The "just a job" wants a sporty car a self-expressive fashion clothing in linking to an exciting life. The "career" woman desires a stylish sporty/luxury car and fashion clothing that is classic and trendy, which connects to the values of sense of accomplishment and exciting life.

This approach also helps decision on media, budget allocation and communication objectives. Through the process of laddering (i.e. hierarchical ordering of consequences and benefits) one can try to improve involvement for low involvement products (Gutman 1982). Finally this methodology helps in the development of marketing mix.

Here it is appropriate to compare the method described with some other methods of benefit segmentation (Myers 1976). In other methods of benefit segmentation multi-dimensional scaling or cluster analysis is performed on product attributes preferences. Those approaches are more quantitative and scientific. On the other hand the main characteristic of the means-end model is its qualitative approach giving freedom to management in decision making; the analysts in this approach moves slowly toward a hierarchical ranking of consequences in situations and establishing priorities. The means-end approach is simpler. The main disadvantage of this approach being relative lack of quantitative data. Of course, the major limitation of the present paper is that it is a conceptual study and no data is presented. This paper, however, provides guidelines for a future empirical study and we are in the process of implementation and data collection. A set of matrices is presented below as an illustration of the technique.

Abstract

There are a number of marketing problems which have emotional aspects, such as product scares, ad affect, etc. In order to enhance the understanding of such problems, the present study investigates the role of subjective feeling states on a person's judgments within the theoretical framework of associative network model of memory. The influence of experimental manipulation of affect induced by a product scare story on evaluations of various products is examined. The results are consistent with a memory based model of affect.

Effects of Affect on Judgment About Products

There are a number of pervasive marketing problems that are neither well studied nor understood. One such problem is product scares like McDonald's worms rumor (Tybout, Calder, and Sternthal, 1981) and the Tylenol scare. We do not know whether or when the negativity generated about product X will influence only that product or generalize to other products, such as Burger King or Anacin.

A similar problematic area arises with advertising issues such as ad placement, and emotion in advertising. How and when the mood created by a prior program segment, a prior commercial, or affective context of a commercial will influence the response to the critical message are questions that are not well understood.

The problems mentioned above have something in common: an emotional aspect. However, until recently there has not been much research interest in emotions. Relying on cognitive psychology, which has attended to its narrower task of explaining 'cool' thinking" (Simon 1982, p. 342), may fail to provide sufficient explanation for marketing issues with emotional aspects. Therefore, we need research on these marketing problems which are not well understood. Furthermore, a theoretical framework is needed to enhance understanding of why and how affective states influence responses and hence to provide useful knowledge about managerial implications. The present study addresses this need for a basic understanding of how affect is processed and how it affects judgment.

Theoretical Issue

The purpose of the present study is to investigate the role of feeling states on a person's judgment within a theoretical framework. The construct of interest is defined as "immediate affective state." Affect is used as a generic term here. A definition that is modified from Simon (1982) is: affect, emotion, and moods designate states and processes in the cognitive system, autonomic nervous system, and the endocrine system. Mood or feeling refer to affect that provides context for ongoing thought processes without noticeably interrupting them. This subtle affective state is the construct of interest here.

To investigate the role of affective states on judgment, a number of questions need to be addressed: 1) How are feeling states represented? and 2) What is the process by which affect influences judgment? Some recent theoretical views have emerged in the last few years concerning these questions.

I wish to thank Bobby Calder and Brian Sternthal for resources and thoughtful comments.

Two approaches are discussed below. One is the "common processes" view (Clark and Isen 1982; Bower 1981; Bower and Cohen 1982). According to this view, affective and cognitive systems involve common processes, and are similarly represented in memory. Feeling states interact with and operate within the organization of thoughts. This approach argues that affective and cognitive systems are interdependent and provides a specification of how the two systems interact. Common processes view is based on "accessibility hypothesis": an affective state can function like an organizing unit as a cue to prime related cognitive material. This hypothesis implies that affective tone may be an important dimension of cognitive organization. Different models of accessibility, derived from different models of memory (network models of Collins and Quillian 1969; Collins and Loftus 1975; and distributed memory models of Eich, 1985; Murdock, 1983; Smith, et al. 1974; Tversky 1977 where items are represented as ordered sets of features) may provide explanations for how affect functions as a retrieval cue. Among these models of accessibility, a widely accepted one is "spreading activation in an associative network." Although there are many other models of retrieval, spreading activation is the example chosen here because of its prevalence in the literature.

According to the network model of memory, concepts are interconnected by associations. The associative network is a large connection of nodes, which are independent units. The spreading activation process, in the associative network, makes particular portions of the net selectively accessible for recall. When a concept is attended to, a node is stimulated. Activation spreads out along portions of the network associated with that node, in a decreasing gradient (Anderson and Bower 1973; Collins and Loftus 1975). In a recent version of this theory (Anderson 1983) spreading activation defines working memory. Spreading activation identifies and favors the processing of information most related to the immediate context or sources of activation.

Various nodes or elements—an element that encodes an environmental stimulus and a goal element serve as sources of activation. For example, the instructions of an experiment define a goal for the subject. Retrieval process involves refocusing which refers to selecting a subnode of a concept for focus of activation and focusing on a subset of facts about that concept. The notion of goal as a source of activation as well as the mechanism of refocusing on subnodes enable Anderson's ACT* model to activate almost any portion of the network selectively. Thus, modern spreading activation models are consistent with many patterns of activation, both specific and global.

Some nodes in the associative network represent feeling tones (Bower 1981). An aroused emotion spreads out activation, priming related concepts, words, and inference rules. An emotion becomes associated to coincident events and can later act like a retrieval cue. Research evidence that feeling states can cue retrieval of material in memory is provided by a number of studies (Fisher and Marrow 1934; Weingartner, et al. 1977; Isen, et al. 1978; Bower, et al. 1978; Teasdale and Fogarty 1979; Laird, et al. 1982).

Whereas Bower (1981) argues that affect is a node in the associative network, there is another way to view emotion that is prominent in the literature. It is termed "functional independence." According to this view affective and cognitive systems are represented differently, and affective states may be independent of

cognitions (Zajonc 1980; Zajonc and Marcus 1982, 1984; Zajonc, Pietromonaco and Bargh 1982). The motor system can represent information independently of other forms of mental representations.

Functional independence approach represents the "somatic" view of emotions: discretely different patterns of neurophysiological activity, independent of cognitive appraisal, is capable of generating emotions (Izard 1982 and Leventhal 1979). This view is concerned more with the somatic expression of emotion, and suggests that emotion is an experience which has immediate meaning for the person.

Wilson (1979) offers impressive evidence for a functional independence view. He reports that melodies presented five times were liked better than melodies never heard, even though subjects could not discriminate the former from the latter for familiarity. Although this effect appears congenial to a functional independence position it should be noted that a compelling explanation for why familiarity or exposure increases preferences has not been provided: "We have never been sure why exposure has positive effects" (Zajonc and Marcus 1982, p. 125).

A recent study addressed these opposing views in an attempt to test the spreading activation hypothesis (Johnson and Tversky 1983). They report that experimental manipulation of affect induced by a brief story of a tragic event produced a pervasive increase in the respondent's estimates of frequency of risks. This effect was independent of the similarity between the story and the estimated risk such that all estimates, not necessarily related to the mood inducing experience were mood congruent. For example, reading a story about a person dying from homicide not only influenced estimates of deaths from homicide but also estimates of deaths from floods. Johnson and Tversky (1983) suggest that a local (only the risk that matches the story topic being influenced) or a gradient effect (risks closely linked to the story being affected more than unrelated risks) would have indicated that the mood effect was dependent on memorial associations. They argue that the finding of global effects (all responses, unrelated and related to mood producing event are influenced by the mood), in the absence of specific effects (local or gradient mood effects) is supportive of the functional independence view. However, several alternative explanations for their findings can be provided.

There are a number of methodological and theoretical problems in the Johnson and Tversky study. One problem pertains to the plausibility of a demand characteristics explanation. If some intervention influences non-treatment variables as well as treatment variables, then a suspicion for demand emerges. The subjects might just be reacting to the demand of the situation and not to the intended intervention. Another methodological problem is the operationalization of the dependent measures: open ended frequency estimates may involve a very large within-group variance which may mask between-group differences.

A major theoretical problem is the limited variety of the risk estimates. The span of risks does not provide enough range for a fair test of the spreading activation hypothesis. Another theoretical problem is with regards to data interpretation. Johnson and Tversky's results can be interpreted within the spreading activation framework: the story activates a general emotion node which is strongly linked to fatalities and different causes of death. When the feeling node is activated all the associations with that node are also activated. A homicide story activates a "depressed" node which is connected also to the "flood" node. So, "flood" thoughts as well as other death thoughts are activated. In addition to the emotion node as a source of activation, goal element and other contextual cues may refocus activation on a number of elements such as superordinate nodes or specific subnodes. For example, giving a number

of risk estimates before a particular one activates many nodes all of which are linked to "fatalities." The goal of estimating fatalities also activates the set of all events linked to the "fatalities" node. Estimating frequency of deaths due to a particular event, "flood", refocuses the goal element on both "fatality" node and "flood" subnode, and elements of these structures become sources of activation. Frequency estimates of "flood" would be biased by what is in the working memory: mood congruent flood episodes and other fatal events including homicide. Thus all estimates will be influenced by the homicide story, resulting in a global mood effect. Specific effects could have been obtained if homicide-flood link were very weak or not focused on or if the goal element were mainly focused on "flood."

Hence, both global and specific effects appear to be consistent with the spreading activation mechanism because of context dependent sources of activation and the process of refocusing for further activation. The present view involves inclusion of emotion nodes in a network of associations where an Andersonian (1983) selective, context dependent activation mechanism operates. According to this interpretation, lack of a specific effect in Johnson and Tversky's study does not necessarily imply that the impact of mood was independent of the strength of association between story and risks and does not falsify the "common processes" view of affect. Especially in light of the difficulties involved in testing for global versus specific effects it seems premature to reject the spreading activation view. Thus, another study is needed to test the spreading activation notion. The current study investigates whether activation from a feeling node spreads along portions of the network of associations with that node, in a decreasing gradient. Specifically, the question of whether mood will influence all the judgments, even judgments unrelated to the cause of the mood (global effect) or only the judgments associated with the cause of the mood (specific effect) is examined. Common process view would predict a specific effect (local or gradient) whereas the functional independence view would predict a global effect.

Overview of the Experiment

This study investigated the influence of affective states on judgments about products. The stimuli and measurement were designed to alleviate three problems identified with Johnson and Tversky's paradigm: 1) Numerous products were chosen to provide a wide range of associations for a fair test of the gradient hypothesis, 2) To reduce demand, cover stories attempted to conceal the relationship between mood induction and judgment task, and 3) To eliminate high within group variance that existed in risk perception and thus to improve statistical power, scaled measurements were used.

To induce affect, brief stories about lethal effects of a toxic residue in a specific beverage were constructed. Three possible effects of exposure to a mood-evoking story on evaluations of various products (discussed below) were considered: compared to control group baseline, 1) a local decrease—for only the focal beverage in the story, 2) a generalization gradient—decreased evaluations of beverages related to the focal one, and 3) a global decrease for all product (beverage and non-beverage) evaluations.

Stimuli

Stories

Two affective stories were written and pretested to be credible and worry/fear provoking. To maintain information content constant, the stories were exactly the same except for the product they referred to: bottled orange juice or wine. The neutral story was about test marketing for Citrus Hill orange juice; it had

appeared in Advertising Age. All stories were about the same length, type-set, and presented as if they were clipped from a newspaper.

The Set of Products

Four groups of products were chosen to tap different associations with the target beverage. One set includes objects of different similarity with, and in the same category as the focal products—orange juice and wine, namely six beverages. Bottled orange juice, grapefruit juice, instant coffee, bottled cola, beer and wine, in that order of proximity, were the beverages selected based on the results of cluster analysis and multidimensional scaling performed on beverage similarity data. However, category relationship is not the only type of association that may be retrieved. Thoughts evoked by the story may also be associated with nonbeverages. The second set of products included nine foods that either were ingredients of or complemented orange juice or wine.

The third set included four products that had no cognitive association to the target beverages but had an emotional relationship, i.e., they were products (such as household insecticide) that make people worried. The fourth set consisted of fillers, completely unrelated to the target beverages.

These products have different implications in terms of the hypotheses. If mood effects are local, only the evaluation of focal beverages should be influenced. Evaluation of beverages of differing degrees of proximity provides a test of the gradient notion within the object category. Second and third sets of products provide a test of the extended gradient notion; and the fourth set provides a test of global effects.

Sample

Forty five male and female students at Northwestern's Graduate School of Management served as subjects. They were paid \$5.00, each, for their participation. They were processed individually or in groups of two or three.

Design and Procedure

When the subjects arrived at the laboratory they were told that they would participate in two surveys: one conducted for a newspaper to investigate readership and interest in different types of journalism, and the second to find out product opinions as a part of a market research. These instructions were intended to reduce demand characteristics.

Subjects were given a questionnaire entitled "Newspaper Reporting Study." Affect manipulation was introduced by varying the story subjects read in this questionnaire. Subjects were randomly assigned to one of the three story conditions: fear evoking story about orange juice or wine and neutral story. Filler questions about readership (presented before the story) and story ratings with respect to interest and quality of writing were also included. Subjects indicated how involved the story makes the reader (not at all: 1/very: 7), and were asked to list five adjectives to describe how the story made the reader feel. The last two questions served as manipulation checks.

Following the completion of this questionnaire, subjects were presented with a second questionnaire entitled "Marketing Research Survey," containing the dependent measures. Participants were asked to evaluate each of the randomly ordered products on five seven-point semantic differential items: good/bad, reputable/disreputable, valuable/worthless, pleasant/unpleasant, something I would be willing/unwilling to buy. Finally, subjects indicated their gender and frequency of target beverage usage (never: 0/everyday: 4).

Thus, the experiment involved two independent variables: affect (between-subjects factor) and degree of proximity of products (within-subjects factor). Fifteen participants were assigned randomly to each of the three story conditions. Product evaluation served as the dependent variable.

Manipulation check

The adjectives listed to describe feelings were classified by a scheme generated from Plutchik's (1970) categorization of emotions. Once they were coded, the number of adjectives indicative of fear, worry, and apprehension were recorded. χ^2 tests indicated that experimental groups listed more fear/worry adjectives than the control group. 26.7%/86.7% of the subjects who read the orange juice scare story and 40%/73.3% of those who read the wine scare story indicated that they felt afraid/concerned or apprehensive whereas nobody/6.7% of those in the control group felt so: $\chi^2(2)=7.2$, $p=0.03/\chi^2(2)=22.3$, $p=0.0$. Control subjects mostly responded with adjectives like informed, aware, indifferent, and bored.

T-tests indicated that subjects who read orange juice scare and wine scare stories felt more involved ($\bar{X}=5.07$ and 5.00, respectively) than the control group ($\bar{X}=3.07$): $T(28)=4.19$, $p=0.0$, and $T(28)=3.85$, $p=0.001$, respectively.

Thus, the number of fear/worry adjectives and the responses given to the involvement question revealed that the stories effectively induced the intended emotion.

Results

Affective state did not have any effect on the evaluations of three sets of products: foods, emotionally related objects, or fillers. Hence, analyses of their ratings will not be discussed. The evaluative scales, composed of five items for each beverage, were reliable (Cronbach's α 's were 0.79, 0.80, 0.80, 0.88, 0.89, 0.92). Mean of each subject's response on the five items was used as an evaluation score. Means and standard deviations of evaluative scores of each beverage, categorized by treatment, are shown in Table 1.

TABLE 1

MEANS AND STANDARD DEVIATIONS FOR BEVERAGE EVALUATIONS CATEGORIZED BY THE TYPE OF STORY

Evaluations	Story					
	Orange Juice Scare Story		Wine Scare Story		Neutral Story	
	Mean*	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Bottled Orange Juice	2.11	0.63	2.11	0.97	2.45	0.96
Bottled Grapefruit Juice	2.63	0.90	2.96	1.27	3.85	1.34
Instant Coffee	4.45	1.79	3.29	1.45	4.95	1.36
Bottled Cola	3.37	1.07	2.77	0.95	3.13	1.29
Bottled Beer	3.27	1.45	3.87	1.78	3.44	1.95
Bottled Wine	2.31	0.75	3.01	1.47	2.32	1.24

*Smaller numbers indicate more favorable responses.

A profile analysis treating beverage evaluations as an ordered within-subjects factor and type of story as between-subjects factor indicated a multivariate interaction between beverages and story: $F(10,78)=1.84$, $p=0.068$ / $F(10,210)=2.37$, $p=0.01$, with averaged test of significance using sequential sums of squares. This analysis suggested that affective state induced by a story did not influence ratings of all the objects, rather its effect depended on the type of beverage evaluated.

Separate analysis of variances of beverage evaluations revealed story effects only for grapefruit juice ($F(2,42)=4.29$, $p=0.02$) and coffee ($F(2,42)=4.51$, $p=0.017$). A priori contrasts indicated that subjects who had read either an orange juice scare or a wine scare story rated grapefruit juice more favorably than the control group: $F(1,42)=8.02$, $p=0.007$; and $F(1,42)=4.26$, respectively. Coffee evaluations were more positive in the wine scare story condition than in either orange juice scare story $F(1,42)=4.21$, $p=0.046$) or control ($F(1,42)=8.56$, $p=0.006$) groups. Thus, a respondent worried about wine evaluated grapefruit juice and coffee more favorably, and one worried about orange juice rated grapefruit juice more positively than a control subject.

Individual differences in consumption habits for the beverage in the story may mediate subjects' evaluative responses. Hence, frequency of drinking the target beverage was used as a covariate. Analysis of covariance did not significantly change the results for the beverage evaluations except for wine. Hence, analyses of the other dependent variables will not be discussed. When the effect of frequency of consumption of the focal beverage was partialled out, a story main effect was obtained on wine evaluations: $F(2,41)=3.97$, $p=0.027$. A priori contrasts indicated that subjects who read a wine scare story rated wine less favorable (adjusted $\bar{X}=3.17$) than the control group (adjusted $\bar{X}=2.0$): $F(1,41)=7.62$, $p=0.009$. Thus, when the effect of individual differences in consumption habits on wine ratings was removed statistically, a subject feeling apprehension towards wine (having read a wine scare story) evaluated wine less favorably than a respondent in a neutral state. This finding suggests a local mood effect.

Discussion

This study failed to replicate Johnson and Tversky: a global effect was not obtained. Mood induction did not affect all the responses of a subject indiscriminately; evaluations of only three products that were in the same category as the target object were influenced. Category membership implies cognitive relationships. Thus, the results suggest that mood effects were somehow dependent on the association between the responses and the cause of the affective state. The existence of a story by beverage interaction supports this suggestion too.

The findings that the treatment influenced evaluations of only three products, and that of those three two were in the opposite of the expected direction, rule out a demand explanation.

However, the overall pattern of the results were puzzling. First, a local effect was obtained only for wine but not for orange juice ratings. Orange juice may be a product towards which there are strong positive attitudes. In another study very favorable evaluations were detected; some subjects even described it as an "all American drink." A speculation may be that in the absence of any negative thoughts stored about orange juice, retrieval primed by a temporary negative affective state could not have made any mood congruent associations available.

Second, a gradient effect was not obtained. If structural proximity were the association which carried activation, orange juice scare/wine scare story should have made grapefruit juice/beer ratings less favorable

than a neutral story but did not.

On the other hand, the story by beverage interaction, the local effect on wine evaluations, as well as the reverse effects on grapefruit juice and coffee suggest that mood effect is dependent on relationship between the target and the evaluated object, but that the nature of this relationship may be something other than categorical proximity. Characteristics of grapefruit juice and coffee suggest two types of association between the target and the evaluated object. One possible relationship may be that of substitutability. Even though coffee was not the closest beverage to wine in pre-experimental similarity analyses, both are mature, adult drinks that have an acquired taste (Levy 1984).

An alternative interpretation is also plausible. The data indicated that grapefruit juice and coffee were the beverages most negatively rated by the control group. A post hoc comparison, using Scheffe 0.95 confidence interval revealed that evaluations of these drinks were less favorable than the aggregated ratings of the other beverages. Thus, the relationship may be evaluative similarity to affect congruent target object thoughts. Then the subject might deliberately disregard, for example, bitter taste, and consider relative benefits of coffee over lethal wine. This may be done with an experimental goal of alleviating a negative state so that he could give objective product ratings.

Why were Johnson and Tversky's (1983) global effects not obtained here? It cannot easily be attributed to the differences in mood induction because any stable phenomenon should persist despite method variation. Besides, the induced moods were probably very similar: 1) both studies used stories, with exactly the same cover, only the topics varied, and 2) both inductions seem to have lead to worry and fear. If at all, a slight difference may be in apprehension aspects in the present study versus depressive aspects in Johnson and Tversky's. To account for the discrepant results, one would have to argue that even slightly different moods are processed differently—a possible but nonparsimonious explanation.

Two other explanations seem more likely. One may be the greater likelihood of demand characteristics in Johnson and Tversky's study than in the present one. And the second is the existence of some unknown mediator, such as structure, levels, and kinds of associations in the memory.

Hence, it appears that global mood effects are not so reliable or stable. Mood can also have other effects, such as the local effect obtained here. Lack of a pervasive global effect leads to rejection of the functional independence view of affect. Although the results do not provide conclusive support for the common process view-memory-based model of affect, the findings of local mood effect on wine evaluation and story by beverage interaction are congenial with this view.

The results also suggests a more complicated process than was predicted. Further studies are needed to specify the underlying knowledge structure as a mediator, and provide stronger tests of the spreading activation mechanism. Goals and refocusing can be manipulated to create conditions under which specific versus global effects would be obtained. Furthermore, network models have mostly been tested in simple recognition or recall tasks. There may be a need to use different types of research paradigms to test these models for affective nodes and in judgment tasks.

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Abstract

Two competing theories have developed which relate to the nature of affect. The present paper discusses some of the consumer behavior implications of the evidence presented by the proponents of these two competing theories. These implications relate to the storage of affect, the role of affect in memory, and the relationship between affect and physiology.

Introduction

One of the primary topics of interest to consumer researchers is that of consumer preferences. Much of the research in consumer behavior focuses on how preferences develop and how these preferences affect the consumer choice process. Almost by definition, these preferences have been assumed to be affectively based. Although few would deny that there exists a relationship between affect and preference, there has recently developed a major debate in the literature (particularly in psychology) as to the nature of affect. Historically, it has been assumed that affect is "post-cognitive." This means that affect occurs as a result of (and therefore after) cognition. In 1980, Zajonc proposed a "separate systems" view of affect which challenged this basic assumption. Thus, two competing theories have developed which differentially explain the nature of affect: the traditional or "post-cognitive" theory of affect and the more recent "separate systems" view of affect (some key articles in this debate are Baars 1981; Birnbaum 1981; Lazarus 1981, 1982, 1984; Mellers 1981; Rachman 1981; Slife 1981; Watts 1983; Zajonc 1980, 1981, 1984; and Zajonc and Markus 1982).

Zajonc's separate systems perspective of affect and cognition is based on three primary propositions.¹ The first is that affect and cognitions are controlled by two separate systems in the brain. Though these two systems can affect one another, they are generally believed to operate independently. The second proposition is that affect is not necessarily post-cognitive. This does not imply that affect cannot result from cognitive processing (no one denies that affect can be post-cognitive). It simply states that affect can result from causes other than cognitive processing. The third proposition (one that can be refuted without the whole theory being rejected) is that affect is primary. This implies that a person's primary reaction in a situation where affect and cognitions come into conflict is the affective reaction. This can be seen in the dilemma often faced when one states "my thinking tells me do one thing but my feelings tell me to do something else." In such a situation, the person's typical problem is to stifle his or her primary reaction (i.e., do what he or she "feels") so that he or she can do the "rationale thing" (i.e., what he or she thinks).

As stated earlier, this separate systems view is opposed to the more traditional view which assumes that affect is always preceded by and occurs as a result of cognitive processing. Most consumer behavior models fall into this post-cognitive tradition. The only consumer behavior models which could be found that explicitly allow affect to either parallel or precede cognition were Ray's (1973) dissonance attribution hierarchy and Bagozzi's (1983) affect response, parallel response, and social response models.

The exact mechanics of these post-cognitive models of affect vary but they are typically decompositional. By

¹Zajonc actually presents several propositions regarding affect. The three selected seem to be the ones which are central to the debate and germane to the field of consumer behavior. Thus, only these three are discussed.

being decompositional, they typically divide an idea or object into component attributes. By somehow utilizing a set of beliefs that pertain to the object or idea being evaluated (which are cognitive in nature), a person derives an affective reaction to that object or idea². The most researched decompositional models in consumer behavior are the multiattribute models of attitude (for a review of this class of models, see Lynch 1985).

It is unlikely that this debate will soon be resolved. First, there are definitional barriers to its resolution. As pointed out by Izard, Kagan, and Zajonc (1984) there is no generally accepted definition of either affect or cognition. One could solve this debate by simply defining affect and cognition in such a way that they either are or are not, by definition, related. However, as Izard, Kagan, and Zajonc point out, this does little to advance our understanding of either affect or cognition. If one does not simply define away this problem, there are many complex definitional issues which must be addressed before any viable solution can be proposed. Secondly, there are several complex operational issues that must be addressed in this area. Presently, one cannot unequivocally show the absence of cognitions. Without doing so, it is impossible to refute the traditional theory of affect. Thus, it does not appear as though an acceptable resolution of this debate is in the immediate horizon. Even without such a resolution, however, some issues have surfaced in this debate which should be of interest to consumer researchers. The present paper discusses some of these issues. But before this is done, it is necessary to look in greater depth at what is meant by the term "affect."

Defining "Affect"

As indicated earlier, there is no universal agreement as to a definition of affect. However, any discussion of the relation of affect to consumer behavior must be clearly rooted in an explicit definition of affect. Since the present discussion focuses on the evidence presented in the debate surrounding Zajonc's separate systems view of affect and cognition, it seems fruitful to define affect in a way consistent with his conceptualization. One problem in doing this is that Zajonc does not explicitly define affect. One must infer such a definition from what Zajonc does say.

Though Zajonc does not explicitly define affect, he does make a clear statement as to what types of "feelings" he wishes to explore and what types of "feelings" he wishes to ignore. He states:

The class of feelings considered here is that involved in the general quality of behavior that underlies the approach/avoidance distinction. Thus for the present purpose, other emotions such as surprise, anger, guilt, or shame which have been identified in the literature and extensively analyzed by Tomkins (1962, 1963), Izard (1977), and others are ignored. (p. 152)

From this brief quote, two implications can be drawn as to what Zajonc means by the term "affect." First, it appears as though Zajonc views affect as a type of human emotion. Secondly, it is clear that he does not wish to include all

²It must be noted that not all cognitive models fall into this decompositional mold. In fact, Lazarus' (1981, 1982, 1984) arguments against Zajonc's separate systems view of affect are based, to a large extent, on his position that these types of models do not accurately represent cognitive processing.

human emotions under his discussion of affect; he is interested only in those that explicitly (and perhaps exclusively) relate to approaching or avoiding an object or idea.

Since Zajonc appears to view affect as a form of emotion, it seems reasonable to conclude that it would possess the characteristics of an emotion. Izard, Kagan, and Zajonc (1984) state that it is generally agreed that three components of emotion are "neurophysiological/biochemical, motor or behavior expressive, and subjective/experiential" (p. 3). Thus affect, as discussed by Zajonc should have some physiological basis, be expressed in behavior, and be individualistic and evaluative in nature.

To come up with a definition of affect with which to evaluate the separate systems view, these three components must then be incorporated with the approach/avoidance distinction. This approach/avoidance distinction adds two additional elements to a definition of affect: 1) it appears as though affect is object or idea specific (i.e., the object or idea that is being approached or avoided) and 2) affect appears to have a valence component (i.e., the tendency to move towards or away from an object or idea).

With all of this in mind, a working definition with which to evaluate the claims of the two theories of cognition and affect would be as follows:

Affect is an individualistic, physiological based predisposition to behave either positively or negatively towards an objective or idea.

It is interesting to note that this definition of affect does not deviate substantially from definitions of attitudes present in the literature (e.g., Fishbein and Ajzen 1975). The difference between the current definition of affect and previous definitions of attitudes is two-fold. First, the current definition does not require affect to be "learned" (though it does not say that affect is not "learned"). Secondly, it states that affect is physiologically based (thus, introducing the distinction between "hot" and "cold" cognitions). Since the study of attitudes has become a key topic in consumer behavior, it appears as though affect, as defined here, should also be of interest to consumer researchers.

Looking at the Evidence Without a Verdict

With this working definition of affect, the present paper is now ready to investigate some of the implications of the affect/cognition debate for consumer behavior thought. The three particular issues addressed by the present paper are: 1) the role of memory in affect, 2) the role of familiarity in affect, and 3) the relationship between affect and physiology.

Affect and Memory

Much of the research in this area would indicate that affect and cognitions are stored separately in the brain (for an excellent presentation of this position, see Fiske and Taylor 1984, pp. 35-36). An example of how this might occur can be seen in the field of social cognition. When two people meet and interact, usually an affective based evaluation is formed (i.e., the people develop some feelings of liking or disliking for each other). At some later point in time, either person can probably state if he or she liked the other person (i.e., the affective reaction), regardless of whether or not he or she can remember the specifics of the interaction (i.e., the basis for the affective reaction).

If it is true that affect and cognitions are stored separately, then a corollary to this proposition is that affect can develop at the time of encoding and not just at the time of decoding. Most cognitive based models of consumer behavior seem to assume, at least implicitly, that affect occurs at the time of decoding. Figure 1 illustrates this difference. The first model presents the typical consumer behavior approach. It assumes that consumers search for information and store that information

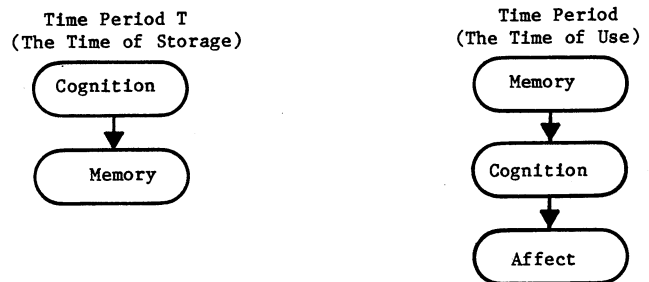
in memory. At the point of the decision, the consumer retrieves from memory (via internal information search) this information. This information is then used to form a preference. The second model presents an alternative interpretation of this process. It shows that affect is developed (perhaps as a result of cognitive processing) and then stored in memory (separate from the basis of this affect). At some later point, when the person is forced to behave based on the preference, the feelings are recovered from memory (not necessarily with the basis of these feelings).

The differences between the models presented in Figure 1 are not trivial. The traditional model would imply that there should be a close correspondence between information in memory and evaluations that are presumably made based on this information. As Lichtenstein and Srull (1985) point out, most psychological theories of persuasion make such an assumption. However, they also point out that the empirical evidence to date has not supported such an assumption. People do not always have access to the basis for their evaluative judgment. This finding is problematic for the traditional model presented in Figure 1; however, it creates no problem for the alternative model.

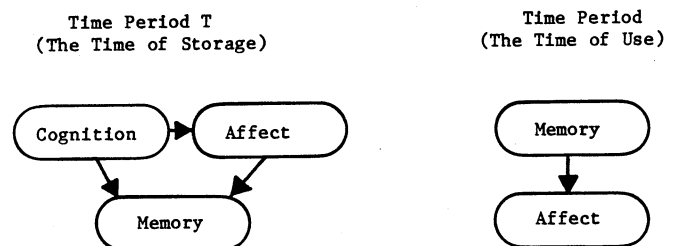
FIGURE 1

Two Competing Models of Affective Storage and Usage

Model A (The Traditional Model)



Model B (An Alternative Model)



Here it is interesting to note that models have developed which propose that presented information is stored separately from interpreted information (see Beattie and Mitchell 1985). Such models assume that the presented information is stored in episodic form and the interpreted information is stored by fitting it into the existing semantic structure. In such cases, the interpreted information (which is integrated) should be retained much longer than the original information (which is stored episodically). Both models presented in Figure 1 imply that the affective based evaluations occur as a result of interpreting incoming information. However, the second model would imply that the evaluations and the information on which the evaluations are made are both stored in memory. If the models of memory discussed by Beattie and Mitchell are accurate, then one would expect affective judgments (stored in memory through integration) to remain in memory longer than the information (stored episodically) which caused these judgments.

The above discussion implies that it is likely that a consumer may have strong affective based judgments stored in memory even when he or she is not able to remember the

basis for the evaluation. This, of course, presents a major obstacle when studying such evaluations. There may be reasons for assuming that, even when consumers want to, they often cannot tell a researcher why they prefer one store or brand over another.

Another implication of the alternative model presented in Figure 1 relates specifically to the role of memory in the consumer choice process. The term used in consumer behavior for the process by which a person retrieves something from memory is "internal information search" (e.g., Bettman 1979). The implication is that the consumer is searching memory for "information" (which has definite cognitive overtones). In fact, the consumer may be searching his or her memory for feelings and not cognitions. The implication is that consumers engage in memory searches and these are not necessarily "information" searches.

Familiarity and Affect

One of the primary empirical arguments presented by Zajonc for his separate systems view of affect is that mere exposure can cause an affective reaction. This newly formed affect is usually positive and is present even when there is no detectable change in the person's ability to remember the exposure (Harrison 1977; Kunst-Wilson and Zajonc 1980; Moreland and Zanjoc 1977, 1979; Wilson 1979; Zanjoc 1968).³ Though this mere exposure effect may not prove that affect and cognitions are indeed separate systems (see Birnbaum 1981; Birnbaum and Mellers 1979a, 1979b; Gordon and Holyoak 1983; Mellers 1981; Mandler and Shebo 1983; and Obermiller 1985), it does have interesting implications for consumer behavior.

Many advertising campaigns appear to be very effective in altering consumers' preferences, even when they have little if any relevant information content. The research cited by Zajonc would indicate that people form preferences (e.g., a brand preference) simply on the basis of familiarity. If this does occur, then it makes sense for an advertiser, in the absence of real product differences, to affect preferences through exposure. This certainly does not explain all of advertising's effect, but it does deserve further research.

Familiarity has been investigated in consumer behavior. The type of familiarity typically discussed refers to the amount of prior experience with or knowledge about a product or product class (for a discussion of common definitions and operationalizations of familiarity, see Sirgy 1981). The present discussion centers on a different meaning of the word "familiarity." The familiarity discussed here is more akin to the idea of recognition. Copeland in his classic 1923 article hypothesized a relationship between this type of familiarity and consumer buying habits. He hypothesized that, in the absence of perceived brand differences, the consumer will make a choice on the basis of "consumer recognition" which he defined as "an acquaintance with the general standing of the brand" (p. 287). The evidence presented by Zajonc seems to support the reasoning of Copeland.

Affect and Physiology

The major difference between the definition of affect presented earlier and common definitions of attitudes (e.g., Fishbein and Ajzen 1975, p. 6) is that affect is "physiologically based." It is obvious that the simple statement that affective preferences are "physiologically based" is inadequate since even cold cognitions certainly have a physiological bases somewhere in the central nervous systems. If this definition is to be adequate, there must be some way of differentiating the physiological

³It should be noted that the mere exposure effect does not appear to be as simple or as universal as one might conclude from reading Zanjoc (1980). There have been attempts that have failed to replicate the mere exposure effect under similar but not identical conditions (see Mandler and Shebo 1983 and Obermiller 1985).

basis for "cold cognitions" from the physiological basis for affective preferences. The present section briefly discusses the unique physiological aspects of emotion and a few implications of the physiological nature of emotion.

The most compelling arguments for a separate systems view of cognition and affect come from studies in physiological psychology. Izard (1984) notes that:

The case for considering emotions as a separate system seems fairly well established at the neuro-physiological-biochemical level. At this level, it is well known that some brain structures, neural pathways, and neuro-transmitters are relatively more involved than others with emotion expression, emotion experience or feelings, and emotion related behavior. (p. 19)

It is well established that emotions (one of which would be affect as defined earlier) have a strong physiological component. One need only look at the synonym for emotions -- "feelings" -- to see this connection. The term feelings implies that something is occurring in the persons physiological system. Any adequate theory of affect must address this physiological basis of emotion.

Much of the work on the physiological aspects of emotion has focused on its interaction with the autonomic nervous system. The autonomic nervous system is that portion of the nervous system that controls survival functions. The autonomic nervous system has historically been divided into two parts: the sympathetic nervous system which is primarily responsible for heightened activity levels and the parasympathetic nervous system which is responsible for maintenance, repair, and resource conservation (Bruce 1977). Generally it has been the sympathetic division of the autonomic nervous system that has been implicated in emotional behavior (for easy to read reviews of this interrelationship between the autonomic nervous system and emotion, see Sigg 1975 or Lang, Rice, and Sternbach 1972).

It is interesting that the strongest physiological effects of affect seem to occur either in the autonomic nervous system or in the bodily organs which are controlled by the autonomic nervous system. This becomes important when one notes that most of the work on classical conditioning has focused on unconditioned and conditioned responses which are also controlled by the autonomic nervous system. Though classical conditioning is not exclusively tied to the autonomic nervous system (McSweeney and Bierley 1984), the majority of evidence in this area shows that classical conditioning also has its strongest and most significant effects on those aspects of the body which are controlled by the autonomic nervous system. Since the autonomic nervous system seems to be a common ground for both affect and classical conditioning, then it is possible that affect might often have its bases in classical conditioning.

The idea of emotions being classically conditioned is not totally new. In 1947, Mower described emotions (with particular emphasis on fear) in terms of conditioned responses. Recently, researchers have begun to further investigate the role of classical conditioning in emotion. For example, Grings (1983) argued that "the conditioned stimulus is not so much a signal of what is to come as it is a new stimulus with a modified affective tone" (p. 205). Though all of the evidence is not in, it is likely that classical conditioning can be at the root of a wide range of human feelings--including consumer preferences. At this point in time, there is evidence to suggest that affect may result from classical conditioning (which, it could be argued, is not cognitive in nature). Since this is only speculative at this point, the need definitely exists for more research in this area.

Another implication of the link between affect and physiology relates to the idea of consumer drives. Many consumer drives are physiologically based (e.g., the drives associated with food products). If affect is interrelated with physiological events, then it is likely that preferences may change as physiological changes occur in the

consumer's system. It is well documented that nutrition deficiency can dramatically alter an animal's food preference (for reviews of this phenomenon know as "specific hungers", see Overman 1976 and Rozin and Kalat 1971). In consumer behavior, this type of effect can be seen in the advice that a person should never go grocery shopping when he or she is hungry. The danger is that the hunger drives could distort the consumer's preferences for certain foods. There may be a conflict between thinking and feeling and the feeling may win out. This is one example of how consumer preferences for some products (e.g., food products) could possibly vacillate because of physiological changes. Empirical work is needed which would investigate changes in preferences as a function of physiological changes, both in the realm of primary needs (e.g., food) and in the realm of secondary needs (such as love or companionship).

Summary and Conclusion

One of the most significant debates in contemporary psychology centers around the relationship between affect and cognition. The present paper discussed some of the most obvious implications of this debate. This debate has raised some intriguing issues for consumer researchers. As a starting for research in this area, the present paper has poisted a set of specific hypotheses that can be derived from the evidence presented in his debate. In proper form, these hypotheses can be stated as follows:

- H1: A stimulus will affect a consumer's preference at the time of encoding and at the time of decoding;
- H2: Under certain conditions, the bases for consumer preference formation will be inaccessible even when the preferences themselves are readily accessible;
- H3: Under certain conditions, consumer preferences can result from simple familiarity with an object;
- H4: Under certain conditions, consumer, preferences can occur simply as a result of classical conditioning;
- H5: Under some conditions, consumer preferences can change as a result of physiological changes.

These hypotheses provide specific direction for future research. It is clear that research is needed that will show that these hypotheses either possess or lack validity. In addition, the "under some conditions" clauses of these hypotheses need to be addressed. The key question here is "under what conditions?"

It is hoped that this paper will encourage researchers to take a closer look at the relationship between cognition, affect, and consumer preferences. Though it may be premature to conclude either that affect is always post-cognitive or that affect can occur independently of cognitive processing, consumer researchers should address some of the issues which have recently emerged in the debate surround the relationship between affect and cognition. The role of affect in consumer preferences is probably much more significant and much more varied than contemporary consumer behavior theories would suggest.

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CONSUMER RESPONSE TO MARKETING STIMULI:
THE RELATIONSHIP BETWEEN AFFECT, COGNITION, AND BEHAVIOR

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Abstract

This paper presents a dynamic framework for consumer response models that focuses on 1) the relationship between the constructs of interest (i.e., cognition, affect, behavior), and 2) the systemic properties of such an organization. The framework is an attempt to reconcile at the theoretical level the seemingly incompatible research positions currently held at the empirical level of analysis.

Introduction

The tripartite construal of psychological experience has dominated consumer research for more than three decades. Based upon three components of cognition (thinking), affect (feeling), and conation (behavior) this conceptualization has formed the foundation of several consumer behavior and communication response models used in marketing (Colley 1961, Lavidge and Steiner 1961, Krugman 1962, Howard and Sheth 1969, Ray 1973, Smith and Swinyard 1982). While most researchers will agree with a tripartite division of consumer psychological experience, an on-going debate regarding the order in which the three components are arranged continues to surface in the research literature (Zajonc and Markus 1982, Van Raaij 1984, Sternthal 1984).

We propose that this research problem cannot be resolved by remaining at the empirical level of analysis. Rather we must now consider the theoretical meaning of the disparate empirical results by abstracting the essence of the problem to a higher level of analysis. This requires framing the problem conceptually rather than empirically. Therefore a more dynamic framework will be presented under which previous models can be subsumed, and which focuses on the nature of the relationship between the components rather than addressing the perfunctory question of temporal order.

This relationship will be described in terms of three general properties: iteration, parallelism, and complementarity. These properties are actually processes which will serve to define the boundaries of the framework. The present paper presents a framework which argues for a process orientation, rather than an outcome oriented model of consumer response.

First, a brief overview of consumer response models which addresses the difficulty in establishing their validity at the empirical level will be presented. Next an alternative, more global conceptualization of cognition, affect and conation will be developed, the rationale for which will be provided by the New Physics. Finally, the implications of such a framework for consumer research will be discussed.

Consumer Response Models

Traditionally, most models of consumer behavior have assumed some awareness or cognitive state prior to an affective or behavioral response (Engel and Blackwell

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1982, Howard and Sheth 1969, Lavidge and Steiner 1961, Ray 1973, 1982). This cognitive dominated paradigm of consumer response holds that response order is based upon COGNITION--->AFFECT--->CONATION. However, many researchers have begun to question the appropriateness of such an approach for understanding all types of consumer behavior (Kassarjian 1978, Olshavsky and Granbois 1983, Isen 1984).

Alternatively, a growing body of research argues and presents evidence suggesting that AFFECT, which is activated first, influences thought processes (COGNITION) which subsequently direct an individual's behavior (CONATION) (Zajonc and Markus 1982, Van Raaij 1984). Finally a third stream of research contends that behavior precedes both affect and cognition. This implies that individuals often exhibit behavior in response to marketing stimuli without actually thinking or considering their feelings (Nord and Peter 1980). Although empirical support exists for each of the alternative configurations, researchers continue to debate the "correct" order of response (particularly with regard to the affect/cognition primacy question).

Yet further progress or resolution is inhibited because the proponents of each response sequence ordering subscribe to vastly different paradigms, or world views, which cannot be reconciled at the empirical level (Kuhn 1962). Perhaps the investigation of the relationship between these components would be more fruitful. Hence the study of the nature of the interaction process among the three components requires a higher level of analysis and a broader framework from which to understand the relationships.

Consumer response models suffer from the following problems which make them seem incompatible at the empirical level. First, the models conceptualized and tested in the literature are essentially variations of the same hierarchy-of-effects process (Colley 1961, Lavidge and Steiner 1961, Krugman 1965, Ray 1973). In this way they are unidirectional and static, reflecting a serial processing bias which implies that consumers are passive rather than active in response to their environment. Second, the temporal relationship of cognition, affect, and conation has never been fully explicated. As such, the dominance of the observed effect may be an artifact of the experimental design. Details regarding this point will be presented later in the paper.

Most models have operated under a cognitive activated paradigm; that is, cognition serves as the primary activator and moderator in the consumer response process. Recently, such cognitive models have come under attack and have been severely criticized for failing to recognize a more important role for both affect and behavior. Finally, an additional weakness with respect to consumer response models arises as a result of past research failing to develop standardized conceptualizations and operationalizations of the models' components. As a result researchers must still resolve such issues as whether or not there is a difference between recall and comprehension, and whether behavioral intentions or executed actions should be employed as the measure of behavior. Even more confusing has been the variation in the manner in which affect has been conceptualized, both as an attitude (which itself is comprised of affect, cognition, and conation, c.f. Fishbein and Azjen 1975) and as an evaluative judgment or a feeling state.

To help shed some light on these issues, we suggest a more global framework of consumer response incorporating

systemic properties of how the components are related, as well as the theoretical boundaries which set the limits of the process. Thus the framework attempts to explicate the components' boundaries, as well as to provide a more definitive conceptualization of the relationships between the model's components. This framework allows iterative steps as well as parallel processing, alleviating the dependence upon a sequential single component activated paradigm. After providing philosophic support, the remainder of this paper will elaborate on the characteristics and systemic properties of the proposed framework. Further justification for such a framework will be based upon evidence that has been presented in the literature.

In Support of Broader Framework

Since affect, cognition, and behavioral intention are unobservable variables, we may do well to follow the methodology of the New Physics (c.f. Zukav 1979). For example, subatomic particles are not only unobservable, they are not really particles at all in a material sense; and in this way they are much like the latent constructs we analyze as consumer researchers. The New Physics recognizes the subjective nature of our perceptual experience, as well as the notion that we cannot observe something without changing it. The problem of how to measure a particle is an illustrative example. A subatomic particle can be characterized by both position and momentum, but the two properties cannot be accurately measured at the same time. We can choose to measure both, but in doing so we sacrifice accuracy; or we can choose to measure one property precisely, at the expense of knowing nothing about the other (Heisenberg's Uncertainty Principle).

Zukav (1979) explains that because it is the nature of things that we can know either the momentum of a particle or its position, but not both, and because we must choose which of the properties we want to measure, we are actually creating certain properties by the very act of choosing to measure them. Similarly, the measurement of a consumer's response is influenced by the point at which the researcher chooses to close the system and determine the initial point of response. If reality is defined by the nature of the researcher's experimental design, then the component order which results becomes a mere experimental artifact. For example, if we define cognition as including the prerequisite processing stages of transducing sense data into information, then by definition cognition precedes an affective response and behavior. On the other hand, if affect is defined as a primary visceral response that we experience before we consciously know how to label it, then affect precedes cognition and behavior.

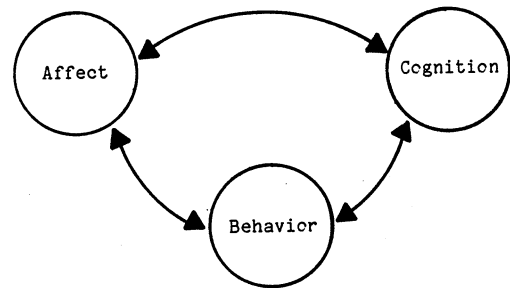
In order to execute an empirical investigation we must close the system, holding some variables constant while others are chosen to vary. Thus reality is dictated by methodology and our results have meaning only within the specific system for which they were constructed. If we accept the argument that temporal order is experimenter-induced, we are now left with the task of "making sense" of the data. Olson and Peter (1984) suggest that researchers must question the theoretical meaning of their results. In this way we move from a narrow empirical level to a broader conceptual level of analysis. Because concrete effects (at the empirical level) have very little intrinsic meaning, we should seek to develop abstract theoretical meanings so as to enhance the generality of those meanings and thus their usefulness (Olson and Peter 1984). Thus the framework presented here is consistent with contemporary philosophic views in that it accounts for the subjectivity of empirical findings, yet provides a unifying conceptual analysis in order to promote a consistent research program.

A Dynamic Communication Response Framework

The framework proposed here differs from earlier models in that the process of consumer response can be activated within the system at one or multiple points, and move

throughout the tripartite process in either direction. We propose that three processes best describe the way in which the (cognitive affective and conative) response components are related to each other. In particular, the framework which is proposed postulates that iterative, parallel, and complementary processes function alternately in linking the response model's components. An individual does not necessarily have to complete connections with each of the components, but in fact may just cross between two components in an iterative process. For example, when deliberating about a product decision, a consumer may cycle between a thinking state (cognition) and a feeling state (affect). This may be the typical for consumers who cannot make a decision because they are torn between what they consider rational behavior and the way they actually feel (i.e., the household that needs a family car although the husband really wants a Corvette).

FIGURE 1
A DYNAMIC COMMUNICATION RESPONSE FRAMEWORK



Conversely, two components may simultaneously activate a third component as the result of parallel processing that has occurred. Such is the case of a purchaser whose thoughts (cognition) place him/her behind the wheel of the Corvette while he/she is physically in the process of signing the purchase contract (behavior), which brings a joyous smile to his/her face (affect).

Similarly, two components can complement each other in their impact upon a third component. For instance, the strength of our feelings (affect) may determine how we think (cognition); how we think may strengthen how we feel, thereby inducing a stronger behavioral response. These scenarios presented above represent only three of the possible ways in which affect, cognition, and conation may be related. Examples such as these clearly point out the need for a more robust framework if researchers are to understand and explain the dynamic phenomena of consumer response to marketing stimuli.

Theorizing does not take place in a vacuum. Rather our theories, methods, and results are based upon unstated assumptions about how we think the world works. As argued by Bristor (1984) these underlying assumptions are often inadvertently incommensurate, and so meaning becomes obscured. Thus, in order to help clarify the nature of the construct order debate, we will first discuss the theoretical boundaries of the three constructs.

Cognition, Affect, and Conation

Over the years, the components of the tripartite model have taken on varying definitions, with affect being the most ambiguously defined. Affect has been conceptualized variously as feeling, emotion, preference, and attitude. Interestingly, a dominant school of thought regarding attitude uses the entire tripartite, defining attitude as a combination of affect, cognition, and conation (Fishbein and Azjen 1975). In the present framework, affect is considered as evoking a form of experiential feeling or emotional response. Affect is intended to represent a more global measure of evaluation and is not meant to reflect specific affective responses. Recent research

into the conceptualization of affect suggests that it may be composed of primarily perceptual reactions to external stimuli occurring without awareness or interpretation (Leventhal 1979, 1980, Zajonc 1980, Zajonc and Markus 1982). Advertisers have long held that, at the very least, advertising messages impact the way consumers feel rather than the way they think or behave.

Conversely, cognition has been construed as thoughts, beliefs, or any of a number of brain-related activities associated with perception, memory, and/or learning. While earlier communication response models have made a distinction between conscious (attentive) and preconscious (perceptual pre-attentive) cognitive activity, the present framework accommodates both conscious and preconscious cognitions.

The third component, conation or behavior, is possibly the easiest to understand as it is defined as purposive action. A classic example is operant conditioning which suggests that the probability that a behavioral response will occur which can be influenced by reinforcement directly following the behavior (c.f. Skinner 1966). With respect to consumer responses, the behavior of interest is typically purchase and decision behavior. While these constructs have been shown or hypothesized to be related via a consumer response model of behavior, a unifying framework has failed to emerge.

Systemic Properties

As noted above, three properties which influence the relationships in the consumer response process include: 1) iteration, 2) parallelism, and 3) complementarity. These properties serve as rules of correspondence and as the theoretical boundaries for the relationships between affect, cognition, and conation. Based on a more holistic approach, these systemic properties define the interaction between the consumer response components (interconstruct), as well as the processing that might occur within each of the constructs (intraconstruct). Hence, when a property occurs between affect, cognition, and/or conation, it represents an interconstruct process. When a property occurs within any of the constructs, it represents an intraconstruct process. Each of these properties is discussed in turn below.

Iterative Processing. We define an iterative property as one which allows for repetitive sequential processing. For example, a script (Abelson, 1976) may be thought of as a sequence of repetitive interaction between expectations (cognitions) of behavior as well as the actual execution of behavior (interconstruct). Processing within the cognitive component (cognitive intraconstruct) is evidenced by the very nature of consumer memory itself as it is based on the notion of hierarchical interaction among the various structural forms of knowledge (c.f. Anderson and Bower 1973; Klatzky 1980, Loftus and Loftus 1976). Research in the area of information processing and long-term memory provides an excellent example of how iterative properties of cognition might relate to consumer responses. Bettman (1979) contends that consumers use information stored in memory to aid in perceiving and translating incoming marketing stimuli. Described as a process by which semantic concepts, visual images, and auditory messages are associated by way of a series of interactions, it has been suggested that such a mapping process forms the basis of all cognitive activity (Holyoak and Gick 1980).

Parallel Processing. Parallel processing assumes that two or more constructs may be activated simultaneously. That is, separate processes may occur at the same time. For example, Zajonc (1980) argues that one can have an initial emotional response to a stimulus which is paralleled by an associated behavioral (motor) response. With respect to consumer response behavior, affect and cognition may act parallel to each other without impacting either upon each other or upon the behavior. For example when a consumer hears a particular jingle or responds to a particular advertising stimulus (McDonald's Arches),

the stimulus serves as a cue for memory retrieval, while at the same time evoking the particular feeling or mood which was present when the stimulus was originally stored. We have all remembered some event and the feelings we had which are triggered by a favorite song or melody. Thus parallel processing offers another solution to the continuing debate as to whether affect precedes cognition, i.e., they may occur simultaneously.

Perceptual processing (cognitive intraconstruct) often occurs in parallel. When executing a visual search during a pattern recognition task, an advertising stimulus could be compared to many internal perceptual codes at the same time. Bettman (1979) proposes that within a choice task, the decision maker works through several different goals, not necessarily one at a time. He states, "although goals may have some natural sequencing, progress can often be made on several goals simultaneously" (p. 21). If researchers accept the argument that affective as well as cognitive operations are performed when one acquires new information, it would appear that they both could occur simultaneously, through parallel processing.

Complementary Processing. Complementarity refers to the activation of two constructs as one means to the same end. With complementary processing, one phenomena serves to strengthen the other in its impact upon a third. For example affect and cognition may act as complements to each other to then influence behavior. Empirical evidence in a series of studies by Bower (1980) demonstrates that the affective mood state at the time of encoding may influence behavior only in conjunction with information retrieved from memory.

An example of the property of complementarity in action may be found in today's innovative advertising research. When consumers are asked to view television advertising commercials, multiple measurements are made of the perceptions--one affective and the other cognitive. The cognitive measure may consist of a series of aided or unaided recall and recognition tests, while the affective measure may be based on a galvanic skin response test or pupil dilation test. In response to the ad, cognitions serve to strengthen the affective response or vice-versa.

Intraconstruct complementarity may be illustrated with an example based upon the nature of memory. It is now generally accepted that there exists two conceptually distinct types of memory--episodic and semantic (Loftus and Loftus 1976, Klatzky 1980). Tulving (1972) was the first to propose a distinction between episodic and semantic memory. Loftus and Loftus summarize this difference as: "episodic memory refers to our memory for personal experiences and their temporal relations, whereas semantic memory includes the organized knowledge we have about words and other verbal symbols, their meaning, and referents; about relationships among them; and about rules for manipulating them" (p. 120). Thus even though they are distinct, it seems clear that episodic and semantic memory must work in synergy under the auspices of the same overall memory structure and information processing system. Interestingly, this distinction between semantic and episodic memory may be of import for our understanding the relationship between cognitive and affective processes. Zajonc suggests that it may be possible to "store" affect in some way (Zajonc 1980, Zajonc and Markus 1982). This would require that affect possess some mnemonic properties. Yet, rather than ascribing to affect the properties of a totally independent processing system as Zajonc suggests, perhaps it would be better to view affect and cognition as being associated with different types of memory. Isen (1984) provides justification for this view by arguing that "affect is an experience--it feels like an experience, and its role in memory feels like that of place or time, which are also experiential" (p. 224).

Summary

This paper has attempted to describe a broader, more dynamic, framework of consumer response to marketing stimuli. The framework focuses on the functional relationships that may exist between its constituent constructs of cognition, affect, and behavior. Three systemic properties are proposed as rules of correspondence between these constructs, and the implications of these relationships associated with both interconstruct and intraconstruct processing have been discussed. Moreover, the framework emphasizes the need to abstract the current empirical problem to the theoretical level of analysis.

Justified by epistemic assumptions from the New Physics, the present conceptualization provides an organizing framework which may serve to: 1) imbue more theoretical meaning to existing empirical observations; 2) provide a foundation for a consistent program of research.

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A MODEL TO EXPLAIN CHARITABLE DONATION -
HEALTH CARE CONSUMER BEHAVIOR

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Abstract

This paper deals with the choice process of individuals for making charitable donations to non-profit organizations. Specifically, a Donating Behavior Model (DBM) is proposed, to assess the criteria with which consumers base their decisions concerning giving to one non-profit organization as opposed to another. The focus of the paper is on validating the antecedent and consequent variables proposed in the model of charitable donations in the case of limited donation budgets. The results indicate that severity, involvement, predominance and alleviation are good predictors of importance, and that importance in turn is a good predictor of donating behavior.

Introduction

Charitable donations are an important issue in our society. The increasing number of non-profit organizations which conduct annual or periodic fund raising campaigns have made it difficult for the consumer to allocate his donations. As consumers do not have unlimited budgets, they must use decision strategies not unlike those required in a product choice situation. Dichter (1972) concluded that a major motivating factor for blood donors is the belief that they are probably helping themselves. It can be considered that the act of giving to any non-profit organization partly constitutes an act wherein the donor is either purchasing 'personal insurance', is attempting to alleviate personal guilt or is obtaining some other such personal benefit. Kotler (1975) posited that consumers expect an exchange process in a social marketing context similar to the exchange process implied in the classical definition of marketing (AMA 1960). The act of donating viewed in this light can clearly be viewed as an exchange process.

The present research considers that the act of contributing to any non-profit organization, and in particular to a fund raising campaign, corresponds to the act of buying. The altruistic feeling of helping others, or the feeling of security, hoping that one day the individual will benefit from the contribution, are considered potential motivators (eg. the belief that contributions to cancer research could help in the finding of a cure that could one day save that individual's life). The act of donating funds is then considered as a purchase, in that a consumer is investing in some security. It is argued that the perceived risk toward the cause defended by the non-profit organization would be very important in triggering the behavior. Perceived risk would not inhibit the buying situation, but would instead initiate the process by which the consumer would eventually make his/her decision. The contribution could then have the effect of lowering the perceived risk for that particular cause.

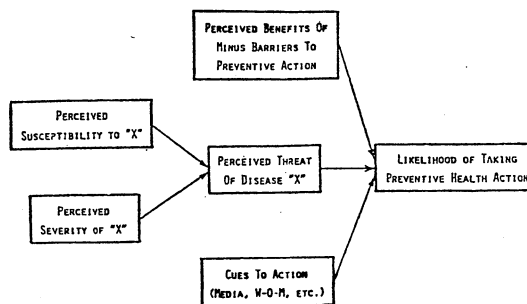
This paper proposes a Donating Behavior Model (DBM) partly based on the Health Belief Model (HBM - Becker 1974; Rosenstock 1966) and the Behavior Intentions Model (BIM - Fishbein 1967). The present model is similar to HBM in that even if the service is not performed immediately, the act of giving for a social cause implies the act of buying a service more preventative than compulsory. The HBM is thus adapted to render it more suitable to any type of non-profit organization's fund raising. It is suggested that the model could be generalized to all cases where

charitable donations (i.e. financial contributions or volunteer aid) are made to non-profit organizations.

Health Belief Model (HBM)

Rosenstock (1966) first proposed the Health Belief Model. It was derived from a value-expectancy framework in the attempt to predict the probability of an individual engaging in a preventative health care action. It was argued that three factors contributed to this decision: 1) a benefits-barriers analysis of the advantages and disadvantages of the health prevention activity; 2) the perceived threat associated with the condition or illness; and 3) various cues-to-action which include both mass media and interpersonal communications. The complete model is depicted in Figure 1.

FIGURE 1
THE HEALTH BELIEF MODEL

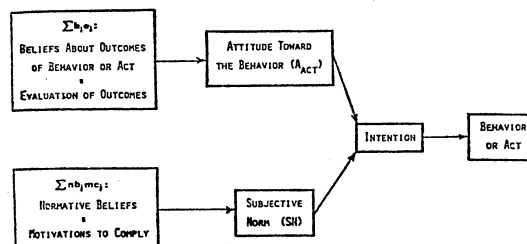


Oliver and Berger (1979) have noted that while this model is widely accepted among medical sociologists there are a number of problems that have not been resolved, including: a) the HBM is more a collection of variables than a formal theory or model; and b) there are serious measurement problems - it is not uncommon to find identical constructs operationalized totally differently from study to study with the same disease under consideration.

Behavioral Intentions Model

Fishbein (1967) proposed the behavioral intentions model which stated that behavior is a function of the intention to perform that behavior. Intentions are then posited to be best predicted by two components: the attitude toward the act, and a subjective norm. The complete Fishbein Behavioral Intentions Model is depicted in Figure 2.

FIGURE 2
BEHAVIORAL INTENTIONS MODEL



Oliver and Berger (1979) note that the Fishbein model has been used sparingly in the field of health care, although it has been argued that it is a good alternative to the HBM (Jaccard 1975). Results using the BIM in the field of health care have been demonstrated its usefulness. Jaccard and Davidson (1975) reported that the BIM was a valid predictive framework and more parsimonious than others. Schlegel, Crawford and Sanborn (1977) found that the addition of 33 variables exogenous to the BIM resulted in only a seven percent increase in explained variance.

The Proposed Donating Behavior Model (DBM)

Referring to the HBM and BIM, Oliver and Berger (1979) argued that,

...both models explained a statistically significant portion of the variance in behavioral intention... Consequently, practitioners can, with some degree of confidence, apply concepts in the models to the decision-making process used by their organization... In addition, researchers concerned with the most complete determination of health care decisions (eg. when an epidemic is imminent) may wish to combine further improve prediction (p.120).

This paper reports a first attempt to build a better health care/donating behavior model using variables from both the HBM and BIM as well as additional variables. The variables included from the previous models are behavioral intention, perceived severity and perceived threat. It is suggested that examining other variables including involvement, perceived possibility of alleviating the condition, perceived predominance (visibility) of the condition, and the importance for the individual of giving to a particular non-profit organization, is essential for the understanding of donating behavior. Specifically, the variables of the proposed model are:

Involvement: Valence (1981) has argued that perceived risk can be synonymous with involvement. Valence points out 6 similarity criteria with respect to involvement and perceived risk. The DBM considers an individual perceiving a certain risk associated with a particular situation to be more highly involved than an individual who perceives no risk of being affected by the situation.

Alleviation: This refers to the perceived possibility of alleviating the condition or situation with the health care action. Incorporating Dichter's (1972) belief concerning the reasons why individuals donate blood, and Kotler's notion of an exchange process, it is herein accepted that individuals attempt to maximize the utility of their health care actions (eg. donations, volunteer work). Thus, an individual would like to believe that his contribution of money or effort will in some way alleviate the actual situation as he perceives it. This construct is similar to the perceived benefits proposed by Zaltman and Vertinsky (1971).

Perceived Severity: Zaltman and Vertinsky (1971) and Becker and Maimon (1975) proposed a measure of perceived seriousness or severity of the cause. The construct is herein used in a broader sense, measuring how an individual perceives the serious of any social cause.

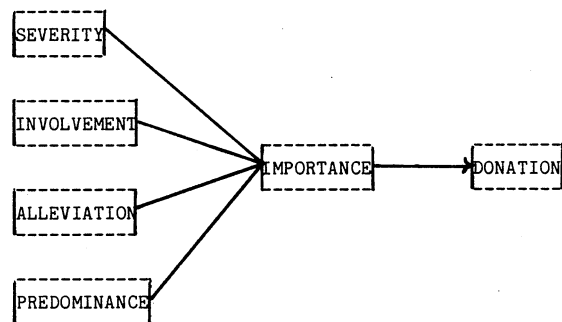
Perceived Predominance: Similar to the cues-to-action in the HBM, predominance is a way of measuring the visibility of the situation defended by the non-profit organization. It is suggested that more visible situations act as a reminder of the cause. For example, not all consumers perceive diseases or starvation as equally visible. Among diseases, some are more visible than others. The recent example of African famine is an excellent example. It appears that with the tremendously

increased activities concerning the famine in Africa, individuals are starting to act.

Importance of Giving: As in the BIM, it is important to measure the extent to which consumers want to contribute. In the HBM, only the probability of contributing is measured. The inclusion of the measure of importance makes it possible to know whether or not the consumer would contribute if they were not given easy access. In the case of charitable donations, consumers must be given the opportunity to contribute, as in regular buying situations. There is probably an inverse relationship between the importance of giving and the required level of easy access.

The entire model is depicted in Figure 3. As shown, it is believed that importance is an intermediate variable between the donation (or any health care act) and the other four predictor variables. Importance of giving is hypothesized to be determined by the severity of the situation, the predominance of the condition, the possibility of alleviating the situation and consumer involvement (as measured by perceived risk). Importance of giving, in turn, is hypothesized to be the best predictor of the health care act, in this particular situation, the amount of the charitable donation.

FIGURE 3
THE DONATING BEHAVIOR MODEL (DBM)



The importance construct is defined as the perceived necessity for a specific consumer to contribute to a non-profit organization. A consumer may consider it to be very important to contribute to cancer research, and may also consider it important (but less important) to contribute to his church. It is suggested that more of his budget would be spent on cancer research. Thus, it is proposed that consumers facing a donation choice, would rank the organization according to their perceived importance, and their donations would reflect this ranking.

It is suggested that this model is not only applicable to actual financial donations but could be generalized to giving behavior of all types and for all kinds of non-profit organizations.

Relationships Among the Variables

The relationships between the variables indicate that a consumer considers the perceived severity of a situation (eg. the severity of an illness or disease, the size of the local orchestra's deficit); the degree to which the disease or issue affects his personal life (involvement - dying from heart disease, losing the opportunity to attend live music concerts); the predominance of the situation, or the extent to which the problem is highly visible (wheel chairs, muscular problems as opposed to high blood pressure, also media visibility); and the potential to alleviate the problem with his donation (eg. feeding one child for a year in Africa with a \$25 contribution).

Given these variables, a consumer rates all possible alternatives in terms of the necessity for him to contribute. This rating then serves as the basis for the donor to divide his available budget for charitable donations.

The following section reports the results of a pilot study to test the model using financial donations to charitable organizations as the dependent measure.

Objectives of the Research

The objectives of this pilot study were three-fold:

- 1) to validate the proposed DBM;
- 2) to demonstrate that importance of giving is a good predictor of behavioral intention; and
- 3) to generalize a model that could be applied to any type of non-profit organization's fund raising campaign.

Research Method

The study was conducted in the months of February and March, 1985 in the Province of Quebec. A questionnaire was distributed to 100 individuals who were asked to complete the questionnaire in the presence of the researcher. Of the 100 questionnaires handed out, 86 were considered usable. The sample consisted of 43 males and 43 females, with an average age of 35 years, family income of over 20,000 per annum. Most were married with an average of one child.

The Questionnaire

The questionnaire was structured and contained three parts. The first section contained questions concerning previous donations. In addition, the respondent was placed in a situation wherein he/she was "given" \$100 and asked to distribute the funds among 10 charitable organizations. The respondent was told to allocate the funds in any way, and that it was not necessary to contribute to all organizations. The list of organizations is as follows:

- * Research on cancer.....\$ _____
- * Local hospital foundation.....\$ _____
- * Research on lung disease.....\$ _____
- * Research on child disease.....\$ _____
- * Local Church charity.....\$ _____
- * United Way.....\$ _____
- * Research on cardio-vascular disease.....\$ _____
- * Help for alcoholics.....\$ _____
- * Help for Third-World Countries.....\$ _____
- * Half-Way houses for women/young offenders....\$ _____

The second part of the questionnaire contained a number of questions measuring the five independent variables in the DBM. In all cases, 7-point semantic differential scales were utilized (eg. It is "very important" - "very unimportant" for me to support research into cardio-vascular disease, etc.). Other variables not related to the present study were also measured. The third part of the questionnaire contained the demographic variables previously reported.

Data Analysis

The dependent variables in the study are the amounts given to each of the non-profit organizations. Every respondent indicated the amount he/she would contribute to each of the ten charities. In addition each individual responded to the five independent measures (i.e. severity, involvement, alleviation, predominance and importance).

In order to validate the model a multiple linear regression was first used with all five independent

measures and the level of donation as the dependent measure. Next, a multiple linear regression was utilized using the four independent measures that were hypothesized to predict importance, and a simple regression using importance as the independent measure and donations as the dependent measure. Finally, a partial correlation was computed for donation with respect to the four independent measures (i.e. severity, alleviation, predominance and involvement) controlling for importance. A significant fall in the correlation coefficients would then indicate that importance would depend on the four independent variables, and that it in turn, is related to the amount of the charitable donation.

Path Analysis Procedure

A path analysis procedure is used to evaluate the model. Importance is regressed on the four proposed antecedents using ordinary least squares regression (Duncan, 1975; Wright, 1934) to determine if the independent variables account for the variance in importance. Evans (1978) and Oliver and Berger (1979) applied path analysis to BIM and HBM respectively. This technique appears to be an ideal procedure for testing the proposed model. In functional form, the investigated relationships appear in Table 1.

TABLE 1
PATH ANALYSIS FUNCTIONS

Donating Behavior Model (DBM)

$$\text{IMPORTANCE} = f(\text{Severity, Involvement, Predominance, Alleviation})$$

$$\text{BEHAVIOR} = f(\text{Importance, Involvement, Severity, Predominance, Alleviation})$$

Behavioral Intention Model (BIM)

$$\text{A-act} = f(\text{Ebiei, Enbjmcj})$$

$$\text{SN} = f(\text{Ebiei, Enbjmcj})$$

$$\text{INTENTION} = f(\text{Ebiei, Enbjmcj, A-act, SN})$$

$$\text{BEHAVIOR} = f(\text{Ebiei, Enbjmcj, A-act, SN, Intention})$$

Health Belief Model (HBM)

$$\text{THREAT} = f(\text{Susceptibility, Severity})$$

$$\text{INTENTION} = f(\text{Susceptibility, Severity, Threat, Benefits/Barriers, Cues-to-Action})$$

$$\text{BEHAVIOR} = f(\text{Susceptibility, Severity, Threat, Benefits/Barriers, Cues-to-Action, Intention})$$

Results/Interpretation

The results of the multiple regressions and the path coefficients obtained with the variables suggested by DBM are presented in Table 2.

The results indicate that the level of donation can in part be explained by these variables. All regression equations are significant at $p < .05$ with the exception of cancer research and heart research. The percentage of explained variance (for the significant equations) varies from .10 to 20.

The path coefficients clearly indicate that the importance of a specific cause is the single best predictor of donating behavior. Further, the results suggest that it is much easier to predict importance than behavior.

The results indicate that the four independent variables explain a significant amount of the variance of the importance variable. All eleven regression equations are significant at $p < .01$, with R-SQUARE ranging from .16 to .50. These results are highly significant and support the intermediary positioning of the importance variable in the model.

TABLE 2
PATH COEFFICIENTS OBTAINED WITH THE DBM

Variable	Standard Regression Coefficients	R ²
Path Analysis: Global		
Z1 Severity		
Z2 Involvement		
Z3 Predominance		
Z4 Alleviation		
Z5 Importance	.16 Z1 +.19 Z2 +.02 Z3 +.36 Z4	0.27 ^a
Z6 Behavior	0 Z1 +.11 Z2 -.01 Z3 +.08 Z4 +.22 Z5	0.10 ^b
Path Analysis: Cancer		
Z1 Severity		
Z2 Involvement		
Z3 Predominance		
Z4 Alleviation		
Z5 Importance	.28 Z1 +.01 Z2 + 0 Z3 +.34 Z4	0.20 ^a
Z6 Behavior	.10 Z1 +.06 Z2 -.10 Z3 -.02 Z4 +.05 Z5	0.03
Path Analysis: Hospital		
Z1 Severity		
Z2 Involvement		
Z3 Predominance		
Z4 Alleviation		
Z5 Importance	.08 Z1 +.06 Z2 +.07 Z3 +.34 Z4	0.16 ^a
Z6 Behavior	-.15 Z1 +.06 Z2 +.05 Z3 +.12 Z4 +.37 Z5	0.20 ^b
Path Analysis: Lungs		
Z1 Severity		
Z2 Involvement		
Z3 Predominance		
Z4 Alleviation		
Z5 Importance	.22 Z1 +.19 Z2 +.05 Z3 +.15 Z4	0.20 ^a
Z6 Behavior	-.20 Z1 +.23 Z2 + 0 Z3 -.04 Z4 +.37 Z5	0.20 ^b
Path Analysis: Children		
Z1 Severity		
Z2 Involvement		
Z3 Predominance		
Z4 Alleviation		
Z5 Importance	.35 Z1 +.27 Z2 +.04 Z3 +.35 Z4	0.50 ^a
Z6 Behavior	-.12 Z1 +.31 Z2 +.07 Z3 -.18 Z4 +.20 Z5	0.14 ^b
Path Analysis: Church		
Z1 Severity		
Z2 Involvement		
Z3 Predominance		
Z4 Alleviation		
Z5 Importance	.04 Z1 +.23 Z2 +.49 Z3 +.06 Z4	0.45 ^a
Z6 Behavior	0 Z1 +.12 Z2 +.09 Z3 +.02 Z4 +.28 Z5	0.18 ^b
Path Analysis: United Way		
Z1 Severity		
Z2 Involvement		
Z3 Predominance		
Z4 Alleviation		
Z5 Importance	.05 Z1 +.26 Z2 + 0 Z3 +.36 Z4	0.26 ^a
Z6 Behavior	.04 Z1 -.16 Z2 +.04 Z3 +.17 Z4 +.29 Z5	0.15 ^b
Path Analysis: Heart		
Z1 Severity		
Z2 Involvement		
Z3 Predominance		
Z4 Alleviation		
Z5 Importance	.52 Z1 +.11 Z2 -.06 Z3 +.19 Z4	0.42 ^a
Z6 Behavior	.04 Z1 +.04 Z2 -.13 Z3 + 0 Z4 +.05 Z5	0.03
Path Analysis: Alcohol		
Z1 Severity		
Z2 Involvement		
Z3 Predominance		
Z4 Alleviation		
Z5 Importance	.32 Z1 -.05 Z2 +.06 Z3 +.38 Z4	0.31 ^a
Z6 Behavior	.11 Z1 +.13 Z2 -.05 Z3 +.32 Z4 +.06 Z5	0.18 ^b

Path Analysis: Third World

Z1 Severity			
Z2 Involvement			
Z3 Predominance			
Z4 Alleviation			
Z5 Importance	0 Z1 +.23 Z2 +.10 Z3 +.63 Z4		0.45 ^a
Z6 Behavior	.15 Z1 +.03 Z2 -.04 Z3 -.11 Z4 +.35 Z5		0.13 ^b

Path Analysis: Refugees

Z1 Severity			
Z2 Involvement			
Z3 Predominance			
Z4 Alleviation			
Z5 Importance	.32 Z1 +.14 Z2 +.25 Z3 +.24 Z4		0.41 ^a
Z6 Behavior	.15 Z1 +.07 Z2 +.10 Z3 +.02 Z4 +.24 Z5		0.18 ^b

a= p .01 b= p .05

The path coefficient obtained using importance as the independent variable and level of donation as the dependent variable are presented in Table 3.

TABLE 3
COMPARISON OF PATH COEFFICIENTS USING
IMPORTANCE VS COMPLETE DBM

Variable	Std. Reg. Coefficient	R ² Importance Only	R ² Complete DBM
Global			
Z1 Importance			
Z2 Behavior	.28 Z1	.08 ^b	.10 ^a
Cancer			
Z1 Importance			
Z2 Behavior	.07 Z1	.005	.03
Hospital			
Z1 Importance			
Z2 Behavior	.40 Z1	.16 ^a	.20 ^a
Lungs			
Z1 Importance			
Z2 Behavior	.37 Z1	.13 ^a	.20 ^a
Child			
Z1 Importance			
Z2 Behavior	.19 Z1	.03	.14 ^a
Church			
Z1 Importance			
Z2 Behavior	.40 Z1	.16 ^a	.18 ^a
United Way			
Z1 Importance			
Z2 Behavior	.32 Z1	.10 ^a	.15 ^a
Heart			
Z1 Importance			
Z2 Behavior	.09 Z1	.01	.03
Alcohol			
Z1 Importance			
Z2 Behavior	.25 Z1	.06 ^b	.18 ^a
Third World			
Z1 Importance			
Z2 Behavior	.33 Z1	.11 ^a	.13 ^a
Refugees			
Z1 Importance			
Z2 Behavior	.38 Z1	.15 ^a	.18 ^a

a= p .05 a= p .10

The results indicate that importance explains a significant amount of the variance of the level of donation for 8 of the 10 charitable organizations (again, the results for cancer research and heart research do not support the model). All other regression equations are significant at $p < .10$, with R-SQUARE ranging from .03 to .16.

The final step in the initial testing of the model is to determine whether or not importance can be considered an intermediate variable. The method is to use partial correlations between the five independent variables and the level of donations to control for importance. A fall in the correlation between the zero-order correlations and the first-order partial correlations would indicate that importance is an intermediate variable between the four prior independent variables and the level of donation.

Tables 4 and 5 present the correlations between the independent and dependent variables. Table 4 presents the zero-order correlations and Table 5 presents the first-order partial correlations.

The results of the correlation analysis reveal that almost all zero-order correlations fall significantly when the first-order partials are applied, indicating support for the hypothesized relationships in the proposed model.

TABLE 4
ZERO-ORDER CORRELATIONS

	Cancer	Hospi	Lungs	Child	Church	U.Way	Heart	Alcool	TWrlld	Ref
Sever.	0.13	-.03	0.001	0.05	0.19*	0.15	0.10	0.24*	0.21*	0.32*
Invol.	.09	0.10	-.24*	0.32*	0.29*	-.02	0.08	0.13	0.10	0.16
Impor.	0.07	0.40*	0.36*	0.19	0.40*	0.32*	0.09	0.25*	0.33*	0.39*
Predo.	-.08	0.12	-.001	0.05	0.32*	0.07	-.13	-.05	0.008	0.25*
Alliev.	0.25*	0.04	0.42*	0.06	-.11	-.04	-.13	0.30*	0.12	-.02

*significant at 0.90 level

TABLE 5
FIRST-ORDER PARTIAL CORRELATIONS

	Cancer	Hospi	Lungs	Child	Church	U.Way	Heart	Alcool	TWrlld	Ref
Sever.	0.11	-.13	-.16	-.06	-.06	0.12	0.05	0.16	0.11	0.16
Invol.	0.07	0.08	0.18*	0.27*	0.13	-.15	0.04	0.14	0.05	0.08
Predo.	-.08	0.06	-.08	0.04	0.10	0.06	-.13	-.06	-.06	0.10
Alliev.	-.04	0.09	-.08	-.18*	0.04	0.15	-.02	0.29*	-.04	0.08

*significant at 0.90 level

Conclusions

The model and pilot study reported in this paper are an initial attempt to develop a better understanding of the way individuals behave in a non-profit marketing context. Specifically, this paper has suggested a new model for understanding and predicting charitable donation/health care consumer behavior. It is believed that the model is not specific to certain types of non-profit organizations, but rather, can be generalized to all or most non-profit situations.

Past research (eg. Oliver and Berger 1979) has indicated that some variables in the HBM and BIM models have more immediate effects on one's intention and behavior decisions. Thus, research similar to that proposed herein is useful when one is interested in prediction, resulting in a more parsimonious model consisting of antecedent and consequent variables. From a practical standpoint, given that our model suggests that importance is consequent to severity, involvement, predominance and alleviation, it may be more meaningful for the non-profit organization to deal with these four specific variables before attempting to "sell" an individual on how important the cause is.

There are a number of limitations in the current research. Firstly, the sample is quite small and relatively unique and may not be representative of any relevant donating universe. Secondly, the research reported herein describes and utilizes a very limited number of variables, and thus the external validity of the model and research must be investigated further.

Future research should attempt to validate the proposed model in a more formal and extensive research setting, correcting some of the above-mentioned limitations. In addition, other factors such as perceptions of the method of collecting donations, the differences in individuals propensities to give, concentrated versus dispersed giving, the differences between the various charitable organizations, peer pressure, etc. should be thoroughly investigated.

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UNDERSTANDING DONOR BEHAVIOR: A CLASSIFICATION PARADIGM

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Abstract

The "business" of donating to non-profit institutions is a multi-million dollar enterprise yet, relatively little quantifiable research has been done on the topic. This paper investigates motivations behind monetary donations to non-profit organizations by examining related research on altruism, socially conscious behavior, social status behavior, and non-altruism within the gift-giving context. What emerges is a proposed paradigm categorizing donors on the basis of their internal values and overt behavior.

Introduction

Monetary donations to nonprofit organizations result in a substantial amount of money. According to American Association of Fund-Raising Counsel's recent figures, over \$60.39 billion is donated to nonprofit organizations annually. In terms of financial clout, nonprofit organizations in the U.S. are indeed, big business and therefore totally appropriate as topics within the marketing and consumer behavior field.

This paper's purpose is to examine the phenomenon of individual donations to nonprofit institutions. Because so very little previous research has been applied directly to the fund-raising discipline, it is first necessary to provide a theoretical basis for explaining its consumers' behavior. As a result of examining the related topics of altruism, socially conscious behavior, social status behavior, and what could be termed non-altruism, or hedonic, self-satisfying responses, as well as related research on gift-giving behavior and attendance at non-profit entertainment events, a theoretical framework for explaining the phenomenon of donor behavior will be presented. Possible hypotheses suitable for empirical testing will be suggested for further research.

Previous Research

Despite the substantial size and potential market of philanthropy in the United States, relatively little empirical research has been conducted in this area. (Desruisseaux 1985) As Sherry (1983) notes, "Gift exchange between the individual and the corporate group is less frequently described and less perfectly understood than other types of giving; research into philanthropy is still in its infancy." Some of the reasons for this lack of research may be purely pragmatic. Sherry attributes the slow growth in this area to the inability to access data. (Sherry 1983). Harmful public relations could result from an institution using contributed funds to research how to raise even more money rather than utilizing the funds for their intended purpose. Father Flanagan's Boys Town, for example, has long been acknowledged for raising money more successfully than for raising boys. (Shapiro 1973)

From a broader perspective, Smith (1979) suggests the lack of research stems from nonprofit organizations not being traditionally considered as business enterprises and therefore not applicable to marketing and consumer behavior analysis. Probably the most outspoken advocate of expanding the marketing realm to include a variety of non-business organizations such as social services and nonprofit organizations is Kotler (1975, Fox and Kotler 1980), who views the study of donors to non-profit institutions as having potential for eventually shedding light on their motivation for giving.

Lastly, the oversight of non-profit organizations in marketing research may, in fact, be the unique nature of the product and consumer process. As Holbrook (1980) points

out, the majority of marketing research is directed towards products such as "corn flakes and frozen orange juice and potato chips that nobody spends very much time seeking information about, that nobody wastes much time deliberating over, and that nobody exerts much effort shopping for, because, frankly, these are products about which consumers really just don't give a damn." Note the sharp contrast between his description of non-durable consumer products with the potential emotion, attitudes, and decision processes (Clarke and Belk 1976) that an individual may go through in the gift-giving process.

Insufficient research on consumer behavior within the donation context, makes it necessary to examine the literature on gift-giving to devise some parallel situations. Initial research into the gift-giving dynamics indicates that the process comprises a unique sub-category of consumer behavior. Belk's research on the gift-giving process led him to conclude that "there can be little doubt that gift-giving is a pervasive experience in human life and consumer behavior." Compared to more routine consumer purchases, gift selection is a very deliberate and highly involving type of consumer choice: frequently entailing a much greater expenditure of time and money than a purchase to used by the buyer. (Belk, 1976, 1981) Furthermore, the situation or occasion surrounding the gift presentation and consumption (such as the relationship between the buyer and receiver) may play a major role in the importance placed on the decision process. (Belk 1975) Hence, in order to accurately examine gift-giving behavior, it is necessary to review situational and motivational effects as well as cultural and social pressure.

Existing Frameworks

In spite of the overall dearth of information on donor behavior, several interesting and viable frameworks for understanding the field have been proposed. Banks (1979) suggests a gift-giving paradigm that outlines the stages of consumer behavior in the gift-giving context. The consumer moves through four stages--the purchase stage, the inter-action/exchange stage, the consumption stage, and the communication/ feedback stage--in her conception of the gift-giving process. While her paradigm represents the gift-exchange process, it does not explain the process of donor behavior. Although the selection of the gift and its consumption play a significant part in the gift-exchange process, in most nonprofit organizations, however, these two variables play minor roles. For example, a donor may merely write a check, not shop and select a particular gift. In addition, most small donations are merely mailed to the organization without any elaborate exchange process. Furthermore, the consumption stage, where the receiver uses the gift, can only be imagined by the typical university donor; the results of a \$20.00 donation can be literally imperceptible. Thus Banks' paradigm sheds little light on the particular situation of donor behavior.

Assuming reciprocity towards balanced giving in the long-run, Belk (1976) proposes a balanced digraph between the giver, the receiver, the gift, and the giver's self-concept. If the giver likes the receiver as well as the gift and has a positive self-perception, then the gift exchange will be satisfying. While strict reciprocity in the donor setting is difficult to conceptualize, nonetheless, the balance notion that Belk proposes coupled with the concept of cognitive consistency could be applicable to the proposed paradigm. For an altruistic person to want his name to appear in a directory of donors so that he could be recognized in the community comprises behavior clearly at conflict with altruistic motives. To the ex-

tent that the internal and external donor behavior must be consistent or balanced, the Belk model can be somewhat applicable to the donor process.

Scott Smith (1979) offers one of the few consumer behavior models dealing directly with charitable donations. Somewhat comparable to the proposed model, Smith suggests a range of donor behavior on a continuum from altruistic to what he terms hedonic. He sees charitable giving as a developmental process leading to the internalization of beliefs about charitable donations. Hence individuals may move through a series of stages related to giving to a specific organization. If considered as a steady state, his paradigm is reasonable and his suggested market strategies have valuable implications for fund-raisers. Yet, the actual movement of people through a "developmental process" which "increases the degree of internalization of attitude" as he terms it, is difficult to substantiate both in theory and research.

The beliefs, according to Fishbein (1975), essential to forming attitudes inherent in altruistic and non-altruistic behavior, share no compatibility according to existing research. Hence, Smith does not propose a simple strengthening and reinforcement of an individual's affect toward donations, but rather suggests a total shift in the individual's value structure and attitude towards charitable contributions. As Smith and Swinyard (1983) demonstrated, it is extremely difficult, even perhaps impossible to change attitudes by advertising alone. Likewise, it is difficult to conceptualize why a non-altruistic person, perfectly content in his hedonic satisfaction and status recognition, would have any motivation to suddenly become altruistic. Furthermore, the organization soliciting his donation should be relatively unconcerned with altering his reason for donating as long as the donation is consistent; hence there is little motivation on the institution's part, contrary to Smith's hypothesis, to move donors from the non-altruistic mode to an altruistic behavior unless a substantial difference in the size or consistency of the donation exists.

Although professional fund-raisers frequently work under Smith's premise that donors can be moved along a continuum, initial research indicates that donor patterns do not substantiate this thesis. In their study of consumer dynamics in nonprofit organizations, Ryans and Weinberg (1978) hypothesized an entry pattern divided into stages: first the individual would start as a single ticket holder, then he would purchase several tickets in a season, and finally, he would become a season ticket holder. This is much the same pattern of donations suggested by Smith. In reality, what Ryans and Weinberg found were three basic categories of subscribers: continual subscribers (32%), gradual subscribers following the hypothesized pattern (31%), and an almost equally large category of sudden subscribers (36%) who suddenly subscribed without any prior attendance or who exhibited a miscellaneous attendance pattern. Perhaps the different categories of behavior merely represent behavior pattern segments based on the proposed altruistic/non-altruistic model.

Altruism

Although each of the existing frameworks shed light on the subject from various perspectives, each is incomplete with regard to a more narrow focus on donation behavior within the context of nonprofit development. Hence, it becomes necessary to review literature from a variety of academic disciplines to enrich and enlarge the research currently in existence.

On the most positive side, gift-giving can be perceived as purely altruistic in nature. According to Krebs (1970) most behavioral research skirts the problem of defining altruism by employing operational definitions. Leeds (1963) defines altruistic behavior as: an end in itself, not directed at gain; emitted voluntarily; and doing good. Sherry, (1983) however, defines altruistic behavior as the donor's "attempt to maximize the pleasure of the recipient." Within the context of this paper, altruism shall

be defined as a donor's voluntary act which benefits the recipient. Note that there is no indication of "self" in this definition: the emphasis is on the intention to please the exchange partner.

Most of the altruistic behavior research has been within psychology theory and has largely investigated the link between altruism and personality. Krebs (1970) saw altruism as an important personality attribute in that people reacted differently to individuals who were considered altruistic as opposed to those who were considered selfish.

As Kassarian (1971) points out, analysts do not agree on any general definition of the term 'personality' except to somehow relate it to the concept of consistent responses of the individual to the surrounding environment. The definition controversy comprises just the tip of the iceberg in terms of problems with personality research. Methodologically, perhaps consumers do not tell us about themselves as they really are, but rather as an ideal, as Wells (1966) suggests. In addition, Kassarian (1971) theorizes that personality researchers ignore the many interrelated influences on the consumer process such as pricing, packaging, group influences, and learned responses. He cautions personality researchers that "to expect the influence of personality variables to account for a large portion of the variance is most certainly asking too much." Indeed, Pessemier, Bemmar, and Hanssens (1977) could substantiate only a weak correlation between personality variables and the likelihood that an individual will donate body parts.

Furthermore, it is difficult to justify altruistic behavior in terms of the majority of psychological theory. Freud's psychoanalytic theory contends that children are basically selfish. In addition, both Pavlov's classical learning theory and Skinner's stimulus response theory are based on the individual receiving some type of reward for behavior. While rewards may certainly play an important role in the sociological and cultural theories of gift-giving, the extreme sense of altruism as defined with the context of this paper, specifically negates the behavior for the sake of a reward.

Perhaps the lack of altruistic behavior inherent in psychological theory stems from preliminary research on animals. Rats, for example, press a bar less when it served to terminate a companion rat's pain than when it did not. Furthermore, rats exposed to a shocked companion crouched in fear at the other end of their cages leading Krebs (1970) to conclude that rats supply "no real support for altruism." Perhaps Campbell's (1975) research on conflicts between biological and social evolution offers the best explanation for the apparent lack of altruism in human nature. He sees "human urban social complexity" as a product of social evolution which has had to "counter with inhibitory moral norms the biological selfishness which genetic competition has continually selected." He concludes that the effects of society have encouraged altruistic behavior: not inherent personal characteristics.

Socially Conscious Behavior

Closely related to altruism but with an awareness of societal needs is a category of behavior directed towards society at large and exemplified by the "socially conscious consumer." Definitions of the socially conscious consumer vary according to researcher. Nonetheless, they all generally accept that this type of behavior is enacted in an effort to help others or bring about presumably beneficial social changes. Webster (1983) defines the socially conscious consumer as one "who takes into account the public consequences of his or her private consumption or who attempts to use his or her purchasing power to bring about social change." Similarly, Brooker (1976) defines socially conscious consumers to be "the group whose actions lead the way to an improving quality of life in society." Finally, Anderson and Cunningham (1972) use the operational definition of the Berkowitz and Daniels

Social Responsibility Scale to define socially conscious as "the willingness of an individual to help other persons even when there is nothing to be gained for himself." For the purposes of this paper, a socially conscious consumer will be defined as one whose actions are directed towards benefiting society. Types of behavior exhibited by socially conscious individuals include financial contributions to religious and educational institutions, active participation in community, church, or other organizations, and intense interest in politics.

It is very important to note, however, a few subtle differences between supposedly altruistic behavior and socially conscious behavior. First of all, the very term, socially conscious, suggests the influence of social awareness. While this may be perceived as either social pressure or a need for social change, socially conscious individuals remain very sensitive to their social surroundings: a variable totally excluded in the consideration of altruistic behavior. In addition, while socially conscious behavior may appear to be motivated by purely unselfish desires, since the society benefits which includes the individual, the individual will also benefit. Hence, socially conscious behavior may, in fact, be somewhat motivated by simultaneous self-interest as well as social interest.

Similar to the limited research on altruism, the research on socially conscious consumers also suggests that demographics compose a poor predictor variable. Anderson and Cunningham (1972) and Kinnear, Taylor, and Ahmed (1974) determined socio-psychological variables to be most effective when attempting to differentiate between low and high socially conscious consumers. They describe the high social responsibility group as more cosmopolitan, less alienated, less dogmatic, less status conscious, and less personally competent than the group exhibiting low social consciousness. Webster (1975) differentiates socially conscious consumers as individuals willing to engage in purchase behavior that may or may not be popularly accepted but which is consistent with his or her own standards of responsibility. Socially conscious consumers may be considered members of the upper middle class counter culture, but, according to Webster's research, they "operate at a rather low key."

The psychological theory that may best account for socially conscious behavior is Maslow's (1970) self-actualizing theory of personality; the closer one becomes to being self-actualizing, the freer one becomes of selfish, neurotic self-concerns. Self-actualizing individuals, while not negating their own concerns, will nevertheless consider the needs of others. Note that Maslow does not describe altruistic behavior as I have defined it: the very fact that self-actualized individuals take their own needs into account indicated non-altruism.

Maslow's theory is more applicable to socially conscious behavior than the majority of psychological theories were to altruism, yet several aspects exist where the research and the theory do not seem to coincide. While Maslow's self-actualized individuals seem to be totally oblivious to societal needs, socially conscious consumers appear to be very aware of societal expectations and the fact that they may be exhibiting nonconforming behavior. While socially conscious consumers may not be affected by social pressures such as conforming to societal expectations, they remain keenly aware that those social pressures exist.

Social Status Behavior

Social influences can play still another significant role in the gift-giving process. Previous research suggests that gift-giving behavior represents an individual's response to peer pressure in the effort to maintain a social role or image. Belk (1975) believes that one of the most influential situational variables is the social situation: the group's structure and the role requirements surrounding the gift-giving behavior. Goodenough (1969) labels Belk's "role requirements" as statuses: "what legal

theorists call rights, duties, privileges, powers, liabilities and immunities." Hence social status behavior can be defined as an individual's actions to maintain or establish a status position within a self-selected group of people. Gift-giving in this context becomes a form of maintaining one's position or status within one's peer group.

How is status maintained? Levy (1959) hypothesizes that there are many symbols of social participation. "Most goods say something about the social world of the people who consume them." He goes on to assert that cars "say prominent things about their owners," and that the possessions "are partly chosen to attest to their social positions." Levy (1981) believes the effect of peer influence to be so overwhelming that "individual choice behavior is almost irrelevant." Hence, according to this stream of research, status can be maintained and publicly displayed through an individual's purchases.

Perhaps the clearest example of social influence is clothing (T. Smith 1974, Holman 1980). In her study of the formation of aesthetic criteria through social structures and social institutions, Wallendorf (1979) found that the determination of "what's in fashion" is largely determined by the individual's peer group. Smith (1979) found similarly that the effects of peer influence not only influence the individual's decision, but also "reduce the amount of information individuals require to make a judgment of others." Belk, Bahn, and Mayer (1982) found that even grade school children could identify certain products with a particular social class thus implying the extent to which consumption symbolism recognition occurs in our society.

Preliminary research indicates the effects of social influence on consumer behavior may be substantial. This research coupled with the previously cited studies on the importance of situational variables (such as the relationship of the gift-giver and receiver, and the status of people who will be present when the gift will be received and consumed) suggests that an individual's social status and image may have a profound effect on the selection, presentation, consumption, and reciprocity of the gift-exchange process. It is important to note that social role behavior dealing with interpersonal relationships is entirely separate and distinct from the socially conscious, altruistic behavior directed towards society at large.

Non-Altruism

Completely opposite from altruism is a gift-giving behavior that could be generally classified as non-altruistic. As the name implies, non-altruism comprises beliefs and values purely hedonic and self-satisfying in nature: totally contradictory to the self-less nature of altruistic behavior. Hirschman and Holbrook, (1982) and Day (1983) define hedonism as an individual's ego-involvement with the fantasy and emotive aspects of the product. Sherry (1983) identifies non-altruism as agnostic behavior in which the donor attempts to maximize personal satisfaction. For the purposes of this paper, non-altruism is defined as an individual's actions designed to reward himself with self-satisfaction and pleasure.

The preeminent expert on gift-giving behavior in this context is the French anthropologist sociologist Marcel Mauss. His theory on gift-giving, specifically the exchange of gifts in a cultural context, centers around the principle of reciprocity and obligation. Mauss (1954) suggests that while a gift is generously offered, the accompanying behavior is formal pretence and social deception; in fact, the transaction itself is based on obligation and economic self-interest.

Mauss's description of gift-giving behavior sounds like the typical American lament of overly commercialized Christmases, Easters, and other sacred holidays. However, this potentially "selfish" phenomenon is by no means limited to our culture. Ruth Benedict (1934) discovered

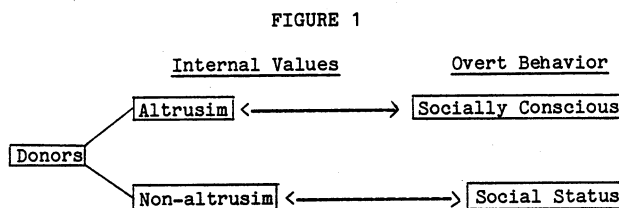
an elaborate exchange system in the culture of the Northwest coast Indians who inhabited the narrow strip by the Pacific from Alaska to Puget Sound. Their potlatch, according to Levi-Strauss, (1971) involves a triple function of returning gifts formerly received with proper interest, establishing the public claim of a family's title or status, and surpassing a rival in generosity. Mauss (1954) found similar evidence of a rivalry where contracting parties rival each other with gifts. The French, for example, compete with each other in their ceremonial gifts, parties, weddings, and invitations, and feel bound to reciprocate with a more lavish ceremony.

The purpose of the gift in a non-altruistic context may serve a variety of intentions. Schwartz (1967) perceives the gift as an extension of the self that plays a role in the establishment and maintenance of an individual's status. The public display of "I gave" stickers on doors, and "blood donor" pins publicizes the individual's donations. Social rankings are also reflected in and maintained by the gift. The list of donors published in an arts program or sports program with people delineated into different "categories" depending upon the size of their donation provides a classic example. Levi-Strauss (1971) places the gift-giving process in an even more self-aggrandizing context by discussing gifts as mere instruments for power in a skillful game of exchange complete with a complexity of maneuvers, "to gain security, and to fortify one's self against risks incurred through alliances and rivalry." Hubert and Mauss (1964) postulate that the sacrificial nature of gift-giving exists primarily to alleviate guilt. Finally, Belk (1976) suggests the obligation to give is based on moral, religious imperatives, recognition and maintenance of a status hierarchy, or the expectation of reciprocal giving.

Inherent in the non-altruistic view of giving is the concept of reciprocity. The purpose of many gift exchanges is to receive an equivalent gift immediately or at a later date. Gift exchanges at Christmas and on birthdays illustrate the former and the later. Belk's (1976) signed digraph of gift-giving represents a model based on the premise of reciprocal balance between the giver, receiver, gift, and giver's self-concept.

Proposed Paradigm

What emerges as a result of examining the various philosophies about the gift-giving process is a descriptive paradigm (see figure 1) classifying donor behavior into two basic categories: altruistic and non-altruistic.



The paradigm was originally conceived as representing monetary donations to non-profit organizations; however, with modifications, it could be applicable to donations of time or goods. The relationship between the donor and the recipient organization is specifically left nebulous. In some cases, an interpersonal relationship may exist, such as in the case of an alumnus donating to his/her alma mater in memory of a favorite professor, but in other cases, the relationship is less specific. For example, many people who donate to higher education athletic departments who have no connection to the school other than their enjoyment of the sporting events.

Within each category, two separate distinctions can be made between internal processes and the external manifestation of these processes. The altruistic giver's chief concern is taking care of, or pleasing, the gift receiver; behavior manifested in a variety of observable behavior patterns which illustrate the altruistic's concern for his

fellow man. Overt behavior expected of a person exhibiting altruistic tendencies approximates that of the socially conscious consumer; making financial contributions to a variety of religious, social, and educational institutions, volunteering time, or offering blood donations would be consistent with expected behavior.

Since the internal motivation for non-altruistic donors is primarily hedonistic in nature, their overt behavior would be entirely different from that observed from altruistic types. For example, peer pressure and the maintenance of a status position figures prominently into non-altruistic behavior. Thus, a great deal of recognized group behavior would be expected. Non-altruistic donors to a nonprofit theatrical event, for example, would likely desire their name in a program to be read by others attending the event. For university athletic donors, a special parking place close to the stadium would indicate that they are significant donors. Attendance at sporting events, membership in alumni associations, and the wearing of clothing items proudly bearing the school's insignia are external "symbols" of the individual's status.

The proposed paradigm has value to both researchers and practitioners in the field. It aids researchers by focusing the subject area into somewhat more manageable proportions. The diversity between altruistic and non-altruistic behavior provides fertile ground for separate, in-depth analysis of these segments: thus allowing the researcher to concentrate on one type of behavior in much greater detail.

This paradigm also suggests a possible segmentation of the practitioner's audience allowing a manipulation of marketing mix variables to more effectively target potential donors. It would be extremely difficult to obtain accurate information on donor's feelings towards altruism or non-altruism: very few people would be willing to admit to hedonistic or status maintenance impulses. In addition, non-profit organizations do not like to "bother" their constituents with potentially controversial surveys. Yet it may be possible to identify these segments by the overt behavior hypothesized by the proposed paradigm. Hence this paradigm could result in more effective fund raising for practitioners in the field.

Testing The Proposed Paradigm

The proposed model generates several empirically testable hypotheses.

H1: Donors can be divided into two groups--altruistic or non-altruistic--depending upon their motivation for giving.

The appropriate methodology--a combination survey examining overt behavior such as donations to other charitable causes, volunteer activities, membership in alumni or sports clubs, public display of school symbols such as hats, t-shirts, bumper stickers combined with the administration of a psychological test such as the Berkowitz and Daniels Social Responsibility Scale could assist in empirically validating the two groups.

H2: A larger percentage of donors are motivated by non-altruistic motivations than altruistic motives.

Using research methods similar to those proposed for H1, it would be relatively easy to determine membership ratios between the two groups. Once validated, one could determine if any differences between the size of donation or consistency of donations over time existed between the two groups and adjust marketing mix variables accordingly.

H3: Donors motivated by non-altruistic reasons are more likely to be influenced by the tangible benefits produced by their donations than their altruistic counterparts.

Tangible benefits, somewhat similar to conspicuous consumption, are symbolic products signifying the individual's attachment to, or status within, the recipient

organization. Typical tangible benefits that might be derived from donating to a non-profit organization include: being named as a patron in an event program, receiving special seats or a special parking place for athletic events, or even naming a building after the donor.

H4: The gift-giving principle of reciprocity is also prevalent in non-profit donations through tangible as well as intangible means.

Although the lines of reciprocity are much more clear-cut in gift-giving situations where an individual is expected to exchange Christmas gifts with his/her siblings, it is hypothesized that a similar exchange occurs during a donation in a less concrete form. For example, the tangible benefits that a donor receives from a nonprofit organization can also be translated into non-tangible benefits that satisfy an individual's particular need for affiliation, status, or perpetuity.

The testing of these and related hypotheses would help the development organization segment their constituents for more efficient solicitation. In addition, they can provide valuable insight to direct further research in this area.

Study Limitations

The limitations of this initial research must be noted. The lack of literature quoted on the donation process, indicates this research represents the beginning of what Hunt (1983) would call the discovery stage in the scientific process of understanding, describing and ultimately predicting donor behavior. Classifying donors into one of two categories grossly oversimplifies the nonprofit donation phenomenon, but is totally necessary given the current stage of research.

The proposed paradigm only suggests a correlation between observed behavior and an individual's internal values and does not attempt to establish a cause or effect relationship between the two. Additional research would be necessary to investigate and explain this relationship.

Suggestions For Additional Research

As illustrated by the diverse and eclectic collection of relevant theories borrowed from other disciplines, like much of consumer behavior theory, development theory also lacks an unified approach. Although part of this diversification is due to the lack of research in the area and will undoubtedly become more cohesive in time, nonetheless, before this research can move out of the exploratory stage and become a bonafide theory by Hunt's (1983) definition, a consensus overview must be reached.

From this brief review of various disciplines appropriate to the study on donor behavior, perhaps the literature on gift-giving and gift exchanges is most appropriate and should be pursued in greater detail. While the research on altruism--from the psychological, sociological, as well as anthropological viewpoints--is intriguing and complimentary to the human species, there are several problems with the concept. First of all, while definitions are frequently not agreed upon by researchers within a field, the definition of altruism is a particularly sticky issue. Within the confines of this paper, a very narrow definition of altruism, totally negating any feelings for "self" was used. The very fact that it is a self-less act may raise an individual's self-worth, thereby producing a personal gain. Hence, one could effectively argue that true altruism in the narrow definition of a totally self-less act, does not exist. Defining altruistic behavior then becomes an even grayer area--is behavior that is simultaneously beneficial to recipient and donor considered altruistic? How would the cut-off between altruistic and non-altruistic behavior be established? In addition, the lack of quantifiable observable behavior in animals, and the connection between donor behavior and personality, another nebulous term with its own methodolo-

gical problems and concerns, tends to indicate that altruistic research should not be of primary concern during the initial stages of donor-behavior research.

In examining non-altruistic behavior in greater detail, several areas need to be addressed. First of all, in the context of gift-giving behavior, the concept of reciprocity is of primary importance. The question of reciprocity and the role that it plays in donor behavior must be addressed in greater detail. I strongly suspect that reciprocity between donor and recipient occurs, but on a much more symbolic, intangible level than that which happens during a gift exchange or potlatch.

Relating to the reciprocity question is the concept of the symbolic product that is exchanged in the donation process. Status, a sense of affiliation, increased self-worth as well as other psychological needs could be satisfied by an individual's donation. Understanding these key issues would undoubtedly enhance the research currently underway.

Methodologically, research into development activities desperately needs quantifiable data subjected to rigorous statistical analysis to support or refute proposed hypotheses. As previously stated, data on donors are difficult to obtain, yet as this stream of research progresses and as practitioners become more aware of the value of research, perhaps data will become more readily available. Quantifiable research accurately accessing the predictability of demographic data, which is predominately used in development organizations, as well as accessing other variables that might prove to be more accurate predictors of donor participation would be extremely beneficial to both practitioners and academicians. In addition, just as 95% of a company's sales are frequently derived from only 5% of its customers, so too runs development donations. Hence, it would be extremely important to differentiate between large and small donors so that development resources may be efficiently utilized.

Conclusions

This preliminary research helps to shed some light on the donation phenomenon. Yet, the need for additional research concerning donor behavior as well as gift-giving behavior can not be overstressed. As a result of examining the literature from a variety of appropriate disciplines, a donor categorization paradigm based on donor intentions and observed behavior is proposed. Not only will further investigation in this area be welcomed by practitioners in the field, but it may also help in the overall understanding of consumer behavior.

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TOWARD A THEORY OF COLLEGE SELECTION: A MODEL OF COLLEGE SEARCH AND CHOICE BEHAVIOR¹

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Abstract

A behavioral theory of how students select a college is posited in this paper. This theory integrates aspects of search and choice into a comprehensive college selection theory. A menu of research questions is derived from the theory. These questions provide an extensive research agenda for the study of buyer behavior in the college selection domain.

Introduction

This paper proposes and describes a behavioral theory of how students select a college. Implicit in this theory is the notion that college selection may be viewed as a process which consists of a sequence of interrelated stages. It is posited that students move through this series of stages as they search for desirable colleges, search for and process information about colleges, and ultimately choose a specific college. This theory is also useful in establishing a framework within which past and current research efforts in the college selection domain may be classified. An immediate consequence of this theory is the development of a set of major research questions. These questions identify the central issues and dimensions of the college selection process, as well as providing a research agenda in this field.

The next section develops the details of the proposed behavioral theory of college selection. Then, the status of research on aspects of the college selection process is reviewed and assessed. Some concluding remarks complete this paper.

A Behavioral Model of the College Selection Process

The five components of the college selection process model describe the stages through which students move along the path toward the ultimate selection of a college. Figure 1 contains a schematic diagram of the model. The stages are labeled as follows: Pre-Search Behavior; Search Behavior; Application Decision; Choice Decision; and, Matriculation Decision.

The premise upon which this model is based is that college selection consists of search and choice components. Thus, it is important to define clearly the terms "search" and "choice" as used throughout this modeling effort.

Search refers to searching for the attribute values which characterize colleges. Relevant college attributes might include cost, academic quality, future career prospects and opportunities (upon graduation), quality of life while a student at the college, and related considerations that might be of interest to students in the ultimate college choice decision.

The search phase concludes with the application decision, when a student decides on the set of colleges to which formal applications for admission will be submitted. As noted below, some search activity is inevitable during the choice phase as well.

Choice refers to choosing among the colleges which have admitted a student. Search and choice are distinct but interrelated phases of the college selection process. However, it is useful to recognize the distinctiveness of these two stages in analyzing student behavior because

different considerations arise at the search and choice stages.

A detailed description of each of the five stages of the college selection process follows.

Pre-Search

Pre-search behavior begins when a student first recognizes the possible need and desirability of a college-level education. Parental influences may lead to such a realization on the part of the student well before the high school years. Thus, the pre-search stage may be very extended, covering many years. This length of time plus the difficulty in assessing when pre-search behavior actually first begins make this stage of the college selection process the most difficult to research.

Pre-search activities presumably involve an assessment of the costs and benefits associated with attending college in general (and perhaps certain college types, in particular), plus a corresponding assessment of the costs and benefits of alternative non-college post-high school options.

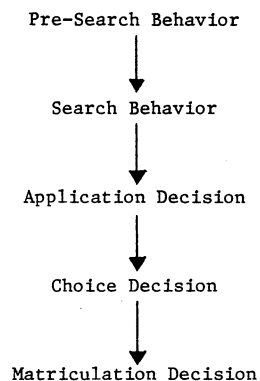
Given the recognition of the possible need for a college-level education, a student implicitly and perhaps continuously scans a range of possible information sources to learn about the availability of information sources, their content, and some information about various college options and perhaps even specific colleges.

Research on pre-search behavior would focus primarily on the college-going decision of students: the decision of whether higher education should be pursued at all. The subsequent stage in the college selection process, search, addresses issues related to the initial phases of choosing a particular college option.

College-going behavior might be studied by examining higher education participation rates of various market sub-groups. A range of demographic variables (for example, parental education and income levels, socio-economic status, gender, ethnic group membership, religious affiliation, and the like) might be useful predictors of college-going behavior. However, empirical evidence in the marketing segmentation area suggests that other things -- such as personal attitudes and values toward higher education correlates -- would be even

FIGURE 1

A MODEL OF THE COLLEGE SELECTION PROCESS



¹The helpful comments of Larry H. Litten, Associate Director, Consortium On Financing Higher Education, and the referees are most gratefully acknowledged. The author is responsible for all remaining errors.

stronger predictors of college-going tendencies.

Key research questions with regard to the pre-search phase include the following:

- (PS1) When does pre-search begin? When does a student first come to realize the possible value of a college-level education?
- (PS2) Who is consulted about educational and career options, with what frequency and what effect?
- (PS3) To what extent do family circumstances, lifestyle, personal values, and culture influence a student's perceptions of the value of a college education in general, and of the value of specific college options (either colleges or types of colleges [e.g., public vs. private]) in particular?

Due to the difficulty in assessing when pre-search begins, research on pre-search may be limited to attempting to measure the extent to which factors such as family circumstances, lifestyle, personal values, and culture influence subsequent stages of the college selection process. The assumption that these fundamental determinants of college selection behavior are exogenously determined for the purposes of studying the rest of the college selection process implies that they are beyond the immediate influence of any particular college.

Search Behavior

For a student to reach the search behavior phase of the college selection process, the pursuit of a college-level education must have been concluded to be a viable and desirable step. Search behavior presumably begins in earnest sometime during a student's high school years.

The search behavior stage is characterized by extensive and active acquisition of information about possible college alternatives. Knowledgeable "others" are presumably consulted with great frequency and in depth. Knowledgeable "others" might include high school teachers, high school guidance counselors, family members and relatives, family friends, college alumni, and acquaintances attending particular colleges. Students typically write to a number of colleges to request descriptive information, such as college catalogs and relevant brochures. Students receive unsolicited direct mail from individual colleges. Some actual visits to colleges occur. The search phase involves active search, rather than the relatively passive search-related activities that might be found in most consumer non-durable goods settings. College selection is an important milestone in a student's life, and extensive high-involvement search efforts are to be expected.

It is postulated that information search efforts are directed toward determining the attributes possessed by various college alternatives. Students are presumably interested in learning about a college's costs and benefits. Among the relevant benefits are the college's academic dimensions, future career prospects and opportunities (upon graduation), and its quality of life. Chapman and Litten (1984) describe these as consumption and investment benefits. A variety of information sources are tapped by students so that they may form a belief about what life would be like at specific colleges. A potentially wide range of college alternatives are presumably examined during the search phase, although the number of colleges given serious consideration may be only a relative handful.

Search may also entail learning about and identifying the "right" attributes to consider. (The "right" attributes are not expected to be the same for all students, although some attributes are likely to be commonly seen as relevant to many students.) This possibility introduces considerable complexity into efforts to model the college selection process. The typical assumptions of stable and known weights (in a multiattribute utility model context), weights "known" to the individual student (but "unknown"

to the researcher), thus, may not be tenable in the college selection process.

Thus, the search stage involves considerable complexity for the student -- extensive (generating college alternatives) and intensive (assessing where specific colleges lie in an attribute-space sense) search efforts are required (Chapman and Litten 1984), as well as efforts directed to identifying the salient attributes.

At some point, search stops and the student chooses a set of colleges to which applications are to be submitted. Search terminates presumably because the cost of further search (in terms of time, money, and effort) is not thought to materially reduce the uncertainty with regard to where the colleges' attributes really lie, or to identify any significantly more promising college alternatives than are already known to the student.

Some relevant research questions associated with the search phase include the following:

- (S1) How extensive is search? How many colleges are considered at various times during the search process? How many colleges are given serious consideration? How do personal circumstances, attitudes, values, and demographics of the student (and his/her parents) influence the extent of search?
- (S2) What information sources are consulted, with what frequency and what influence, and in what order? What is the content of the information received from various sources? How do these information sources vary with a student's personal circumstances, attitudes, values, and academic area of interest? Are sources used for different purposes? Are sources viewed with different degrees of credibility with regard to specific information dimensions?
- (S3) What activities occur during search? How much literature is accumulated? What kinds of students tend to make actual campus visits? What happens during campus visits? How do campus visits influence a student's perceptions about a college?
- (S4) What college attributes are viewed as being salient at the beginning of search? What college attributes are viewed as being salient at the end of the search process? How can changes in attribute saliency be accounted for?
- (S5) What are the specific indicators that students use in order to judge colleges on the attributes of importance?
- (S6) What colleges are students aware of at the beginning of search? Why are students aware of such colleges? What additional colleges do students become aware of as search progresses? What accounts for these "new" colleges entering the awareness set?
- (S7) Do perceptions about college attributes become more precise as search progresses? Do "halo" effects exist? If so, across which attribute subsets do "halo" effects exist?
- (S8) What forms of decision rules are used by students to evaluate specific college alternatives? To what extent are trade-offs recognized and dealt with? To what extent are simple cut-off rules (heuristics) used to simplify the decision making task, and to reduce the complexity of the search process by focusing attention (and associated information processing and search efforts) on a manageable number of college alternatives?

An ideal research program to study search behavior would be longitudinal in nature. Students would be contacted at several points during the search process, near the beginning and at the end, at a minimum. This research design would allow for questions related to changes in

attitudes, values, knowledge, awareness, preferences, and perceptions about individual college options to be assessed. A one-shot retrospective study, presumably conducted at or near the end of the search process, would have considerable difficulty in achieving reliable answers to all of these research questions due to inevitable lapses in memory, faulty recall, perceptual distortions, self-rationalizations, and halo effects.

Application Decision

Search behavior ends when a student decides to apply to a set of colleges. By definition, the application set consists of those colleges to which a student submits an application for admission. At this point, the pursuit of a college-level education is serious and the number of college alternatives has been narrowed down to a few.

Students are most likely to apply to colleges in which they are interested and to which they are likely to be admitted. Thus, a student's expectations as to the probability of admission are relevant here. In addition, it is presumed that only colleges viewed as being at least minimally acceptable on all major dimensions are included in the application set. One area in which students lack full information at the application decision stage is financial aid. Thus, students may apply to colleges which might be too expensive for them, unless sufficient aid is ultimately forthcoming with the offer of admission.

The notion of a "safe" or "backup" college merits special attention. Students may apply to a fairly low preference but perceived high-probability-of-admission college (often the local public institution) just to ensure that at least one positive admission decision is forthcoming.

The key research questions with regard to the application phase of the college selection process include:

- (A1) To what extent do expectations as to admissions probabilities enter into students' decisions as to which colleges will be included in the application set?
- (A2) How large are application sets? What factors (demographic, attitudinal, and other) account for variations in the size of application sets?
- (A3) To what extent is "portfolio decision making" (involving attempts to reduce and diversify risk) evident in the formation of college application sets? To what extent do students apply to "safe" or "backup" colleges, colleges in which there is a high probability of being admitted, so that they are assured of admission to at least one college?
- (A4) What more-or-less binding constraints (monetary, geographical, and "buying jointness" [having someone else to consider]) exist that influence the application set formation decision?
- (A5) Which colleges were actively considered at the search stage but not ultimately included in the application set? Why?
- (A6) What are the determining factors in a student's initial preference ranking/rating of colleges to which applications have been submitted?
- (A7) How do students perceive the standing of each of their college application set alternatives on each of the relevant dimensions? To what extent are these perceptions consistent with the actual (objectively determined) characteristics of the colleges? How can the differences between perceived and actual characteristics be accounted for?

Research on the application decision can be conducted by contacting students at any time after this stage has been reached. Ideally, contact would be made after the application decision has been made by the student, but before any of the colleges in the student's application set have made their admissions and financial aid

decisions.

After a student submits applications, the colleges must then make their admissions and financial aid decisions. Subsequently, the outcome of these decisions must be communicated to the students.

Choice Decision

By definition, the choice set consists of all those colleges to which a student is admitted. Note that this is another point where some uncertainty enters into the college selection process -- namely, the uncertainty with regard to whether a student will be admitted to a college. Students may form expectations about the probability of admission to particular colleges, but they cannot be certain of admission. This is especially true for selective colleges where the number of applications from minimally qualified students may exceed the number of available freshmen slots by factors of two to five. Indeed, some highly selective colleges receive more applications from straight-A students than there are available slots!

At the choice decision phase, the student is presumed to possess relatively complete information on all relevant college attributes, since the student is informed of the availability of financial aid amounts and mix (the allocation of financial aid between grants/scholarships, loans, and part-time jobs). However, there may be some further extended search along the "determinant attributes" (Alpert 1971), those college attributes which will really make a difference in the college choice process. This may involve campus visits, for example. Search activity during this stage is intensive only, being concerned with improving a student's information stockpile as to where the colleges in the choice set lie in an attribute-space sense.

The choice process presumably involves a trade-off among the multiattribute college alternatives in the choice set. (Cut-off heuristics may also be used to simplify the choice process, especially for students with large choice sets. Such heuristics presumably are of greater usefulness during the search phase, to reduce the universe of all possible colleges down to a manageable number, from information search and processing perspectives.) The need for trade-offs exist because any single college may not be dominant on each of the student's relevant attributes. Also, the homogenizing nature of the application decision -- which suggests that all colleges to which applications are submitted must be judged (implicitly, at least) to be minimally satisfactory on all major dimensions -- suggests that modeling the student decision maker as weighing the relative merits of each college alternative, in a compensatory fashion, would be a reasonable approach.

The choice decision phase normally ends with the selection of a specific college to attend. However, some students will end the choice decision stage by deciding to defer admission to a later time, perhaps because the student was not admitted to a highly preferred first choice college, or because financial considerations or some other change (since the application decision stage) in the student's personal life makes it impossible to pursue a college education at this point in time.

Key research questions with regard to the choice decision phase include the following:

- (C1) How do students perceive the standing of each of their college choice set alternatives on each of the relevant dimensions? To what extent are these perceptions consistent with the actual (objectively determined) characteristics of the colleges? How can the differences between perceived and actual characteristics be accounted for?
- (C2) What are the relative importances of various factors in the choice process? How do these relative importances vary across students? Are

there systematic differences in the relative importances that may be explainable by personal circumstances, attitudes, values, and demographic characteristics of the student (and his/her parents)?

- (C3) To what extent are students' expectations as to financial aid awards met? How accurate are students at predicting financial aid packages?
- (C4) What search behavior occurs after the choice set is formed? Do campus visits occur? If yes, with what effect?
- (C5) How consistent are a student's final preference ranking/rating of colleges and the original preference ranking/rating at the application formation set decision stage? How can changes in these two rankings/ratings be explained?
- (C6) What more-or-less binding constraints (monetary, geographical, and "buying jointness" [having someone else to consider]) exist that influence the college choice decision?

Although not strictly a college selection behavior phenomenon, an additional research question related to how specific colleges (and college types) make admissions and financial aid decisions might be noted.

Many of these research questions are answerable with a one-shot post-choice decision survey. However, issues related to perceptions and expectations require two-stage research efforts, involving questioning at the later part of the search stage (or after the application decision has been made) and again after the choice decision has been made. Significant distortions in reports of perceptions and expectations may occur, however, in a one-shot post-choice survey. It is crucial that the post-choice survey research effort be conducted well before the actual matriculation point, both to reduce memory losses and also to avoid major problems associated with self-reported rationalizations of past actions.

Matriculation Decision

For most students, the college choice decision will be made late in the Spring, with actual matriculation to the chosen college not occurring until the Fall. For some students, the initial college selected in the Spring will not be the college actually attended in the Fall. Changed family or personal circumstances (such as significant changes in financial situation) and unexpected events may alter the original choice decision. A student who was wait-listed with a highly preferred college may renege on the initial college selected if the highly preferred college subsequently admits the student.

This "no-show" problem creates considerable problems for colleges, as it can easily cascade down from highly selective to successively less selective institutions, as the colleges tap their wait-list pools to fill their respective classes. Standard institutional practice in admissions is to require a deposit along with the acceptance of admission. However, these deposits are normally not substantial (a \$100-\$200 range is common), so the cost of forfeiting such a deposit to attend a much more preferred college alternative is not a major hurdle for many students.

Relevant research questions with regard to the matriculation decision include the following:

- (M1) How large is the "now-show" problem?
- (M2) Why do some students become "no-shows"? To what extent is being offered late admission (i.e., coming off a wait-list) by a preferred college a contributing factor to the "now-show" problem? To what extent are changes in financial aid packages a contributing factor to the "no-show" problem?
- (M3) To what extent can students predict the likelihood of their being "no-shows"? Is "no-

show" behavior planned at the time of the original college choice decision?

The investigation of this "no-show" problem is only possible with a survey of students after they have actually physically enrolled in colleges in the Fall.

The Current Status of Research on College Selection Decision Making

Existing published research on the college selection process has focused largely on the college choice stage. Major studies of college choice behavior include Chapman (1979, 1985), Chapman and Staelin (1982), Manski and Wise (1983), Punj and Staelin (1978), Radner and Miller (1975), and Tierney (1980).

While less plentiful, some empirical research exists in the other areas, although it primarily focuses on student demographics as determinants of behavior. In the pre-search area, studies of college-going behavior based on students' demographic backgrounds are relatively numerous. For example, see Anderson, Bowman, and Tinto (1972), Christensen, Melder, and Weisbrod (1975), Manski and Wise (1983), and Radner and Miller (1975). In the search behavior area, see Litten and Brodigan (1982) for an example of the sources of information that students report they use. Spies (1973) focused some attention on application decision behavior. Hise and Smith (1977) report the results of an experiment to attempt to reduce "no-show" behavior.

The disproportionate emphasis that researchers have placed on studying the college choice phase is no doubt due to the relatively low costs with which such research efforts may be conducted. A one-shot post-choice retrospective survey is typically employed in college choice studies. Also, in studying choice, the population may be defined conveniently to include only students who have already applied to a particular college, thus yielding large savings on survey administration costs. (Of course, such a choice-based sample will have associated with it some restrictions regarding the possibilities of generalization beyond the college's applicant pool.)

While retrospective studies of choice may represent reasonable compromises between cost and data accuracy/generalization considerations, search behavior cannot be studied successfully with retrospective study designs. Also, the study of search would require a much larger population of students. The search behavior stage can potentially encompass a wide range of activities occurring over many months. A single survey research questionnaire administered to students well after the search stage is over will be ineffective and quite possibly misleading due to students' faulty recall, halo effects, cognitive dissonance, and selective perception and retention. The study of search behavior requires intervention during the search process, ideally at several points with a longitudinal research design.

Unfortunately, much has already happened by the time students have reached the application decision stage. Researchers and, by inference, college admissions decision makers could be misled by focusing only on the application and choice behavior of students. For example, students who perceive a college to be too expensive will not presumably apply to such a college in the first instance. Much of the substance of the college selection process is still hidden behind/before the application decision.

It is, of course, not surprising that initial research efforts would focus on the relatively easier-to-investigate choice behavior stage. However, the large research gains in the future seem likely to occur only with sustained efforts devoted to the search and pre-search behavior phases of the college selection process, perhaps in combination with analyzing application and choice decisions of students simultaneously.

Concluding Remarks

The model proposed in this paper represents a starting point to the complete study of college selection. In addition to attempting to organize the college selection process into a series of researchable stages, the research questions developed provide an extensive research agenda for buyer behavior scholars and applied researchers interested in buyer behavior in higher education. Marketing scientists may find the college selection process to be especially interesting due to its inherent complexity and its high stakes nature. There are few other buying processes where the stakes are higher; this is an extreme example of high involvement buying decision making.

This model is proposed as an organizing framework for the study of college selection. The model has a certain rigidity to it, in that it suggests that every student progresses through the specified stages in a "top-down" fashion. This is, of course, consistent with the underlying premise that college selection is a high stakes high involvement buying process. Naturally, the worth of this model of college selection can only be gauged with extensive empirical testing. Certainly, not every student will go through all of the proposed stages. (Some may have "inherited" application sets, for example, corresponding to parents' colleges.) Indeed, those students who do not follow the form of this model may be especially interesting. Alternative models no doubt exist, but this stagewise buying model appears to be a useful starting point for the study of the complete process of college selection.

In addition to academic research interest, the research questions developed in this paper are of paramount importance to the relevant managers in higher educational institutions. Admissions, financial aid, and college planning officials need answers to these questions to cope with the increasingly competitive nature of the college selection process. Thus, these research questions appear to have both scholarly and managerial interest.

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THE FRAMING OF THE INSURANCE PURCHASE DECISION

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Abstract

Previous research (Hershey and Schoemaker 1980; Tversky and Kahneman 1981) has shown that choice is dependent upon the manner in which the decision is framed. If framed in the asset domain (as is assumed by Utility Theory), the purchase of insurance would seem to be a realistic alternative. On the other hand, if the insurance purchase is framed in the loss domain as suggested by Prospect Theory (Kahneman and Tversky 1979), then it would appear that the purchase would be much less likely. An extensive pilot study of the decision to purchase flood insurance finds some tentative support for the greater likelihood to purchase insurance when the respondent is using an asset decision frame.

Introduction

An individual's behavior is influenced by the task encountered, the individual's characteristics, and their interaction (Punj and Stewart 1983). The influence of the task environment is so strong that Dawes (1975) has argued that many behavioral theories test well because they are actually models of the tasks which the subjects are performing.

One of the most powerful task environment elements is how the task is presented to the subject. The manner in which the task is presented can directly influence how an individual forms his or her decision frame (Tversky and Kahneman 1981). A decision frame is the individual's perception of the decision problem being faced. It includes the perceived alternatives, consequences derived from selecting an alternative, and likelihood of particular consequences occurring. The developers of the decision frame concept, Tversky and Kahneman (1981), emphasize that a single decision may be framed in multiple ways. In other words, how a communicator presents the objective information to an individual (*i.e.*, frames the problem) can influence how the receiver perceives the problem (*i.e.*, forms the decision frame).

Dawes' (1975) suggestion that behavioral models are task environment specific provides a method for the a priori identification of how decision formulation manipulations will influence behavior. If different behavioral models predict different responses to the same objective situation, then behavior can be influenced by encouraging the use of a particular model. The use of a particular model can be encouraged by presenting the task so that it better fits the model's decision frame.

To illustrate how the presentation format's influence upon behavior can be predicted by use of the decision frame construct, a study of decision making in an insurance purchase situation was conducted. Both economists and decision theorists have investigated the insurance purchase decision. Although there is considerable variation within each research framework, there are two fundamental differences which delineate the frameworks. Both expected utility theory and the decision theory frameworks, such as prospect theory (Kahneman & Tversky 1979), explicitly postulate different framings of the uncertainty decision, and make different predictions. In particular, they make opposite predictions about an individual's willingness to purchase flood insurance (Kunreuther 1978).

Decision theory frameworks postulate that an individual frames a decision in terms of the immediate gains or losses he or she may incur. For example, if one

consequence of a bet is losing \$17.00, an individual will frame this consequence as a \$17.00 loss. On the other hand, economic theories generally postulate that an individual frames a decision in terms of changes in his or her assets. In other words, it is assumed that the immediate loss or gain is combined with the current level of assets to produce a net asset level. For example, if an individual's assets are worth \$3,000, then the consequence of losing a \$17.00 bet is framed as a reduction in wealth from \$3,000 to \$2,983.

Decision theory and economic frameworks make opposite predictions about the choice an individual will make when faced with the following decision. The decision is to choose between a situation with a small certain loss and a situation in which the two alternatives are a large loss or no gain. Economic theory predicts that most individuals will select the situation with the small certain loss. The decision theory framework predicts that most individuals will select the uncertain prospects over the certain loss. This prediction is made if the individual's aspiration level of wealth is his or her current level, and the loss is not ruinous (Payne, Laughunn, and Crum 1980).

Prospect theory predicts that the uncertain prospect will be selected over the sure loss, unless the probability associated with the sure loss is very small. Prospect theory postulates that individuals make risky decisions by acting as if they used a two stage process. In the first stage they edit the problem. An outcome is viewed as either a gain or loss. A value is assigned to the outcome. The function that assigns values to outcomes is convex for losses and concave for gains. The function is steeper for losses. A second important feature of the editing process is that probabilities are translated into decision weights. Most decision weights are lower than their corresponding probabilities. The exception is that very low probabilities are associated with relatively higher weights (Kahneman & Tversky 1979). The majority of the experimental studies discussed in Hershey, Kunreuther, and Schoemaker (1982) support this conclusion.

The insurance purchase situation, stripped of its nonmonetary aspects, fits the structure of the problem discussed above. If insurance is purchased, a small certain loss (the premium) is incurred. If insurance is not purchased, then a situation exists which includes the likelihood of a large loss (the flood, fire, accident, or robbery) and the likelihood of no gain.

The analogy to the insurance decision provides a framework for evaluating the respective approaches. A number of recent studies of decision making under uncertainty have used a flood insurance framework (Slovic and Kunreuther 1974, Slovic et al. 1977, Kunreuther 1978). Flood insurance provides a particularly useful framework because some of the nonmonetary dimensions, such as moral hazard and enforced legal requirements to buy, are minimal. Moreover, the propensity of individuals to purchase flood insurance is a matter of major public concern (Taft 1972, Kunreuther 1978).

Flood Insurance

The most salient fact about flood insurance is that the vast majority of flood-plain homeowners in the United States do not own any flood insurance. Only one in four homes in 100 year flood plains are covered by flood

insurance (Barton 1985).¹ Although virtually no homes in 500 year flood plains have flood insurance, 40% of all flood damage (measured in dollars) occurs in these areas (Barton, 1985). The number of homeowners residing in flood-plains who are not insured for the peril of flood is startling. As White and Haas (1975, p. 255) pointed out, "Nearly every community in the nation has some kind of flood problem, chiefly resulting from inadequate drainage systems for runoff water produced by heavy rainfall from storms." For example, 97.5% (2483 out of 2547) of the communities in Pennsylvania have been identified as being flood prone (Luloff and Wilkinson 1979). The Federal Insurance Administration estimates that one of every ten Americans resides in locations where flooding is likely to occur (Kunrueher 1978).

Survey research by Kunrueher et al. (1978) has identified three key reasons why individuals fail to purchase flood insurance. They may be unaware of it; they may miscomprehend it; or they may not want it. A critical finding of this study was that when the survey respondents' subjective assessments of the likelihood of a natural disaster, the monetary damage caused by such disasters, and premium rates were incorporated into expected utility analysis, between 30 and 40 percent of their insurance decisions violated the predictions of expected utility theory.

The finding that insurance purchase decisions violate the predictions of expected utility theory has been replicated in experimental situations (Slovic et al. 1974, 1977).

Theoretical Review

Expected utility theory, as originated by Bernoulli (1954), and axiomatized by Von Neumann and Morgenstern (1947), predicts that most individuals who fully comprehend the flood insurance purchase decision will buy flood insurance. This prediction is due to the assumption that individuals are risk averse with respect to changes in their wealth. In contrast, the results of a series of experiments reviewed by Hershey et al. (1982) generally support the postulate that individuals are risk takers in the domain of losses. Slovic et al. (1977) argue that this postulate implies that individuals who fully comprehend the flood insurance purchase decision will not buy flood insurance unless the nonmonetary dimensions compensate for the monetary dimensions.

Numerous experiments investigating the validity of expected utility theory have been conducted since 1948. A common element of their design is that information is presented to subjects in the form of a win or lose gamble. A common finding is that individuals are risk preferring in the domain of large losses. The finding is integral to prospect theory (Kahneman and Tversky 1979) and supported by the findings of Slovic et al. (1977), Payne, Laughhun and Crum (1980), Hershey and Schomaker (1980), and Hershey et al. (1982).

A key difference between the two approaches is that the direct consequences of the action are not integrated with the individual's existing wealth in the decision theory framework. Although the two equations are isomorphic (both can be derived from the same rationality axioms, Borch (1972)), they may represent very different mental framings of the insurance decision. In the former case purchasing insurance is associated with a sure positive consequence, in the latter purchasing insurance is associated with a pure negative consequence. This sign difference is potentially significant since individuals appear to be risk averse in the positive domain of gains (Tversky and Kahneman 1979) but risk takers in the negative domain.

Both economists and decision theorists explicitly recognize that insurance provides more than simply monetary protection. There are both normative reasons for

¹Homes in a 100 year flood plain have a .01 likelihood of being flooded within a given year.

buying insurance, e.g., it is the socially right thing to do, and self interest reasons, e.g., it permits one to take less care. Studies by Hershey and Schomaker (1980) and Hershey et al. (1982) support these arguments. They find that individuals are more likely to select the small certain loss alternative when it is labeled "buying insurance."

Methodology

The alternative of purchasing flood insurance was presented to subjects in five forms. Two decision frames were used (asset and loss) and each frame was presented in two ways (tabular format and lottery format). Also, one form of the advertisement was used as a control group and did not present the decision in either a loss or asset frame. Thus the experiment involved a two x two with control group design. The subjects were college students from a variety of courses.

Advertisements. The students were asked to role play the following situation:

The year is 1990 and you have just purchased a \$100,000 home (with an 80% mortgage) in a large midwestern city. You have received the following information in the mail.

All subjects were shown the advertising content shown in Figure 1. Those subjects in the control group were shown only the information in Figure 1.

FIGURE 1

CONTENT COMMON TO ALL ADVERTISEMENTS

Don't Bet Against The House--Especially Your House

Straight Answers to Common Questions About
Flood Insurance

1. How likely is it that MY home will be flooded?

You live in a 100 year flood plain. This means that there is a one in 100 chance that your home will be flooded this year, a three in 100 chance that it will be flooded in three years, and about a one in 10 chance that it will be flooded within a decade. It does not mean a flood comes every 100 years.

2. Does my homeowner policy provide flood insurance?

No! The standard home owner policy does not cover floods.

3. How much damage will a flood cause?

The damage a flood causes depends on many factors. The most important is the value of your home and its contents. Assuming that your home is worth \$100,000 and its contents \$33,000, the average flood would cause about \$38,800 in damage.

4. What can I do?

Flood insurance can protect you from the loss a flood would cause.

5. How much will it cost?

Like all insurance, your cost depends on how much you insure and the deductible you select. Unlike other insurance, the federal government helps pay the costs of providing the insurance. This means that your cost is about \$20 plus one-hundredth (.01) the expected loss insured if there is a flood. This is a fair price--for you--because every year there is a one in 100 chance you will be flooded. For your home, the cost will be \$388 for a policy that has a \$500 deductible.

The loss and asset frames were manipulated as shown in Figures 2 and 3. The loss frames contrasted the possible loss of a large amount of money with the sure loss of a smaller amount of money (the premium). The asset frames discussed a possible large reduction in assets as opposed to a sure small reduction in assets. The tabular format was developed because it is the most comprehensive means of showing what happens in all circumstances. The lottery format was used also because most previous work with decision frames has used gambling tasks expressed as lotteries (for example, Hershey and Schoemaker 1980; Tversky and Kahneman 1981).

FIGURE 2

LOSS FRAME MANIPULATIONS

TABULAR LOSS MANIPULATION

6. Is it worth it?

An easy way for you to answer this question is to compare how you will feel if you buy insurance to how you will feel if you don't. The chart below will help you decide--the numbers are based on a policy which has a \$500 deductible. In other words, if your home is flooded, you would be reimbursed for all damage except \$500 worth.

The chart below describes the amount of money you will lose under four conditions.

- flood--no insurance
- flood--you have insurance
- no flood--no insurance
- no flood--you have insurance

Ask yourself whether the small loss due to paying the premium is worth the chance of a big loss if there is a flood.

How Much Is Lost?

Home value of \$100,000 with contents of \$33,000:

	Flood	No Flood
Insurance	\$888	\$388
No insurance	\$38,800	\$0

LOTTERY LOSS MANIPULATION

6. Is it worth it?

An easy way for you to answer this question is to compare how you will feel if you buy insurance to how you will feel if you don't. The two options below will help you decide. They assume that the flood insurance policy would have a \$500 deductible; in other words, if your home is flooded, you would be reimbursed for all damage except \$500 worth.

Option 1: Buy flood insurance for \$388. All flood damage would be reimbursed except for the \$500 deductible.

Option 2: Take a one in one hundred chance that you will suffer a loss of \$38,800.

Subjects. The use of student subjects presents serious problems, since few of them have faced the issue of whether to insure their home from flood damage. Consequently, the role playing scenario was required. Factors which made the scenario somewhat realistic were (1) a large number of the students planned to obtain employment after graduation in the city mentioned in the scenario, and (2) this city had suffered serious flood damage within the past year.

While college students are homogeneous in many ways (age,

FIGURE 3

ASSET FRAME MANIPULATIONS

TABULAR ASSET MANIPULATION

6. Is it worth it?

An easy way for you to answer this question is to compare how you will feel if you buy insurance to how you will feel if you don't. The chart below will help you decide--the numbers are based on a policy which has a \$500 deductible. In other words, if your home is flooded, you would be reimbursed for all damage except \$500 worth.

The chart below describes the amount of money you will lose under four conditions.

- flood--no insurance
- flood--you have insurance
- no flood--no insurance
- no flood--you have insurance

The dollar values are for a family which owns its home's contents outright, but has a mortgage equal to about 80% of the home's value. For example, a family that lives in a \$100,000 home would have a \$80,000 mortgage.

Ask yourself whether the small reduction in your investment's value due to paying the premiums is worth the chance of a large reduction in your investment's value if there is a flood.

Amount of Equity Left In Your Home and Its Contents

Home value of \$100,000 with contents of \$33,000:

	Flood	No Flood
Insurance	\$52,112	\$52,612
No insurance	\$14,200	\$53,000

LOTTERY ASSET MANIPULATION

6. Is it worth it?

An easy way for you to answer this question is to compare how you will feel if you buy insurance to how you will feel if you don't. The two options below will help you decide. They assume that the flood insurance policy would have a \$500 deductible; in other words, if your home's flooded, you would be reimbursed for all damage except \$500 deductible.

Option 1: Your total assets would change from \$53,000 to \$52,612. You would be insured for all possible flood damage, except for the \$500 deductible.

Option 2: You take a one in one hundred chance that your total assets change from \$53,000 to \$14,200.

for example), we attempted to investigate diverse groups of students. The insurance classes were included, as it was expected that they would be most familiar (among student groups) with the content areas of the study. Similarly, undergraduate decision theory classes and an MBA class were included with the expectation that these students would have more expertise with the cognitive aspects involved in the decision making. At the other end of the spectrum, sophomore level business law students were included with the expectation that they had little understanding of the insurance decision in general and little training in systematic decision making processes. Finally, several senior-level marketing courses were surveyed, with the expectation that these students would fall somewhere in between the sophomores and the other students.

The students provided information on their (and their family's) experience with floods and with insurance purchases (car, life, health, and property). Also, personal information (age, family income, and sex) was obtained.

Manipulation Checks. Previous decision frame research manipulated the loss and asset perspectives, but did not use any manipulation checks. Given the different risk propensities found in the gambling scenarios, it can be inferred that the manipulations were successful. The translation of the positive and negative quadrant frames from gambling to applied decision-making situations is not straightforward. While the manipulations shown in Figures 2 and 3 may well be criticized, they are enormous improvements over the first advertising appeals we developed. Given the applied nature of the decision setting, we used manipulation checks (shown in Figure 4) to investigate the success of our attempts. Further, their use should provide insight into the perspective that subjects bring into the insurance purchase, as the control group received neither the loss nor asset manipulations.

Dependent Variables. The subjects responded to three items about their intentions to purchase flood insurance and to two items dealing with their beliefs about flood insurance. One intention measure was the subject's assessment of how likely (7 point scale) s/he would be to buy insurance for \$388. The other four measures are also shown in Figure 4. The eight Likert-type items shown in that figure were ordered randomly in the survey completed by the subjects.

FIGURE 4

DEPENDENT VARIABLES AND MANIPULATION CHECKS

Intention Measures

I will buy flood insurance for my home.
I would investigate flood insurance further.

Belief Measures

Flood insurance makes sense to me.
The government should continue the national flood insurance program.

Manipulation Checks

Loss Frame

Thinking about buying insurance is like thinking about a situation where the best you can do is break even, and the worst you can do is lose lots of money.

I don't like to think about insurance because what you think about is losing money.

Asset Frame

I don't mind thinking about insurance because what you think about is how much you are worth,.

Thinking about buying insurance is like thinking about a situation where the best you can do is to keep your current wealth and the worst you can do is to have your current wealth driven down.

Results

The profile of the 541 respondents is shown in Table 1. Only 8% of the sample had ever owned a home, indicating that the role-playing was somewhat irrelevant to most of the subjects. The vast majority of respondents were covered by some form of insurance, although many of them had it purchased for them by their parents. About 9% had experienced flood damage themselves and 17% had family members who had experienced flood damage.

Manipulation Checks. Unlike previous studies

investigating the impact of decision frames, this study used manipulation checks to see if the treatments would affect one's perception of the decision frame. The results presented in Table 2 show that the asset manipulations were successful for one of the two checks. For that check, those who received the asset manipulation were more likely to agree that buying insurance either allows you to keep your current wealth or reduce your wealth slightly than were those in the control group. The control group was more likely to agree than those who received the loss manipulations. The loss treatments did not elicit more agreement with statements viewing insurance in the loss domain than did the asset treatments or the absence of a treatment.

TABLE 1

SAMPLE PROFILE

Class			
Insurance	86		n=541
Business Law	217		
(Sophomore level)			
Decision Theory	85		
Marketing Course	129		
(Senior level)			
MBA Public Policy	24		
Sex			
Own Home			8%
Male	55%	Suffered Flood Damage	9%
Female	45%	Family Suffered Flood Damage	17%
Age			
Have Car Insurance			93%
19	5%	Bought it themselves	60%
20	25%	Have Property Insurance	44%
21	24%	Bought it themselves	16%
22	22%	Have Health Insurance	88%
23	10%	Bought it themselves	38%
24-26	8%	Have Life Insurance	54%
26-47	5%		
Parents' Income			
0-\$15,000	9%		
15,001-30,000	23%		
30,001-50,000	32%		
over 50,000	35%		

Impact of Decision Frame on Intention and Attitudes.

Table 2 also presents the mean responses for the intention to purchase and the attitude measures. One point to note is the highly positive mean responses to all five items (between 5.0 and 6.0 on a seven-point scale). Given the low acceptance of flood insurance among the general population as a whole (as discussed earlier), these results either indicate the wonders of advertising or that demand characteristics are present. The second explanation will be investigated in more detail later.

The decision frames showed no differential impact on intentions or attitudes. The presence of advertising information (whether framed in the asset or in the loss domain) resulted in higher intentions to purchase than did the control.² It had been hypothesized that the asset decision frame would result in higher intentions to buy. There is a slight trend in this direction, but the differences are not significant at all ($p > .25$).

It may be that people are predisposed to view the insurance purchase situation in either a loss or an asset

²This was not found for the third intention measure (wanting to seek more information about flood insurance). However, this is to be expected since the control group's treatment presented the smallest amount of information.

TABLE 2
MEAN RESPONSES

Frame	ASSET		LOSS	
	How	Keep Your	Break	
	Much You	Current	Even or	Losing
	Are Worth	Wealth	Loss	Money
	p > .1	p=.04	p > .1	p > .1
Asset				
Lottery	4.4	4.7	4.7	4.1
Tabular	4.5	4.9	4.4	4.3
Loss				
Lottery	4.5	4.6	4.5	4.3
Tabular	4.4	4.4	4.5	4.2
Control				
Group	4.5	4.6	4.5	4.1

Intention and Attitude Measures^a

Frame	Intentions		
	How Likely Would Buy p=.06	Will Buy p=.01	Investigate Further p > .1
Asset			
Lottery	5.1	5.2	6.0
Tabular	5.2	5.3	5.9
Loss			
Lottery	5.1	5.2	6.0
Tabular	5.0	5.2	5.9
Control	4.7	4.8	6.0
	Attitudes		
Frame	Flood Insurance Makes Sense p > .1	Government Should Continue p > .1	
Asset			
Lottery	5.7	5.8	
Tabular	5.7	5.6	
Loss			
Lottery	5.8	5.6	
Tabular	5.8	5.4	
Control	5.5	5.2	

^aThese results came from an analysis of covariance, with the respondent's age, sex, income, family experience with flood damage, and purchase of various types of insurance used as covariants.

decisions frame. Further, it appears that our treatments did not manipulate that decision frame significantly (especially for losses). Consequently, we attempted to categorized subjects as to having a loss decision frame, an asset decision frame, or neither. In order to operationalize these constructs, we assumed that our manipulation checks are capturing the concepts adequately. Those agreeing with the loss checks more than the asset checks were classified as having a loss frame, and vice versa.

When the intention and attitude measures for these groups are investigated (as shown in Table 3), we find that the direction of the mean responses is consistent with our theory for all five measures. Further, the means are significantly different for two of the measures, marginally significant for two others, and non-significant for only the "investigate further" intention (which received the uniformly favorable response, possibly due to demand characteristics).

Impact of Context on Intentions and Attitudes. Previous studies of decision frames have presented the alternatives in the form of lotteries. Since lotteries would seem to be more appropriate for gambling situations than for the purchase of insurance, it was believed that the use of a

TABLE 3
ANALYSIS OF THE MEAN RESPONSES
(By Type of Decision Frame)

Type of Frame ^a	n	Intentions		
		How Likely Would Buy p=.12	Will Buy p=.01	Investigate Further p=.47
Loss	n=65	4.7	4.7	5.8
Neither	n=369	5.0	5.3	6.0
Asset	n=107	5.1	5.3	6.0
Type of Frame		Attitudes		
		Flood Insurance Makes Sense p=.07	Government Should Continue p=0.2	
Loss		5.6	5.1	
Neither		5.7	5.5	
Asset		5.9	5.7	

^aDetermined by subtracting the sum of the two loss manipulation checks from the sum of the two asset items. If the absolute difference was less than three, the individual was categorized as neither.

two x two table would present the possible consequences of the insurance purchase in a more systematic manner. While we can see no reason to expect differential effectiveness for the two modes of presentation; past research (Dawes 1975; Hershey and Schoemaker 1980) would suggest that context effects might occur. However, the mean responses to the tabular presentations were not different from the mean responses to the lottery presentations for any of the dependent variables.

Evaluation of the Nature of the Subjects. As this study represents a first attempt to investigate decision framing in the context of a specific purchase situation (as well as the first attempt to measure the decision frame through the manipulation checks), student subjects were used as a pilot study. As acknowledged earlier, students are far from ideal in this scenario (92% in this study have not experienced home ownership). In our defense, it can be noted that previous research on decision frames has used student subjects almost exclusively. This section will attempt to investigate the nature of this limitation.

Even though we must acknowledge that our student sample is largely homogeneous, we did attempt to vary the familiarity with insurance and with decision making processes by using subjects from a variety of classes. No differences in the intention and attitude responses were noted for the five class groupings, but differences were noted ($p < .05$) for two of the decision frame measures ("insurance is like thinking about losing money" and "insurance makes you think about how much you are worth"). Students in the insurance classes were the most likely to disagree with the former item and to agree with the latter item, while the MBAs were the most likely to have the opposite views.

The intention and attitude measures were related directly to the demographic, insurance-experience, and flood-experience variables using Chi square analysis. For ease of interpretation and because most previous decision framing studies (Hershey and Schoemaker 1980) had used a dichotomous dependent variable, we dichotomized the dependent variables by coding the three positive scale responses (for example, "extremely likely," "very likely," and "likely") as "yes" and the other responses as "no".

The majority of cross tabulations were not significantly related, but the pattern of significant findings is insightful. Previous family experience with flood damage was directly related to the intention to buy flood insurance (for the first two intention measures). Ownership of property and health insurance was directly related to the willingness to investigate flood insurance further.

The rest of the results point out the weaknesses of using a student sample. Females, those who do not buy their own car insurance, and younger respondents were more likely to intend to purchase and to hold positive attitudes toward flood insurance. Further, those who do not own their own homes were more willing to seek further information about flood insurance. These results indicate that it is likely that a survey of homeowners would result in much lower intentions to purchase. Whether the different decision frames have a differential impact on those intentions remains to be investigated.

DISCUSSION

This study represents an attempt to investigate the impact of decision framing on one's intention to purchase flood insurance. A case is made for the expectations that people viewing the purchase from an asset perspective will be more likely to buy than those viewing it from a loss perspective. Subjects were asked to role play a situation in which flood insurance might be a relevant alternative. They were presented with information, including a manipulation of the decision frame.

Contrary to the expectations, subjects receiving the asset frame did not express greater intention to purchase. However, further analysis did find that those viewing insurance in the asset domain expressed greater intentions than those viewing insurance as being in the loss domain.

The study suffered from several limitations. One, the use of student subjects, received much discussion. It seems clear that students are prone to the demand characteristic to say that they will purchase flood insurance. A study of homeowners will undoubtedly find a lower level of intentions being expressed. Whether the decision frames will have greater impact remains to be seen.

Recently, Peterson, Albaum, and Beltramini (1985) reported that the use of both student subjects (as opposed to nonstudents) and intentional (as opposed to behavioral) response variables decrease the size of treatment effects by 42% and 85% respectively (ω^2 being the effect size measure). By analogy, this study's use of students and intention measures may have contributed to the failure of the manipulations to have any significant effect.

Another limitation lies in the asset and loss manipulations. The failure to find significant manipulation checks indicates the need to develop better treatments, especially for the loss decision frame. There appears to be little difference in the effectiveness of a lottery or tabular presentation of the information.

Part of the problem with the insignificant manipulation checks may be due to the construction of the manipulation checks themselves. As noted earlier, previous studies have not attempted to measure subjects' decision frames. One reason may be that this is less than a straightforward process. Clearly improvement is needed in the manipulation checks used.

Thus our conclusion is that there is sufficient evidence to support a recommendation that more research in this area is needed.

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SOME CAN, SOME CAN'T, AND SOME DON'T KNOW HOW THEY DID IT:
A DIRECT TEST OF THE UTILITY MAXIMIZATION HYPOTHESIS

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Abstract

A direct test of whether relatively knowledgeable students can maximize utility in a very simple investment choice task was undertaken. Although a pretest of an on-going, larger study, the results suggest that many can, particularly for the task that involved a simpler optimizing rule. Further manipulations and dependent measures are needed to determine whether the poor performance of some subjects is primarily an ability or a motivational problem. It appears to be an ability problem.

Recent years have seen a growing interest in the developing interface between marketing and economics (see, for example, Mitchell 1978, *Journal of Business* special issues 1980, 1984). Economists have shown greater concern over how well their "laws" of the marketplace actually describe observed behavior (Gilad et al 1984), while marketing researchers are increasingly interested in the application of economic theory to marketing problems (Nagle 1984). This paper attempts to make a contribution to the merger of the two fields by developing a direct test of the classic economic proposition that buyers maximize utility relative to price. We first describe the concepts of utility maximization, and the current discontent with the neo-classical theory in economics. We then present results from a preliminary study designed to directly test whether student consumers make simple investment decisions in a way consistent with the maximization hypothesis. A more extensive experiment is now in progress.

Utility Maximization

The neoclassical economic model of demand proposes that consumers spread their disposable income across purchases by equating the marginal utility/price ratio for each category of goods (Waud 1980, Monroe 1979). According to the theory, a change in price for one good is compensated for by a shift in expenditures among all goods so that the ratios remain equal. When applied to a specific consumer purchase choice decision, the maximization hypothesis suggests that the buyer will select the alternative with the largest marginal utility per dollar cost.

While some economists have long questioned the adequacy of the utility maximization hypothesis (UMH) (see Becker 1962 for a discussion of criticisms), the hypothesis has come under particularly severe criticism recently. Nobel laureate Herbert Simon, who long ago discarded the UMH in proposing his theory of "bounded rationality" (Simon 1957), laid the groundwork for a developing "behavioral" school of economic thought. More recently, Gilad, Kaish, and Loeb (1984) have described the "platforms" of a new school of thought, foremost among which is the notion that economic theory be consistent with observed fact. The primary basis for criticism of the UMH is that behavior observed in the laboratory and the marketplace has frequently differed from what we would expect if participants were maximizing utility by applying sound economic and statistical logic. For example, the experimental observations that subjects are not consistent in their preferences for gambles (preference reversal - Lichtenstein and Slovic 1971) and that the way decision alternatives are framed (phrased) affects preference (Tversky and Kahneman 1984) are inconsistent with the proposition of a "maximizing" decision maker. Kunreuther's (1978) study of consumer aversion to low cost flood insurance and Arrow's (1982) observation of how investors overweight current information (relative to baseline information) lead to the same conclusion. These studies do not directly test the utility maximization hypothesis, however, because they introduce the added

complication of outcome uncertainty and the possibility that each decision maker has a unique conception of risk which changes depending on the decision context and their interpretation of different information cues.

While disenchantment with the UMH has grown in economics, there appears to be no direct evidence regarding whether buyers have the natural tools and instincts to maximize utility. Setting aside the important criticism that decision-makers are too limited in their information gathering and processing abilities to be maximizers (Simon 1978, 1979), more basic questions can be raised: given perfect information about simple decision alternative payoffs and costs (thus avoiding the complication of outcome uncertainty as noted above) and a clear maximization objective, do buyers naturally apply and can buyers naturally apply the rules necessary for utility maximization? These questions have not only been untested in the literature, the conventional wisdom in economics seems to be that they cannot be addressed empirically. Even when economists argue about philosophy of science applied to economics they agree that the maximization hypothesis is untestable (Boland 1982, Caldwell 1983). The problem appears to be to construct a convincing case for supporting or refuting what amounts to a paradigm as any indirect test based on inference can be shown to be suspect (Boland 1982). This research represents a first step in an attempt to directly test the utility maximization hypothesis. The fundamental issue is not whether the decision maker will maximize but whether he or she can maximize when rewarded for doing so.

Marketing and Utility

Understanding how buyers place utility or value on product/brand alternatives is central to research in marketing. Much research addresses how people derive their judgments of product utility or value (e.g., Cox 1967, Olson 1977). Two other major areas which deal explicitly with the measurements of product utility or value include multiattribute models (e.g., Wilkie and Pessemier 1974) and conjoint analysis (Green and Srinivasan 1978). Note that an underlying rationale for research in the above areas is that marketers want to present products (and/or product cues) which provide maximum net value or utility to buyers. According to Sheluga, Jaccard, and Jacoby (1979), this is appropriate because "the best prediction of which product will be chosen... is the product alternative having the most positive overall evaluation." (p. 166). The logic of the UMH, then, is often reflected in the study of consumer choice behavior.

The same logic is also reflected in our pricing literature. Monroe (1979, 1984) has contended that buyers make purchase decisions by selecting the alternative which has the highest "perceived value (utility) for the money." The "value for the money" construct is commonly measured in pricing studies (see Zeithaml 1984). Note that this decision criterion is equivalent to the marginal return/price decision rule presented in the classic economic theory.

The marketing relevance of studying the UMH is not to call into question the work cited above, but to extend our understanding of buyers' abilities to "rationally" approach and solve decision problems. Whether decision-makers satisfy or optimize in consumption decisions has come under the category of "choice rule" research. A consistent finding from this literature is that consumers, when confronted with a complex decision, initially use a satisficing rule to "weed out" unwanted alternatives and then use a more thorough rule to evaluate the remaining alternatives (Lusier and Olshavsky 1979). The current research differs

from such choice rule research in that (1) it uses an objective measure of decision-makers' ability to maximize and (2) it does not have an information acquisition confounding problem because it provides subjects with all the information they need to make their very simple decisions. The following research involves a test of buyers' natural abilities to maximize their outcomes. It is relatively unencumbered by the problems of incomplete information, information overload and optimizing ambiguity that have troubled other studies.

The Experiment and Hypotheses

The present study examined subjects' ability to maximize their decision outcomes for two different optimization rules. The decision context consisted of subjects choosing the one of three investment alternatives which yielded the greatest return. To illustrate, consider the following example:

Investment Alternatives	Dollar Return (per unit)	Dollar Cost (per unit)	Return minus Cost	Return divided by Cost
1	\$30	\$15	\$15	2.0
2	\$25	\$10	\$15	2.5
3	\$40	\$20	\$20	2.0

Some subjects were required to invest \$1000 in one of the three investment alternatives. For this decision, subjects should select the alternative with the largest "return/cost" ratio (hereafter referred to as the Ratio rule) in order to maximize their return. In the above example, the second alternative is the optimal choice. The remaining subjects were constrained to purchasing only one unit of the chosen investment. In this situation, subjects should choose the alternative with the largest "return minus cost" difference (referred to as the Diff rule). Thus, the third alternative is the optimal selection.

The first hypothesis tests whether the subjects come from a population where the mean score on the tasks is 18/20 (relaxed maximization assumption). This test is directional in that the alternative hypothesis is that the subjects' mean performance is less than 18/20. The null hypothesis is:

H₁: The subjects come from a population with an average maximization performance of 18 correct out of 20 (90%).

We anticipated that subjects' ability to maximize their decisions would depend on the rule required for outcome optimization. Assuming that subjects find the mathematical operations required for ratio estimation appreciably more difficult than those involved in difference estimation, the Diff rule should be easier to implement than the Ratio rule. Therefore, the following hypothesis is offered:

H₂: Subjects who purchase a single unit of their selected investment will more often make optimal investment decisions than will those who invest \$1000 in their selected investment.

A second experimental factor involved the presence or absence of the information in the last two columns of the prior example. These two columns present the mathematical calculations relevant to the Diff and Ratio optimization rules respectively. This information may affect decision accuracy in one of two ways. First, its presence may serve as a cue to subjects, helping them to recognize the appropriate decision rule (see Russo 1977). A third hypothesis, then, is:

H₃: Subjects who are provided the return-cost difference return/cost ratio information will make better decisions than those not provided such information.

The presence of this information may also be beneficial by assisting subjects in their mathematical calculations. That is, it should help eliminate simple mathematical

errors. However, because the mathematical calculation required by the Diff rule is relatively straightforward, we expected the facilitating effect of the information to emerge only for the relatively more complex Ratio rule. Accordingly, the following interaction is proposed:

H₄: Providing subjects with the mathematical information should improve their accuracy only when making \$1000 investment decisions.

Finally, we examined the possibility of a learning effect. Subjects were given a replication of the 20 tasks in the same order. It was expected that this practice would enable some subjects to discover and execute the correct optimizing rule. This learning effect is proposed in the following hypothesis:

H₅: Subjects will more often make optimal decisions later in their investment tasks than earlier.

In summary, the major issues addressed are whether subjects (1) can achieve a 90% correct choice performance level, (2) are equally adept at making decisions in terms of the gain/cost ratio or "value for the money" rule compared to the "return minus cost" rule in the appropriate situations, (3) are affected by information about relevant mathematical calculations, and (4) improve their decision accuracy with practice.

Method

Procedure

This preliminary study involved a series of "investment" decisions made by 48 junior and senior marketing undergraduates at a major university. All had taken a required accounting or finance course. The subjects were told that the study was intended to evaluate the information presentation format of a new investment guide published by Standard and Poors. The research took place in a personal computer laboratory and required subjects to make 40 investment decisions. Their decisions were preceded by an introduction to the exercise, three practice investment decisions, and three "check-up" problems to make sure they understood the consequences of their decisions. After finishing the investment task, the subjects completed a paper and pencil questionnaire, were compensated for their participation, and left the lab.

Subject Compensation

Subjects' compensation was based directly on their investment "performance" in order to heighten task involvement and effort. After each decision, subjects received a return based on their investment choice. This return was then added to a "bank balance" appearing at the top of their computer screens. Upon completion of the experiment, subjects were paid a percentage of their bank balance. The payments ranged from \$3.79 to \$4.75. Subjects were paid with a check which had been stapled to her/his handout on which the subject had identified her/himself as "payee" at the beginning of the hour. This procedure was intended to heighten awareness of the subjects' rewards for making the best decisions. Their objective, clearly, was to maximize their ending bank balances. The average post-test agreement score of subjects with the statement "I tried to make the best decision for every decision I had to make" was 6.3, with the statement "The instructions were very clear" 6.4 and with the statement "The game was interesting" 5.4 (1 = strongly disagree, 7 = strongly agree).

Research Design

The experimental design was a 2 (Investment Task) by 2 (Information Set) design with replication of the 20 tasks within subjects. The different conditions of the Investment Task factor will be referred to as the "single unit purchase" and "\$1000 investment" conditions. The Information Set conditions will be referred to as the "limited" and "full" information conditions. Both independent factors were described in the hypotheses section.

It should be noted that the second 20 problems given to subjects were an exact repeat of the first 20 problems. This allowed for a more precise analysis of the learning effect (H4). Informal discussion with some subjects after the experiment indicated that they did not recognize that the problem set had been repeated. This is understandable as the replications were separated by 19 tasks with very different cost and return profiles.

Dependent Variables

Overall choice accuracy was assessed by the number of times subjects selected the optimal alternative for each of the 20 decisions in the first and second problem sets. For each decision, subjects received a score of one for an optimal choice and a zero for a suboptimal choice. A set of post-task measures were included to identify the self-reported rule that was used during decision making, whether the rule changed during the exercise, self-reported understanding of economic maxims, and self-reported ability to do arithmetic, make investments and play video games. A number of the measures checked the subjects' understanding of the task, level of effort and beliefs about the purpose of the study.

It should be noted that the methodology used here was developed to maximize subjects' involvement in the research. Toward this end, subjects were provided with a clear objective in the research, a clear monetary reward which dominated their choice behavior during the experiment and a reward that was clearly tied to their performance and not one else's. Grether and Wilde (1984) have described a set of four conditions that research addressing microeconomic issues should meet. Their conditions appear to be met by the current methodology.

Results

Post-Task Measures

We first consider subjects' responses to the 7-point agree (7) - disagree (1) scales involving their reactions to the experimental task. Subjects strongly agreed that the instructions were very clear ($M = 6.4$). They perceived the "game" as interesting ($M = 5.35$) and disagreed that the game was tedious and boring ($M = 2.52$). Subjects also disagreed ($M = 2.48$) that the choices were very difficult. Concerning self-reported effort, subjects strongly agreed ($M = 6.3$) that they tried to make the best decision for every choice, although subjects in the \$1000 investment-limited information condition reported significantly ($p < .05$) less agreement ($M = 5.5$) than subjects in the remaining conditions. Subjects disagreed ($M = 2.3$) that they exerted less effort in decision making later in the game. Interestingly, subjects differed in their feelings that they had maximized their ending bank balance. Subjects in the full information conditions agreed ($M = 5.5$) more strongly ($p < .05$) with the statement than those in the limited information conditions ($M = 4.3$).

Given our expectation that the \$1000 investment task is more difficult than the single unit purchase because the former requires the more mathematically complex optimization rule, we asked subjects whether a calculator would have made their decision making easier and more accurate. Although subjects in the single unit condition disagreed ($M = 2.3$) that a calculator would have made the task easier, subjects in the \$1000 investment condition had a different perception ($M = 4.7$, $p < .01$). Similarly, subjects in the limited information condition ($M = 3.9$) differed ($p < .05$) from those in the full information condition ($M = 2.9$). In addition to these main effects, a significant ($p < .01$) interaction also arose such that subjects in the \$1000 investment - limited information condition reported the greatest support ($M = 5.7$) for the calculator's potential to make their choices easier. Although these same patterns emerged for subjects' perceptions about making more accurate choices with the calculator, only the difference between the \$1000 investment ($M = 4.3$) and single unit purchase ($M = 2.2$) conditions attained statistical significance ($p < .01$).

A disturbing finding concerns the existence of significant differences on measures of individual characteristics that should not differ across experimental conditions. For example, subjects in the \$1000 investment - full information and single unit - limited information conditions significantly ($p < .05$) differed from subjects in the remaining conditions on reported mental arithmetic and financial abilities, understanding of expected value, present value, and marginal utility concepts, and their experience and skill with computer games. These unexpected differences suggest that the assumptions underlying random assignment of subjects to experimental conditions may not hold, and thus represent a serious threat to the internal validity of this study. A correlation and factor analysis revealed that none of the post-task belief measures were strongly related to performance. The highest correlation was between agreement with the statement "I am good at playing computer games" and subjects score on the second replication ($r = 0.29$). Most of the correlations were below 0.10 with only a few above 0.2. But because of a concern over our ability to control for extraneous between subject effects through randomization (because of our small cell sizes), we ran several covariance analyses adjusting for self-reported involvement and effort, self-reported arithmetic ability and self-reported knowledge of economics and finance. Interestingly, only the first covariance analysis had a material effect on our findings.

Decision Accuracy

On the whole, subjects displayed considerable skill in making the optimal decision. Thirteen of the 48 subjects had a perfect score across the 40 decisions. A total of thirty subjects had an accuracy rate of 90% or more. Only seven subjects failed to make the optimal choice more than half the time. The average accuracy rate was 80 percent. A within cell test of the first hypothesis lead to its rejection only in the investment task condition (where the ratio rule had to be applied) where the subjects were not provided with the difference and ratio calculations for each of the three choices (see Table 1 for the mean scores and standard deviations for each cell). This result should be qualified by the low statistical power afforded by the experiment.

An interesting question is whether the poor performance was due to either a lack of ability and/or motivation to optimize. A comparison of subjects scoring 75% accuracy or better versus those less accurate on key post-task measures was therefore undertaken. Subjects high and low in accuracy equally agreed ($p = .9$) that they tried to make the best decision for each choice. Nor did they differ in their understanding ($p = .8$) of the task. While there was a tendency for the less accurate to perceive that a calculator would have been useful, this difference was not statistically ($p = .14$) significant. This latter result may in part stem from limited statistical power given that the less accurate group consisted of 14 subjects.

Impact of Experimental Manipulations

Table 1 summarizes the cell means for decision accuracy. The pattern of these data is very consistent with the research hypotheses. There is a tendency for subjects to make better decisions (1) when the Diff rule is the appropriate optimization rule, (2) under full information conditions involving only the Ratio rule, and (3) with practice. The results of a 2 (Investment Task) X 2 (Information Set) X 2 (Replication) ANOVA consisting of both between-subjects (the first and second manipulations) and within-subjects (Replication) factors are presented in Table 2.

As can be seen, none of the experimental manipulations attained statistical significance, although both the Investment Task and Replication factors approached significance ($p = .11$). Thus, we are unable to support most of the research hypotheses. This lack of support suggests that the research hypotheses are incorrect. However, we believe such a conclusion would be premature for several reasons.

First, as discussed above, the pattern of cell means,

although statistically insignificant, it very consistent with the research hypotheses (as well as many of the findings involving the post-task measures). Second, the power of the statistical tests may be unduly constrained by a relatively small sample size. In this regard, we should note that a sample with the same pattern of mean responses and variability as in the current sample but triple the size would have produced statistically significant main effects for Investment Task and Replication and a significant Investment Task by Information Set interaction effect.

Third, the apparent "breakdown" of random assignment procedures may have introduced an unfortunate bias in the results. A set of six measures of task involvement and effort introduced as covariates was reduced to three that explained a statistically significant amount of performance variance. The resulting covariance analysis resulted in a significant effect of task that supported our second hypothesis (see Table 2). Table 1 reports the adjusted cell means. Finally, the decision sets may have been too easy, as reflected by the high degree of choice accuracy. Obviously, it will be quite difficult to demonstrate a learning effect when subjects are "perfect" initially. A separate analysis that included only the subjects who scored less than 20 on the first replication resulted in a significant directional replication effect ($p < .05$). This set of 31 subjects were significantly more accurate in their second effort ($M1 = 13.4$, $M2 = 14.5$), thus supporting H5.

Self-Reported Rule Usage

Subjects were asked to select from a series of statements (see Table 3) the one which described how they made their investment choices. None of the subjects selected the "random" decision rule, while six selected the "other" option. Examination of these six subjects' descriptions of their decision making process revealed that they had in fact used a strategy consistent with one of those described in Table 3, but had simply failed to recognize this fact. We compared the recognition rule choice and self-described use of the different possible choice rules across the experimental conditions and then examined whether self-reported use of the optimal choice rule was related to performance. In the single unit purchase task condition 76% reported using the correct Diff rule when presented with the options in Table 3. An analysis of the written descriptions (open ended) revealed that 80% of the subjects confronted with this choice task used the correct Diff rule. The results were very different for the \$1000 investment task. In the full information - \$1000 Investment task condition, 80% reported using the correct ratio rule from the list presented in Table 3 but none of the subjects in the limited information - \$1000 investment task reported using the appropriate rule.

In short, there was a significant task/information interaction effect on the self-reported use of the correct rule ($p < .05$). This suggests that a major reason why the subjects in the \$1000 investment - limited information condition did not do as well was because they did not use the correct rule. However, upon examination of the self-described rules that the subjects used it became clear that 5 of the 13 subjects in this condition did indeed use a ratio rule - they simply did not recognize it as such when presented with the choices in Table 3. For example, the following two subjects described their choice rules thus: "I took the cost of investment decision and divided it into \$1000. For example, $1000/10 = 100$ units. I then multiplied that amount (100 units) by the return. This was done for all three choices. I then selected the choice with the highest return." Both were not able to recognize that they had, in effect, used the ratio rule more simply described in Table 3. In both task conditions self-reported use of the correct rule (either using the recognition or described measures) significantly increased performance ($p < .0001$).

Of further interest is that the subjects who reported changing their rule did not improve their performance in the second replication. Four out of five in the single

TABLE 1
EXPERIMENTAL CELL MEANS FOR CHOICE ACCURACY

Task	Information	1st repl.	2nd repl.	n
\$1000 Investment	Full	16.2 (5.2)	16.7 (5.4)	10
	Limited	13.1 (6.4)	13.5 (6.7)	13
Single unit choice	Full	17.1 (5.0)	17.5 (5.0)	12
	Limited	16.8 (4.6)	18.0 (4.4)	13

Covariate Adjusted Cell Means

Task	Information	1st repl.	2nd repl.	n
\$1000 Investment	Full	14.9	15.4	10
	Limited	13.3	13.7	13
Single unit choice	Full	17.2	17.6	12
	Limited	17.5	18.7	13

TABLE 2
ANOVA RESULTS

Effect	d.f.	F	P
Investment Task (A: between)	1,44	2.70	.11
Information Set (B: between)	1,44	1.01	.32
Replication (C: within)	1,44	2.64	.11
A x B	1,44	1.19	.28
A x C	1,44	0.21	.65
B x C	1,44	0.17	.68
A x B x C	1,44	0.32	.58
Effect	d.f.	F	P
Investment Task (A: between)	1,44	5.33	.03
Information Set (B: between)	1,44	0.09	.76
Replication (C: within)	1,44	2.64	.11
A x B	1,44	0.70	.41
A x C	1,44	0.21	.65
B x C	1,44	0.17	.68
A x B x C	1,44	0.32	.58
Covariates			
Ending balance was maximal	1,44	2.50	.12
Game was tedious and boring	1,44	3.81	.06
Research will be useful	1,44	1.88	.18
All covariates	3,44	3.26	.03

unit purchase task who reported switching, switched to the correct rule but only one significantly improved performance. In the \$1000 investment task condition, nine reported switching (6/13 in the limited information condition switched) with only four reporting switching to the correct rule and none of the four improved their performance significantly as a result of the switch. It seems that the learning effect that we observed was not the result of rule switching but the result of improvement in application or execution of the correct rule.

TABLE 3
DECISION RULES

Rule	Statement
Random	"I made my choices randomly without using the information or doing any calculations."
Return	"I chose the investment with the biggest monetary return."
Cost	"I chose the investment with the lowest monetary cost."
Diff	"I chose the investment with the biggest difference between its return and cost."
Ratio	"I chose the investment with the biggest return divided by its cost ratio."
Other	Other (please describe on the back of this page).

Discussion

The present study indicates that while some subjects were either unable and/or unwilling to optimize their decision making, the majority of them were in fact able to maximize their decision outcomes. Unfortunately, in this pretest we were unable to clearly discriminate between the motivational and ability explanation for suboptimizers, an issue clearly for future investigation. Even so, we were able to provide direct evidence that many subjects can and do make decisions which maximize utility. The results are also suggestive that for the task where subjects have to assess the return to cost ratio in an information condition where the computation is not done for them, they are not able to consistently optimize even when motivated to do so. If replicated in later studies, this is an important result as this situation comes closest to the typical real world circumstance where the decision maker has to allocate and optimize using marginal utility divided by price. The experimental task the subjects faced was much more straightforward than choice decisions in the real world. Utility and costs were provided in the same units and with no uncertainty. Consequently, it can be expected that subjects will be even less capable of optimizing in the real world.

The lack of evidence supporting some of the experimental manipulations is, of course, disappointing. We believe, however, that refinements in the task setting (e.g., more difficult tasks) and increased sample size (for both power and random assignment reasons) will permit a more appropriate test of the research hypotheses. We are currently pursuing an experiment that studies differences in decision time as well as accuracy. Time spent making the choice along with some other post-task measures should help us tease out whether poor performance is because of a lack of motivation or a lack of ability. The latest experiment also examines the impact of changing the decision task and hence optimizing rule between the replications. This will permit some insight into subjects' rigidity in their application of choice strategies (i.e., ability to adapt). In our follow-up study we also are examining the framing effects of only providing either the net return computation or value for money calculations in both tasks.

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Abstract

The relationship of household attitudes to the major consumption-saving decision of homeownership is addressed. Findings of logit models of ownership are reviewed and the joint dependency between ownership and expected mobility is noted.

This joint dependency is then modeled in a conditional logit specification with attitude factors as explanatory variables. Results of the model estimation support hypotheses on direct and indirect influences of attitudes on ownership. The potential policy relevance of the findings is discussed.

Introduction

The relevance of attitudes to major household consumption decisions has been discussed in studies that now span several decades (e.g., Katona 1951; Pickering 1981). There is, however, limited empirical support for relationships hypothesized in these studies. The present study will consider the relationship between attitudes and the consumption-savings decision of homeownership. This decision is generally discussed as choice of ownership or contract rent forms of housing tenure and is among the most important household decisions in the consumption of housing services and the management of household financial assets.

The mainstay of existing studies estimate single equation logit or probit models of homeownership. Results of these studies have indicated income, the relative price of ownership and rental forms of tenure, family size, and age and sex of the household to be significant explanatory variables (e.g., Kain and Quigley 1975; Li 1977; Struyk 1978). The influence of explanatory variables other than income and price is generally interpreted in terms of institutional effects such as discrimination in housing and financial markets and taste differences. Tastes are, however, never explicit variables in these specifications.

This study instead proposes that the choice of ownership or rental tenure is influenced by socially learned normative orientations of the household in which attitudes are important elements. We consider the relationship between homeownership and household attitudes in a framework of household production theory (e.g., Becker 1976) where households do not consume goods and services they acquire in market transactions but enter them into the production of higher order social commodities such as "health status" or "prestige."

Following several generations of social research, we argue that the utility households derive from social commodities depends on its values and attitudes. Given this dependence of utility on attitudes, the derived demand for goods and services will also include attitudes as relevant explanatory variables. In the case of homeownership, we may model demand as discrete choice between ownership and rental tenure, and specify a "random utility" model of choice (e.g., McFadden 1974) which under certain independence and distributional assumptions is estimable in simple logit form.

Recent studies have taken up critical interdependencies between choice of housing tenure and other household decisions such as mobility (Boehm 1981; Krumm 1984) and the quantity of housing services consumed (Gillingham and Hagemann 1983). Within the framework of the present study, we believe that modeling the joint dependency between tenure choice and expected mobility can contribute to the explanation of effects of attitudes on choice.

The joint dependency between homeownership and mobility arises because search and transactions costs of changing residences are greater for owners than for renters. The cost of mobility will therefore depend on the households type of tenure. Similarly, the cost of a tenure type to the household will depend on its mobility.

We have previously hypothesized direct effects of attitudes on choice of housing tenure. Relationships between attitudes, career aspirations and occupational mobility rates (e.g., Sewell et al, 1973) also suggest direct effects of attitudes on expected mobility. If attitudes affect expected mobility, the joint mobility-ownership dependency leads us to hypothesize that attitudes also have indirect effects on tenure through mobility.

If in modeling, the joint dependency between ownership and expected mobility, we specify their reciprocal influence in an interaction term then the indirect effect of attitudes on ownership should be evidenced in this term. From previous discussion, we expect the interaction between ownership and expected mobility to be negative (i.e., expected mobility should decrease the probability of ownership and vice versa). If attitudes increase expected mobility as hypothesized, we would expect the inclusion of these explanatory variable to significantly increase the hypothesized negative interaction between the probability of ownership and expected mobility.

In the next section, we will test this hypothesis in the estimation of a conditional logit specification (e.g., McFadden 1974; Nerlove and Press 1973) of the joint dependency between choice of tenure and expected mobility. Boehm (1981) develops a similar specification and we take up some differences in testing the significance of the interaction term.

Conditional Logit Model of Tenure Choice and Expected Mobility. We begin by specifying both choice of tenure and expected mobility as binary endogeneous variables, and further assume "random utility" models of both tenure choice and expected mobility are applicable.

We can then write the following simultaneous equations for the joint dependency between tenure choice and expected mobility.

$$(1.1) \quad \Pr (T_i = 1, EM_i = 1) = (e^{B_1'X_i})/K$$

$$(1.2) \quad \Pr (T_i = 1, EM_i = 0) = (e^{B_2'X_i})/K$$

$$(1.3) \quad \Pr(T_i = 0, EM_i = 1) = (e^{B'_1 X_i})/K$$

$$(1.4) \quad \Pr(T_i = 0, EM_i = 0) = 1/K$$

where

T_i = the tenure choice alternative of i^{th} household:
 $T_i = 1$ if the i^{th} household chooses to own and
 $T_i = 0$ if this household chooses to rent;

EM_i = the expected mobility alternative of the i^{th} household:
 $EM_i = 1$ if the household expects to move in the next few years and $EM_i = 0$ if the household does not expect to move within the next few years;

X_i = a vector of the i^{th} household's sociodemographic characteristics and attitude factors which affect its tenure choice and/or expected mobility;

and

$$K = 1 + \sum_{j=1}^3 e^{B'_j X_i}$$

From equations (1.1) to (1.4), we can derive the following structural equations for tenure choice and mobility.

$$(2.1) \quad \Pr(T_i = 1 | EM_i) = \frac{e^{B'_1 X_i + \alpha_1 EM_i}}{1 + e^{B'_1 X_i + \alpha_1 EM_i}}$$

$$(2.2) \quad \Pr(EM_i = 1 | T_i) = \frac{e^{B'_3 X_i + \alpha_1 T_i}}{1 + e^{\alpha_1 T_i + B'_3 X_i}}$$

where

$$\alpha_1 = (B_1 - B_2 - B_3)' X_i.$$

Since the parameter α_1 , as defined above, equals the log odds ratio between tenure choice and expected mobility, we use it as a measure of the strength of¹ the interaction between tenure choice and expected

From equation (2.1) we observe that if $\alpha < 0$, $\Pr(T_i=1|EM_i=1)$ is less than $\Pr(T_i=1|EM_i=0)$. This is consistent with previous discussion which maintained that expected mobility should decrease the probability of ownership. Thus, we predict the sign of the estimated value of α_1 to be negative.

We derive estimates of the logit coefficients B_1 , B_2 and B_3 from maximum likelihood estimation of equations (2.1) and (2.2).

¹From (1.1) to (1.4)

$$\alpha_1 = \log \frac{[\Pr(T_i=1, EM_i=1)/\Pr(T_i=0, EM_i=1)]}{[\Pr(T_i=1, EM_i=0)/\Pr(T_i=0, EM_i=0)]}.$$

Thus, α_1 can be interpreted as the logarithm of the ratio of the odds of a household owning given it expects to move to the odds of a household owning given that it does not expect to move.

The Data Sets

The observations used in the estimation of logit model of tenure choice were drawn from the Panel Study for Income Dynamics (PSID) for the year 1968 to 1972 (cf., Survey Research Center 1972). Since the PSID was initially based on a conceptual model relating attitudes to a household's income relative to its needs, a range of attitude and behavior items were included with income and expenditure data on participant households.

Measures of Attitudes in the PSID. To specify attitude measures in the PSID, eight items were selected from the original survey on the basis of their judged relatedness to social class and the household's utility for social commodities.²

A principal components analysis of the attitude items yielded a three-factor solution accounting for 54 percent of the total item variance. The first attitude factor, goal setting (GS), includes educational items of expectations for children, preferred task difficulty level, and the frequency of implementing and completing plans. The second factor, future orientation (FO), is based on frequency of thinking about the future, planning ahead, and preference for saving rather than immediate consumption items. The task persistence factor (TP) includes general satisfaction/dissatisfaction and frequency of implementing and completing plans.

The dimensions of these attitude factors have been related to social class membership by a number of researchers (e.g., Blau and Duncan 1967; Cofer and Appley 1964; Keller and Zavalloni 1964). The relationship between these attitude factors and social class was directly investigated by regressing an assigned household Socio-Economic Index (SEI; Duncan 1961) scores³ on the attitude factors. These factors were found to account for 14 percent of the variation in SEI scores across household.

Measures of Income, Price and Sociodemographic Variables. The PSID reports annual household income over the years 1967-1971 and identifies household residence by county. This allows well-specified income and price variables to be constructed for each household.

We define 1968 permanent income as a four-year unweighted average of measured income before taxes in constant 1968 dollars plus the imputed rental value of owner-occupied housing for the years 1967 to 1970.

The relative price of own and rent tenure was defined as

$$P_{o/r} = \frac{P_o}{P_r} (1 - st)$$

²While these items include judgments of one's own past behavior as well as attitudes, we identify the items and derived factors as attitude measures for consistency with the Survey Research Center's grouping and simplicity in exposition.

³A procedure implemented by Featherman, Sobel and Dickens (1975) was used to approximate SEI scores on occupational prestige from standard Bureau of Labor Statistics codes of occupation, industry of employment, and the sex, race and age of the household head.

where P_o and P_r are BLS indices of the costs of owning and renting a home, respectively, for a family of four at a moderate living standard in the household is residence county (cf., U.S. Bureau of Labor Statistics 1972), s = the percentage of each dollar spent on housing services which is deductible from taxable income during the year and t = the marginal tax rate of the household in the year (c.f., Rosen 1979).

We also include the age, education (ed), race, and veteran status (vet) of the household head, family size, and categorical measures of whether young children are present (ch<18), and wealth (non-wage income: NWY (1) and (2)) in the joint tenure-mobility equations.

Finally, a set of variables that are hypothesized to influence expected mobility are included. These are expected change in family size (ECFS (1) and (2)), expected change in job (ECJ), and whether or not the household is on speaking terms with half of the neighbors or has relatives within walking distance (NT). The specification of the joint tenure-mobility equations to be estimated is

$$P(T,EM) = f(Yp, Po/r, ed, age, GS, FO, TP, famsiz, ch<18, NWY(1), NWY(2), NT, ECJ, ECFS(1), ECFS(2), Vet, Caucas, married)$$

Results and Discussion

Logit coefficients and asymptotic "t" statistics obtained from the estimation of equations (2.1) to (2.2) are presented in Table 1.⁴ Our discussion of the effects of independent variables in the joint tenure equations will concentrate on the B_2 and B_3 columns of the logit coefficients and the difference $B_1-B_2-B_3$.

From equations (2.1) and (2.2) of the previous section, we observe that B_2 and B_3 represent the direct effects of independent variables on $\Pr(T_1 = 1|EM_1)$, tenure choice given expected mobility, and $\Pr(EM_1 = 1|T_1)$, expected mobility given tenure choice, respectively. Correspondingly, $B_1-B_2-B_3$ represents the contribution of the independent variables to the interaction of tenure choice and expected mobility.

Considering the coefficients of the conditional tenure choice function (B_2) first, we observe that income, price, the presence of young children, non-wage income, attitude factors of goal setting and future orientation, and the age, race and marital status of the household head are significant. Results for the sociodemographic variables are generally consistent with previous studies (see, for example, Li 1978) and for reasons of brevity are not discussed here.

Although signs of all three attitude factors are positive in the conditional tenure choice equation, only coefficients of the goal setting and future orientation factors are significant. Constituent items of both these attitude factors have clear links to social class and relevant value orientations.

The conditional tenure choice equation was also estimated with coefficients of the attitude factors set to zero. Comparisons of the log likelihood values for

⁴Since some variables were included in the JTE because of their singular influence on either tenure choice or expected mobility, not all variables in Table 1 have predicted signs for both tenure choice and expected mobility.

TABLE 1

ESTIMATED LOGIT COEFFICIENTS FOR JOINT TENURE CHOICE AND EXPECTED MOBILITY FUNCTIONS WITH ATTITUDE FACTORS AS EXPLANATORY VARIABLES

Variables	(Asymptotic "t" statistics in parentheses)				
	Predicted		Pr($T_1=1|EM_1$)	Pr($EM_1=1|T_1$)	
	Signs		B_2	B_3	
	B_2	B_3	B_2	B_3	
	$B_1-B_2-B_3$				
Y	+		0.163* (8.4)	0.037** (2.1)	-0.048** (2.3)
P	-		-1.170* (7.5)	0.043 (0.4)	-0.055 (0.5)
Ed	+	+	-0.068 (0.3)	0.604* (2.7)	-0.130 (0.4)
age	+	-	0.047* (7.8)	-0.039* (6.9)	0.132 (1.3)
GS	+	+	0.144** (2.2)	0.159* (2.5)	-0.227** (2.0)
FO	+	+	0.123** (2.3)	0.053 (1.0)	-0.148 (1.7)
TP	+	?	0.054 (1.0)	-0.146* (2.9)	-0.050 (0.6)
Famsiz	+	-	-0.017 (0.4)	0.010 (0.2)	-0.031 (0.4)
ch < 18	+	-	0.378** (2.1)	-0.086 (0.5)	-0.488 (1.7)
non-wage income					
\$1-499	+		0.571* (3.2)	0.050 (0.2)	0.138 (0.5)
>\$500	+		0.865* (3.5)	-0.402 (1.1)	1.053* (2.5)
NT		-	0.759* (6.5)	-0.306* (2.8)	-0.181 (1.0)
ECJ(1)		-	-0.095 (0.5)	0.218 (1.5)	0.267 (1.0)
ECFS(1)		-	-0.369** (2.0)	-0.368 (1.7)	0.197 (0.6)
ECFS(2)		-	0.095 (0.4)	0.267 (1.4)	0.055 (0.2)
VET	+		0.048 (0.4)	0.072 (0.5)	0.004 (0.0)
Caucas	+		0.759* (5.7)	0.066 (0.5)	0.321 (1.2)
married	+	-	0.632* (3.9)	-0.014 (0.0)	-0.022 (0.1)
const			-2.230 (4.5)	0.925 (2.1)	-2.042 (2.7)
χ^2		2120			
observations		3794			

$\chi^2 = -2(LNL_0 - LNL_B)$; where LNL_0 is the value of the log-likelihood function with all parameters set to zero, and LNL_B is the value of the log-likelihood function at the maximum likelihood coefficient values.

* $p < .01$

** $p < .05$

this estimation and the fully parametrized tenure choice equation in Table 1 indicate that attitude factors significantly ($p < .01$) increase model fit to the data.

Turning next to the conditional expected mobility function, $\Pr(EM_1=1|T_1)$, coefficients for income, education, age, neighborhood ties and attitude factors of goal setting and task persistence are significant in Table 1.

Among attitude factors, goal setting and task persistence have different influences on expected mobility. Goal setting has an expected positive effect on expected mobility which may result from its hypothesized influence on occupational aspirations. Task persistence evidences a negative effect on expected mobility. The high frequencies of planning ahead and completing plans that define this factor may result in less frequent but more carefully planned adjustments to consumption through moving.

Finally, in considering the interaction between tenure choice and mobility, we observe that permanent income, non-wage income over \$500, and the goal setting attitude factor have significant influences on the magnitude of this interaction ($B_1-B_2-B_3$ in Table 1). The significant contribution of goal setting to the interaction of tenure choice and expected mobility is consistent with study hypotheses. In addition to the direct effects of the goal setting factor on tenure choice, this attitude factor apparently has an indirect effect on choice through its effect on expected mobility.

The coefficient of the interaction parameter, α , evaluated at population means of sociodemographic characteristics (X), has the predicted negative sign in $P(T_1 = 1 | EM_1)$ and is significantly different from zero ($\alpha = -2.2$, $p < .05$). This was tested by a t statistic that differs from the one Boehm (1981) has used in a similar model specification.⁵ We define the test statistic as

$$t_\alpha = \bar{\alpha} / \left(\frac{M}{N} \sum_{i,j} \bar{x}_i \bar{x}_j A_{ij} \right)^{1/2}$$

where M is the number of variables in the joint tenure mobility equation,

N is the number of observations in the sample,

$\bar{x}_i \bar{x}_j$ is the sample mean of the i th or j th component of X ;

$i, j = 1, 2, \dots, M$

$$\bar{\alpha} = \frac{1}{N} \sum \alpha_i$$

$$A_{ij} = \text{Cov}(B_{i1} - B_{i2} - B_{i3}, B_{j1} - B_{j2} - B_{j3})$$

where B_{i1}, B_{i2}, B_{i3} is the logit coefficient corresponding to the i th component of X

The goal of this research was to demonstrate the relationship between household attitudes and the major consumption-saving decision of homeownership. Estimation of a conditional logit model in which tenure choice and expected mobility were endogeneous variables indicated positive effects of goal setting and future

⁵We suggest the denominator of Boehm's test statistic must be multiplied by $(1/N)^{1/2}$ to be defined as a " t ".

However, Boehm's (1981) definition of t_α also assumes the B coefficients are known with certainty and the elements of X are random. This definition does not take the variability of the estimated B s into account. We consider a more appropriate assumption for the definition of t to be that the elements of X (sociodemographic characteristics of households) are fixed and the B coefficients are random, and therefore define the " t " as above.

orientation attitude factors on the probability of homeownership. Indirect effects of goal setting on homeownership through expected mobility were also obtained. These results support hypotheses on the interrelatedness of attitudes, expectations and consumption.

While earlier work on attitudes and consumption provides a foundation for the present inquiry, we believe that we now benefit from more definitive product or service class specific modeling of complex demand effects of attitudes.

Finally, we briefly note potential policy applications of this research. Since 1968, a major end of federal housing policy has been to increase homeownership among disadvantaged households as a means of increasing their housing quality and improving neighborhood quality in urban areas. These programs have focused on affecting the relative price of owning and renting largely through direct grants and subsidies. While income and price are major influences on the probability of ownership in our results, ownership is also found to be significantly affected by attitudes and expectations. More definitive investigation of the influence of these latter variables may yield policy methods to augment or guide constrained grant programs in increasing homeownership. For example, it may be that when households are grouped by attitude factors, income grants are efficient policy in some, while subsidies to the stability of neighborhoods which decrease expected mobility are efficient in others. These policy issues would be best considered in data with measurement instruments specifically designed for the investigation.

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NEW EVIDENCE CONCERNING CONSUMER PRICE LIMITS

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Abstract

The idea that consumers have upper and lower price limits in choosing a brand has both intuitive appeal and empirical support. Several studies have attempted to measure these limits, but few have explored factors which may influence them. This study examines factors which may influence buyers' price limits. The results indicate that these limits are strongly correlated with prices buyers have paid in the past, and that at least lower limits may be shifted by the current range of prices presented to a consumer. These findings have implications both for price setters, and for consumer theorists -- suggesting how buyers' decision criteria may be shifted as they interact with the marketplace.

Introduction

Over the past 30 years, a variety of consumer researchers have suggested that a buyer possesses two price "limits" with respect to a given product category: a maximum expenditure he would be willing to make for such a product, and a minimum price below which he would have prohibitive doubts about the product's quality. (Emery 1970; Gabor and Granger 1966; Monroe 1971; Monroe and Venkatesan 1969; Sherif 1963; Stoetzel 1970). Not only has the concept of upper and lower price limits appealed intuitively to these researchers, but it is consistent with two other bodies of consumer research: the price-perceived quality literature (see e.g. Olson 1977) and studies revealing the importance of non-compensatory rules -- particularly the "conjunctive" rule -- in consumer brand choice (see e.g. Grether and Wilde 1984).

Almost all previous empirical research on consumer price limits has focused on measurement -- assessing individual consumers' price limits, and estimating market-wide frequency distributions of such price limits within specific product categories. Several researchers (e.g. Adam 1970; Monroe 1971) have suggested that the knowledge of such distributions could be a useful tool in managerial price setting. Beyond the issue of measurement, however, another important question regarding price limits has remained largely unexplored: How are these limits formed?

One interesting hypothesis is that a buyer does not bring rigidly formed price limits into the market place, but that these limits are to some extent shaped or shifted by the very range of prices he finds when he gets there. If this hypothesis were true, it would have significant managerial implications, suggesting a firm might be able to shift its customers' price constraints by altering its product assortment or price levels. Such a finding would also alter the interpretation of previous price limits research, particularly those studies (e.g. Monroe 1971; Monroe, Della Bitta and Downey 1977) which have assessed buyers' price limits by having them sort a particular range of prices selected by the researcher.

The purpose of this paper is to explore the hypothesis that consumers' price limits are shaped by the particular prices they encounter in the marketplace. First, relevant research findings from both marketing and psychology will be discussed. Next, the results of an experiment conducted by the author will be reported. Finally, the implications of the findings, both for marketing managers and consumer researchers, will be discussed.

Literature Review and Hypotheses

One indirect piece of evidence regarding the above hypothesis comes from the price-recall literature. Studies have shown that buyers typically have a poor memory for prices

previously paid for products, even frequently purchased products (see e.g. Dietrich 1977). Such uncertain recall might cause buyers to rely heavily on the immediate range of prices when judging what constitutes a reasonable or typical price. This effort might be accentuated in inflationary times; even if buyers can recall previous prices, a high inflation rate may make this information seem obsolete, causing them to rely on present prices as a more relevant guide to what is "normal."

Some evidence regarding the formation of price limits can also be found in the literature on human psychophysical judgement. The psychologist Helson (1947) posited that when a subject is asked to judge the magnitude of a stimulus (e.g. the height of another person) his frame of reference or "adaptation level" is partially determined by the average magnitude of the "focal stimuli" (e.g. the heights of the other people currently being judged). This hypothesis has since found considerable empirical support in the work of Parducci and his associates (Parducci 1954, 1956; Parducci and Hohle 1957; Engel and Parducci 1961; Parducci and Perrett 1971; Marsh and Parducci 1977.) It should be noted that Parducci's subjects have usually been asked to judge objects for which they have no meaningful prior experience or frame of reference (e.g. the size of black cardboard squares) and that they have been asked to rate these objects on inherently relativistic semantic differential scales (e.g. "very large," "very small," etc.) It seems likely that these factors would increase subjects' reliance on the current range as a frame of reference. Still, this research has interesting implications concerning the formation of buyers' price limits.

Two studies have extended the Helson/Parducci research stream into the domain of price judgements. Della Bitta and Monroe (1974) presented subjects with a series of prices in either ascending or descending order and asked them to rate each price on a semantic differential scale ("very expensive," "very cheap," etc.) They found that subjects shown the ascending series tended to rate a given price as more expensive, apparently because it contrasted against the preceding lower prices. Nwokoye (1975) presented subjects with either a high or low price range, and asked them to semantically rate each price in that range. He found that the average dollar value of prices designated "medium" was higher among subjects shown the higher range. While these results are interesting, their generalizability to the formation of price limits is limited by the fact these subjects, like Parducci's, gave purely semantic ratings of prices. Since terms like "very expensive" are inherently relative, a subject may examine the range of stimulus prices as a cue regarding what the researcher considers "very expensive." This does not necessarily mean that this range would alter the price the subject would pay for the hypothetical product.

Most pertinent to the present topic are two studies which have examined the effect of the stimulus range on buyers' self-reported price limits. Sherif (1963) presented subjects with price cards representing prices for hypothetical winter coats, and asked subjects to sort them into categories of "acceptable," "too expensive," and "too cheap." Subjects were given a set of prices ranging either from \$5 to \$54 or from \$5 to \$104. Sherif found that subjects' upper and lower price limits were both significantly higher in the group presented with the higher price range. However, the apparent shift in the upper limit is impossible to interpret, since by the nature of the task, sorters of the short series were unable to indicate an upper limit higher

than \$54. In fact, Sherif mentions that many of the subjects sorting the short range did not even use the "too expensive" category, suggesting they would have specified upper limits higher than \$54, had they been able to.

Monroe, Della Bitta and Downey (1977) replicated Sherif's experiment. Unlike Sherif, they found no significant price range effect on subjects' lower price limits. There was a statistically significant change in subjects' upper limit; however its theoretical significance was muddled by the fact that their subjects too were constrained in their ability to specify an upper limit.

In summary, while there is considerable indirect research evidence that buyers' price limits may be influenced by the prevailing range of prices, those studies which have directly addressed this issue offer conflicting results and contain methodological limitations which harm their internal validity.

To shed additional light on this phenomenon, the author conducted an experiment designed to overcome some of the methodological limitations of previous research. The research hypotheses guiding the study were as follows:

Hypothesis 1a

Subjects asked to evaluate a series of relatively high prices will specify a higher bottom price limit than subjects asked to evaluate a series of relatively low prices.

Hypothesis 1b

Subjects asked to evaluate a series of relatively high prices will specify a higher upper price limit than subjects asked to evaluate a series of relatively low prices.

The rationales for hypotheses 1a and 1b are discussed extensively above.

Hypothesis 2a

Subjects' lower price limits will be positively associated with the prices they have previously paid for similar merchandise.

Hypothesis 2b

Subjects' upper price limits will be positively associated with the prices they have previously paid for similar merchandise.

These hypotheses are consistent with the contention of Fouille (1970) that buyers' price limits may be based in part on past prices paid. More generally, it is consistent with the research findings of Parducci, et al. that subjects' judgements concerning stimuli are partially anchored by their previous experience with similar stimuli.

Hypothesis 3a

The level of the stimulus price range will exert a stronger influence on the lower price limits of those subjects who have not recently made a purchase in this product category than on those subjects who have made a recent purchase.

Hypothesis 3b

The level of the stimulus price range will exert a stronger influence on the upper price limits of those subjects who have not recently made a purchase in this product category than on those

subjects who have made a recent purchase.

These hypotheses are based upon the supposition that subjects who have not purchased the product recently will tend to have less certain recall of the prices to which they were exposed at the time of purchase. Therefore, they may rely more heavily on the current range of prices as a frame of reference.

The Experiment

Ninety-seven subjects were selected from four undergraduate business classes at a large midwestern university. A product type was chosen for the experiment (dress slacks) which had been purchased by the large majority of the subjects, male and female. Each subject was given a large envelope. Inside that envelope was a set of price tags (in random order), three smaller envelopes labeled "too expensive," "too cheap," or "acceptable," and a short questionnaire. The use of three categories is consistent with the majority of previous research in this area (e.g., Emery 1970; Gabor and Granger 1966; Stoetzel 1970).

S's were asked to turn the questionnaire face down, and to arrange the small envelopes with the labels facing up. They were then asked to unclip the price tags, and sort through them as if they were prices for pairs of slacks. They were told that they were not required to use all of the categories (labeled envelopes) provided for them, or to have an equal number of tags in every category. When the S's were finished sorting, they were asked to place the tags in the appropriate envelopes. In order to avoid the problems of the Sherif and Monroe experiments, the S's were then told that if they had not placed any price tags in the "too expensive" envelope, to write on the front of that envelope the highest price they would pay for a pair of slacks. They were given similar instructions regarding the "too cheap" envelope. When this was completed, they were told to fill out the questionnaire (in which they were asked to state when they last purchased a pair of dress slacks, and what price they paid), place all materials back into the large envelope, and hand it forward.

Half of the envelopes contained prices ranging from \$2 to \$46, at two dollar intervals, and the other half contained prices from \$16 to \$60, at two dollar intervals. The two price ranges were randomly assigned to subjects (by shuffling the envelopes before they were handed out). Both ranges of prices contained the pricepoints most frequently purchased by this subject population (according to a telephone survey of local merchants ranging from K Mart to expensive specialty stores). The subjects showed little interest in the experimental materials received by their neighbors, and there was no evidence that they knew there were two different sets of prices distributed.

Results

The data were analyzed in an analysis of covariance, with "stimulus price range" and "recency of purchase" entered as dichotomous factors (the latter variable was split at the sample median) and "price last paid" entered as a metric covariate. The unadjusted cell means are shown in the table.

The analysis of subjects' lower price limits supported Hypothesis 1a: Subjects presented with the higher range of prices specified an average lower price limit of \$19.53, whereas those presented with the lower range indicated a mean lower limit of \$16.21. This difference was significant at well beyond the .01 level ($F[1,92] = 10.08$). Thus it appears that the subjects did tend to use the stimulus prices as a frame of reference when deciding what was an unacceptably low price. This finding is consistent with that of Sherif (1963), but inconsistent with that of Monroe (1977), who found no stimulus-range effect on subjects' lower price limits.

TABLE
CELL MEANS FOR BUYERS' REPORTED
PRICE LIMITS

	High Price Range		Low Price Range	
	Recently Purchased	Not Recently Purchased	Recently Purchased	Not Recently Purchased
Lower Price Limits	19.8	19.32	16.48	16.0
Upper Price Limits	37.64	34.68	35.11	32.15

Such conflicting experimental results generally lead researchers to look for contingency factors, or variables which may moderate the treatment's effect. One potential moderator (recency of purchase) was addressed in this study in the form of Hypothesis 3a. Unfortunately, this hypothesis was not supported by the analysis. The interaction of recency of purchase and price range on lower limits was not statistically significant at even the .25 level ($F[1,92] = .608$), nor was there a significant main effect of recency of purchase ($F[1,92] = .123$).

Hypothesis 2a was strongly supported by the analysis. The price last paid accounted for 32% of the squared variance in subjects' lower price limits, statistically significant at the .001 level ($F[1,92] = 48.54$). This confirms the work in both consumer behavior and in psychophysics concerning the effects of past experience with similar stimuli on subjects' judgements.

A comparable set of analyses were performed on subjects' upper price limits. Hypothesis 1b was not confirmed; the effect of the stimulus price range on subjects' upper price limits was not statistically significant ($F[1,92] = 1.8$). However, it should be noted that the sample difference was in the predicted direction. Subjects presented with the series of high prices specified a mean upper price limit of \$35.96, while those shown the low series indicated an average upper limit of \$33.43. It is interesting to note that there was considerably more total variance in subjects' upper price limits than in their lower limits (the standard deviations were \$7.62 and \$5.62, respectively). This tended to inflate the denominator of the F ratios, possibly masking real effects of the treatments. It would be useful in future studies to try to discover variables which might explain for some of this variance. Such correlates would not only be interesting in their own right, but they could be used as covariates to increase the power of statistical tests examining the effects of the stimulus price range on subjects' upper price limits.

As was the case with lower price limits, the hypothesized interaction of recency of purchase and price range on upper limits was not even weakly supported, ($F[1,92] = .047$) nor was there a significant main effect of purchase recency ($F[1,92] = 1.1$). However, the analysis did strongly support Hypothesis 2b, indicating once again that buyers' price limits are closely related to the prices they recall having paid in the past ($F[1,92] = 52.62$, $p < .001$).

Conclusion

An understanding of consumer price limits is important both to those who must set prices, and those who wish to better understand the process of consumer choice. This paper has tried to offer some insight into how consumers form these limits. The experimental results reported above suggest two variables which may be important: The

prices consumers have paid in the past, and (though the evidence on this is less consistent) the range of products' prices at the point of purchase. The role of the latter variable is of particular interest, for at least two reasons. If the range of prices subjects are asked to judge can influence their price limits, this suggests that studies which have measured price limits by having subjects sort a particular range of prices (e.g. Monroe 1971) may have inadvertently altered that which they set out to measure. A practical implication of this result is that marketing managers may be able to shift consumers' price limits by altering their product assortment or prices. For example, a retailer might add a \$500 suit to its assortment in order to make a \$400 suit appear less extravagant to its customers (or perhaps to discourage them from buying \$100 suits). However, this effect needs to be examined in a more naturalistic setting.

There are several directions which future research should take. Future studies should test the generalizability of these findings, by examining other subject populations and product classes, and by increasing the realism of the task - presenting subjects with actual products, asking them to make actual purchase commitments, and so forth.

There are also other factors whose effects on consumers' price limits might be examined. One such factor is consumers' involvement - both with the particular product class, and with prices in general. Research in social psychology (see Sherif and Hovland 1961, p. 129; Fishbein and Ajzen 1975, p. 457) has indicated that subjects who are highly involved with a class of stimuli are likely to consider a much narrower latitude of stimuli as "acceptable." This suggests that product involvement may have a main effect on price limits (narrowing the range of acceptable prices) and also may interact with the prevailing price range (highly product-involved subjects might be less susceptible to price-range influences in forming their judgments). Both of these effects are worthy of future investigation. It is also possible that there may be demographic (e.g., gender) and behavioral (e.g., type of stores patronized) factors which are either directly or indirectly related to consumers' price limits.

In summary, this study generates more questions than it answers. However, the phenomenon of consumer price limits is sufficiently interesting, both managerially and theoretically, to justify future research directed at answering these questions. The author is currently engaged in such research.

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THE EFFECTS OF SAMPLING AND INFORMATION ON BRAND CHOICE
WHEN BELIEFS IN QUALITY DIFFERENCES ARE AMBIGUOUS

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Abstract

Extant research has suggested or demonstrated that when consumers believe large quality differences exist among brands in a product class there is a tendency for consumers to choose the higher priced alternative. These studies have failed to answer a number of important questions. For example, what is the relative effectiveness of information and sampling in affecting preference and can monetarily constrained choice be influenced when beliefs about quality differences among brands in a product category are ambiguous.

Introduction

Prior beliefs about large quality differences among brands in a product category with a tendency for consumers to prefer the higher priced alternative in such circumstances has been suggested or demonstrated by a number of researchers. (Leavitt 1954, Tull Boring and Gonsior 1964, Lambert 1972, Obermiller and Wheatley 1984). However, the earlier studies did not attempt to measure preference when money was involved and the more recent study, while imposing a monetary constraint on choice behavior failed to answer a number of important questions.

First, the work by Obermiller and Wheatley (1984) on price effects indicated that individuals changed beliefs and behaviors consistent with self-perceptions of evidence given them about products. The nature of the evidence given was a taste test of (identical) brands and information about the brands. The information given was either "perfect" (indicating no essential differences existed between brands) or irrelevant (sales figures, usage data, user demographics). All participants in the study got both a taste of the brands and one of the information treatments in a before-after between-subjects design. From the perspective of the marketing change-agent, there is some uncertainty regarding which of the treatments (taste and information) was influential in causing the changes that were reported. Although there is little reported research on the relative effectiveness of sampling versus advertising, possibly because both are typically used simultaneously in promotional efforts, the former is generally regarded as the more effective method of persuading consumers to choose a product (Kotler 1984, p. 663). Product trial is thought to generate stronger attitudes than advertising at least in part because, unlike advertising, there is little risk of source derogation, discounting and counterarguing (Smith and Swinyard 1983). Preferences based on sensory experience with products are viewed by consumers as valid and usually unquestioned (Bem 1970). Therefore, we hypothesize that sampling will be more influential than information in determining choice behavior.

Pre-measures and post-measures of beliefs about brand differences and strengths of those beliefs were taken by Obermiller and Wheatley. These beliefs along with changes in perceptions of quality differences were used to assess switching patterns between low and high priced brands. While switching patterns were consistent with beliefs, some of the patterns were inconsistent (e.g., people initially choosing a low priced brand, subsequently changed to a high priced brand). A second question which arises from these results deals with the nature of the beliefs that are changed (leading to changes in preference). Some beliefs are stronger than others, and more difficult to change. Rokeach (1969) has discussed the sources of beliefs as one reason for difficulty in changing them. Generally, beliefs

emanating from personal experience are most difficult to change; beliefs arising from an authority figure will be somewhat less resistant to change, changing when the authority changes; inconsequential beliefs, such as those developed by advertising are easiest to change. From this perspective, it would be expected that individuals whose beliefs about products are based on personal experience are less likely to change those beliefs (and consequent behavior) in response to marketer activities than would those whose beliefs are less resistant to change as, for example, advertising based beliefs.

The third question, and perhaps the most important, has to do with the types of products chosen by Obermiller and Wheatley to demonstrate the effect of prior beliefs on brand preference. The product categories, colas and pop corn, were ones that consumers believed contained either large (cola) or negligible (popcorn) quality differences, among brands. In reality, a large number, if not most product categories are believed to include brands that are quite similar in terms of quality. The issue of how consumers utilize price as an indicator of quality in such circumstances was not addressed. If the hypothesis that individual differences, such as prior beliefs about the presence or absence of quality differences among brands in a product category, determines whether consumers utilize price as a quality cue is true, we should anticipate ambiguous results in the case of product groups that are viewed as consisting of brands that, while not alike in terms of quality, are not very different from one another. An appropriate choice of products should offer an opportunity to demonstrate discriminant validity.

Consequently, this research has four major objectives: (1) to determine the relative effects of sensory (taste) and cognitive (informational) experience on quality assessments and behavior, (2) to ascertain the relationship between the source and strength of beliefs and subsequent effects on perceptions of quality and behavior and (3) to infer the effects of price on quality perceptions and choice when neither very large nor very small quality differences are thought to exist among brands. A fourth objective was to verify the generalizability of previous results to adult consumers, since the work by Obermiller and Wheatley was done primarily on student populations.

Methodology - Exploratory Research

A pretest was performed on twenty-two products to select those appropriate for the subsequent experiment. The products studied were food products that could be used in a taste-test procedure.

Products were separated into four groups for the pretest. Convenience samples of 32-35 people rated the products (on a seven point scale) in each group for quality differences among brands in the product class. Selection for the experiment was based on a reasonably uniform distribution of ratings across the entire scale and a mean close to the scale midpoint. The products chosen for the research from the pretest were potato chips and frozen orange juice.

Methodology - Causal Research

Two separate 2x2x2 split plot factorial designs were used. For each of the two products, two information conditions (relevant or irrelevant) and two sample conditions (taste or no taste) were created between subjects. The two price conditions were within subjects, that is, all subjects were exposed to the high and low

prices then prevailing in the marketplace for potato chips and frozen orange juice.

Data collection was performed at two different sites (grocery stores in a medium-sized Northwestern city). One product was studied at each research site to minimize the potential for cross-product contamination by reusing respondents. The research sites were about ten miles apart. Only one person was run in the experiment at one time to minimize respondent suspicion regarding the sample condition. (Having one person sample the product while a second was not allowed to sample at the same time has the potential to create questions regarding the procedure in the minds of respondents.) Individuals were randomly assigned to experimental conditions at each site.

In the procedure, individuals were screened to be sure they used the products. Then they were asked about their beliefs regarding differences among brands of the product and about the strength of these beliefs. This was followed by three questions on possible sources for their beliefs: personal experience, knowledge gained from advertising, and expert opinion. The remainder of the experiment was completed by the respondent, with the experimental treatment and all remaining measures contained in a booklet.

Experimental treatments were couched as information drawn from articles in Consumer Reports. In the relevant information conditions, it was stated that there were no essential differences between brands of the product and a blind taste test panel could not tell the brands apart. In the irrelevant information conditions, no mention was made of brand differences. The various treatments are presented in Appendix A.

Following the presentation of the information condition, individuals were shown samples of the (identical) product with "brand names" Xb and Wt attached. (Xb and Wt have been demonstrated to be neutral "brands.") Retail prices of higher priced and lower priced brands were included as part of the "brand" information. (The higher priced brand was Xb.) In the taste condition, people were given samples of each "brand" at this time. Individuals then rated the quality of both brands on a five-point scale, after which they made a choice between the brands.

By way of introducing a monetary constraint, the choice was presented as the prize the individual would win if selected in a drawing. If the lower priced brand were chosen, the individual would receive that brand plus the cash difference between the lower and higher priced brand. If the higher priced brand were chosen, the individual would receive only the product.

After the choice was made, individuals were asked about the reasons for making their choice; views on Consumer Reports and manipulation checks were taken; demographics were collected and individuals were asked their beliefs regarding the purpose of the experiment. Upon completing the booklet, the people were thanked for their participation and were given a folded and stapled sheet of paper which they were asked to open and read when they got home. This sheet debriefed the subjects; it explained that some of the information given was not correct, and related it to the general purpose of the experiment.

Results¹

The profiles of the groups participating in the two studies were quite similar except for income. In the orange juice experiment, 74 people participated: 23 males, 50 females, and one was unreported. Median age was 34.1 years; 69% had more than a high school education

¹ We wish to acknowledge the assistance of Ms. J.M. Morris in the computer analysis of the data generated in this experiment.

and the median income was \$19,615. In the potato chips study, 77 people participated: 23 males, 53 females and one unreported. Median age was 34.8; 75% were educated beyond high school and median income was \$29,999.

Manipulation checks focused on the relevant and irrelevant information treatments. The checks measured on a five point scale the strength of agreement by respondents with factual statements about the information given to them "from Consumer Reports." The groups compared, on an individual product basis, were those receiving the relevant and those receiving the irrelevant information treatments. T-tests were used to make the comparisons. For potato chips, those receiving the relevant information agreed more strongly ($p < .05$) that there were "no essential differences between brands," and those receiving the irrelevant information agreed more strongly ($p < .05$) with a factual statement about the consumption of the product in the U.S. For orange juice, the irrelevant treatment check (about consumption) produced a significant ($p < .05$) and parallel difference between groups. The relevant treatment check was not significant ($p < .30$), but the group means showed that the relevant information group was in greater agreement with the "no difference" statement. Therefore, it was concluded that the treatments were effective.

T-tests between information treatment groups on their views of the factualness of Consumer Reports did not yield significant differences for either product. Similarly a question about the usefulness of the information from Consumer Reports in helping respondents choose between brands produced no significant (or substantial) differences.

Responses to the two product studies were analyzed separately. Table One presents the results of the treatment effects on choice behavior in the orange juice experiment. As hypothesized, the effect of sampling the product had a significant effect on the choice made, with those receiving the sample tending to choose the lower-priced (Wt) brand. (Table Two shows the proportions of those in the sampling conditions choosing each brand.) Information did not affect choice, and the interaction effect was insignificant.² The inferred price effect was also weak, as anticipated.²

TABLE 1

ORANGE JUICE: ANOVA ON CHOICE USING UNIQUE SUMS OF SQUARES, SAMPLING AND INFORMATION AS DUMMY VARIABLES³

Treatment	df	F	Signif.
Price (Constant)	1	<1	ns
Sample (S)	1	4.328	.041
Information (I)	1	1.858	.177
S x I	1	1.858	.177
Residual	70		

² This method of analysis may be unfamiliar to the reader. Briefly, the vertical axis in the ANOVA, which is cast in a regression mode, ranges from 0 to 1 and represent the probability of purchase of the expensive brand. Non-random choice behavior would differ significantly from .5 in either direction. The intercept in this case was .536 with a standard error of .055. Thus the inferred lack of significance of "price."

³ The response function involving a binary dependent variable is essentially linear in the middle range. Therefore, the logit transformation was not necessary here. (See graph, page 329, Neter and Wasserman 1974.)

TABLE 2

ORANGE JUICE: Sample Condition	PROPORTIONS CHOOSING BRANDS BASED ON SAMPLING CONDITIONS		
	Chose Xb	Chose Wt	Total
No Sample	64%	36%	100%
Sampled	40%	60%	100%

Analysis of Covariance using initial beliefs in brand differences, strength of those initial beliefs, belief difference x belief strength and confidence in the factualness of Consumer Reports as covariates did not change the pattern of significance shown in Table One. None of these covariates was significantly associated with brand choice.

In the belief that absolute quality ratings of each of the brands were not meaningful in themselves, a variable was created to reflect the differences in relative quality ratings given to the brands by each person in the study. This was done by subtracting the quality rating given to Wt from the quality rating given to Xb. An ANOVA performed on this variable indicated that differences in relative quality ratings were not affected by the information and sampling treatments in the orange juice experiment. The inferred effect of price was, however, marginally significant ($p < .068$) as indicated in Table 3. The relative quality ratings apparently were the result of the price cue being utilized by the subjects to perceive quality differences where, objectively speaking, none existed. (In this ANOVA, we infer the price effect from the intercept; the ordinal axis is scaled to reflect differences in the quality ratings of the expensive and inexpensive "brands.") The same concomitant variables used to examine the choice process also yielded nothing of statistical significance in connection with the relative quality ratings of the two brands.

TABLE 3

ORANGE JUICE

ANOVA on the Difference in Quality Ratings Between Brands Using Unique Sums of Squares, Sampling and Information as Dummy Variables

Source of Variation	df	F	Signif.
Price (constant)	1	3.441	.068
Information (I)	1	< 1	ns
Sampling (S)	1	< 1	ns
S x I	1	< 1	ns
Residual	70		

In the potato chip experiment, ANOVA revealed no significant effects of sampling or information on brand choice or on differences in quality ratings. The price variable was, however, significant for quality ratings as indicated in Table 4. Once again, none of the concomitant variables were significant nor did they alter the results of ANOVA.

TABLE 4

POTATO CHIPS

ANOVA on the Difference in Quality Ratings Between Brands Using Unique Sums of Squares, Sampling and Information as Dummy Variables

Treatment	df	F	Signif.
Price (constant)	1	5.865	.018
Sample (S)	1	< 1	ns
Information (I)	1	.778	ns
Interaction			
S x I	1	< 1	ns
Residual	73		

Discussion

Sources of beliefs had negligible effects in both experiments. Unfortunately, responses to the questions on sources of beliefs were highly skewed, with a preponderance of people reporting personal experience as the basis for their beliefs and only a few reporting advertising or reliance on other knowledgeable people as the sources of their beliefs. Thus, we were unable to deal with the research hypotheses having to do with sources and strength of belief and choice. In retrospect, it seems plausible to suggest that the products chosen for this experiment may have contributed to this outcome. If orange juice and potato chips were regarded as relatively low involvement - low risk products, that alone could account for the large number of experimental subjects who said that personal experience was the source of their beliefs.

Nevertheless, this research was partially successful in clarifying the results of the previous research by Obermiller and Wheatley. As anticipated, sampling is more powerful than "limited" advertising in affecting preference. In the orange juice study at least, the effects of sampling resulted in choice differences; information effects were non-significant. However, neither of these treatment effects were significant in the potato chips study. Price, on the other hand, was significant in affecting quality ratings for both potato chips and orange juice. In assessing quality, adult consumers apparently still use price as a cue even when they believe that quality differences among brands in a product category are not large. This is a significant finding because it strongly suggests that the quality of a large proportion of the products available in the marketplace may be judged on the basis of price information, i.e., the price-quality relationship may not be restricted to the smaller number of product categories in which large differences among brands are believed to exist. As long as product differences are not negligible, e.g. salt, popcorn or sugar, prices seem to matter; they create a price-quality perceptual bias. Additional and different types of products should be tested to confirm this conjecture. On the other hand, consumers may not feel strongly enough about this difference in quality to make a price constrained choice of the more expensive brand. This is consistent with the earlier observation by Wheatley et. al. (1980) "a price-quality perceptual bias may not necessarily affect choice behavior."

These research results may also be product specific. The pattern of results is somewhat different between the two products. However, aside from product form, there is no obvious difference between the products that would cause dissimilar results and there is no obvious reason why product form should affect the way beliefs influence quality assessments and brand choice. It may be that there is a difference in the decision process used to choose among brands in these product classes, but this observation is merely speculative.

One of the interesting, though understandable, outcomes of this project is the lack of impact of the information treatment. The manipulation checks indicated the information treatments were perceived accurately and retained. Few, if any, students of the communication process would suggest supplying information to change beliefs, attitudes, or behaviors is a hopeless task. It is more likely that the effects of information require more than a single exposure to be reflected in the types of measurement used here. Counter arguments and negative thoughts about the message may also have played a role. In addition, as mentioned before, in this experiment most of the participants beliefs were found to be based on personal experience. Such beliefs are strongly held and difficult to change. They will limit what will be accepted and remembered about a message because a message recipient relies more heavily on his or her evaluative response to the content of a message than on the content of the message itself (Wright 1973).

The effects of sampling are equally intriguing. Only in the orange juice experiment was an impact found on choice behavior; no such finding was observed in the potato chips experiment. Here we see a marketer behavior (sampling) affecting sensory experience (taste) in turn affecting choice behavior by demonstrating that the samples were indistinguishable. This is similar to an effect reported by Steinberg and Yalch (1976), who found sampling had an effect on the purchase behavior of obese people. This suggests that sensations may beget behaviors in some circumstances. This is a notion which ought to be explored to define the conditions under which it holds true.

While we have inferred that quality difference ratings were attributable to price differences, it is possible that they were the result of demand characteristics inherent in the experiment. Most consumers like to feel that they can notice differences between brands of a product. Advertisers certainly do their best to encourage such sentiments. The two samples presented to the respondents were identified as being different brands having different prices. Thus, the shoppers were encouraged to believe that differences existed. Fully half the sample, however, was led to believe that the samples were identical. The emergence of an inferred price effect, in such circumstances, tends to lend credence to the interpretations we have given, and attenuates the alternative explanation of a demand artifact.

The failure to find effects based on the sources of beliefs probably is due, in part, to the lack of control over the belief sources in the research. The skewed responses, problems with recall, and confounding of multiple sources could be overcome if source of belief were manipulable. Although it was not the focus of the study, manipulation of sources has been tried with undergraduate students in a study by Obermiller and Wheatley (1985). That approach could be adapted for use with different populations. The Rokeach typology of beliefs is relatively untested in consumer research in spite of the fact that beliefs and belief change have been studied for years. The typology may represent an opportunity to develop greater understanding of the problems of changing or maintaining beliefs with a research design adapted to test it.

Another interesting step would be to determine what proportion of consumer products are in each of the three product categories discussed in this paper, i.e., product groups in which consumers believe that there are large, intermediate or very small differences among brands. It would also be worthwhile to learn what fraction of consumers believe strongly in these characterizations. This work would have obvious implications for the development of pricing strategies on the part of sellers.

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APPENDIX A - The Information Treatments

A study by Consumer Reports states:

Most Americans start their day with a glass of some sort of juice. By far, the most popular juice consumed is orange juice. Orange juice basically contributes vitamin C and sugar to the diet. The sugar in orange juice - a combination of sucrose, fructose, and glucose - contributes most of the 70 or so calories per glass. Orange juice is available in several forms - freshly squeezed, frozen, refrigerated, and canned. More recent variations are the imitation juices made from powder which is mixed with water. All forms are available in local supermarkets. (Orange Juice - Irrelevant)

A study by Consumer Reports states:

Orange juice basically contributes vitamin C and sugar to the diet. Different kinds of orange juice don't differ significantly in vitamin C or in calories. The big difference is in what processing does to the flavor. Frozen orange juice is the least processed of the supermarket juices. It's basically fresh juice with most of the water removed. If the juice isn't defrosted and

refrozen, all frozen orange juices will taste pretty close to freshly squeezed juice after they are reconstituted. A scientifically conducted experiment with a large sample of frozen orange juice users found it was impossible to tell the brands apart in a blind taste test. (Orange Juice - relevant)

A study by Consumer Reports states:

The potato is an important staple in the American diet. On average, every American eats 123 pounds of potatoes a year - 58 pounds fresh and 65 pounds processed. Processed potatoes include frozen french fries, instant dehydrated potatoes, and potato chips. (Potato Chips - Irrelevant)

A study by Consumer Report states:

The content of all commercially available potato chips in this country is the same, except for flavorings such as barbecue, hickory smoke, or cheese, that may be added. Differences in color, fat content, moisture content, preservatives and salt were found to be very small. Since potato chips are all made with similar raw materials and utilize almost identical manufacturing processes, our researchers were not surprised to discover that a scientifically conducted experiment with a large sample of potato chip users revealed that it was impossible for consumers to tell any of the various brands of unflavored chips apart in a blind taste test. (Potato Chips - Relevant)

AN EXAMINATION OF CONSISTENCY IN COUPON USAGE BY HOUSEHOLDS
ACROSS PRODUCT CLASSES

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Abstract

This study examines whether households behave consistently in their level of coupon usage in different product classes. It also examines whether the degree of store loyalty is consistently high or low for these households. Several interesting empirical results are found. First, households are considerably more consistent in their purchasing than would be expected by chance. Second, there exists a significant segment of households with above average coupon usage for most product classes and low store loyalty for most products. The managerial implications of these findings are discussed.

Introduction

In recent years, a number of studies have been conducted on the growing use of coupons, the profitability of coupon promotions and the level of coupon redemption rates. While these studies have addressed a number of important couponing issues, it appears that no studies have examined whether households are consistent in their level of coupon usage across different product classes. For example, if a household uses coupons to an above average extent in one product class, does it also use coupons to an above average extent for its purchases in other product classes? If it does, it can be considered a "consistently" heavy user of coupons.

When examining coupon usage across product classes, it appears desirable to consider the extent of store loyalty as well. A household that is consistently store loyal and a heavy coupon user is likely to be responsive to manufacturers' coupons for products that are not available in its favorite store, and much less responsive to store coupons offered by other stores. On the other hand, a household that follows a store-switching strategy for most product classes and is a heavy user of coupons is likely to respond favorably to both manufacturer and store coupons.

This study therefore examines consistency across product classes in terms of both coupon usage and store loyalty. The major questions addressed here are:

1. To what extent are households consistent in their use of coupons across product classes? (i.e. to what extent do they consistently use an above average percent of coupons in all classes or to what extent do they consistently use a below average percent of coupons across product classes?)
2. To what extent are households consistent in their store loyalty across product classes? (i.e. if they are store loyal for one class, are they also loyal for other classes?)
3. What is the relationship, if any, between a household's degree of consistency in coupon usage and its degree of consistency in store loyalty?

Prior Research On Consistency In Purchasing Behavior
Across Product Classes

While no previous studies have examined the consistency of

coupon usage across products, a number of authors have examined the general question of whether households utilize similar buying strategies across product classes.

Cunningham (1956) studied households' loyalty to their favorite brand (measured as the share of purchases devoted to the favorite brand) in seven product classes. He computed pairwise rank correlation coefficients for each of the 21 possible pairs and found only 2 of the pairs to be significant. He concluded that "...loyalty proneness (across product classes) does not exist to a significant degree." This conclusion was later echoed by Massy, Frank and Lodahl (1968) who conducted a similar analysis using purchase data for beer, coffee and tea.

A third analysis covering 38 product classes was conducted by Wind and Frank (1969). The two variables they observed were brand loyalty (measured as the market share of the favorite brand) and private brand proneness (market share of private label purchases). As in earlier studies, they correlated each measure between all possible pairs of product classes and concluded that "on the average, only an extremely small percentage of the variation from household to household in loyalty to brands in one product class is associated with variation in brand loyalty in another class."

A more recent study of buying consistency across product classes was conducted by Blattberg, Peacock and Sen (1976). In their analysis, heavy buyers were classified into one of sixteen "purchase strategy" categories such as "Loyal Buyers of National Brands" or "Deal Oriented Buyers of Private Label Brands." They then measured the extent to which buyers utilized the same buying strategy across 2 pairs of product classes.

They found that 35% of the households (n=108) used the same buying strategy for aluminum foil and waxed paper, while the corresponding figure for liquid detergent and facial tissue was 13% (n=235). They also examined the extent to which buyers used similar but not identical buying strategies for the two pairs of products. In general, the authors found greater consistency in buying strategies than the earlier studies. However, the level of consistent behavior across product classes was still not high.

The purpose of the current analysis is to extend prior research in several ways. First, the study focuses on a new variable, namely the consistency of a household's coupon usage across product classes. Second, this study simultaneously analyzes consistency across four different product classes. While prior studies considered data from several product classes, the analyses were based on comparing only two product classes at a time. Finally, statistical tests are used to test the hypothesis that usage of coupons or degree of store loyalty is decided independently for each of the four product classes. "Independence" in this study refers to statistical independence; that is, if the joint probability of observing similar behavior (such as above average coupon usage) in different product classes is statistically no different from the product of the unconditional probabilities of observing such behavior in each of these product classes, the behavior is considered independent across the classes.

Hypotheses

It is assumed that households gain utility when they use coupons in any product class, in the form of savings re-

sulting from the lower prices paid. However, there are certain costs associated with coupon usage as well. These consist of (a) a fixed cost, which must be incurred if one wishes to use any coupons at all, and which includes the opportunity cost of scanning newspapers or direct mail, reading coupon inserts, and organizing the coupons for future use, and (b) variable costs for each coupon used, arising from the opportunity cost of cutting, sorting, and redeeming individual coupons.

Thus an individual household's coupon usage is assumed to be a function of the savings obtained relative to the costs associated with coupon usage. The notion of a "fixed cost" of coupon usage suggests, moreover, that if a household uses coupons at all, it is in the household's interest to use coupons in many product classes in order that the total benefits from coupon usage exceed the fixed cost. Thus if the household is able to redeem enough coupons such that the total savings exceed the total costs of coupon usage, it will tend to be a relatively "heavy" user of coupons for most product classes. However, if the total savings are always less than the total costs, it will tend to be a light or non-user of coupons for most product classes.

In either case, the level of coupon usage by individual households is likely to be highly correlated across product classes—that is, they will be relatively consistent in their use of coupons across classes, rather than deciding on their coupon usage independently for each product class. This reasoning leads to the following hypothesis on coupon usage:

H1: More households will consistently make an above (or below) average share of their purchases with a coupon in several product classes than would be expected if coupon usage was decided independently for each product class.

For store loyalty too, one would expect to find consistently high (or low) levels across product classes. Here it is assumed that if a household buys in several different stores for one product class, it can then buy in several stores for most product classes at little or no additional cost. This leads to the following hypothesis:

H2: More households will consistently shop in different stores (exhibit low store loyalty) or primarily in one store (exhibit high store loyalty) in several product classes than would be expected if store loyalty was independent from one product class to another.

The Data

The panel data used to test the hypotheses were obtained by NPD Research. The panel consisted of over 4,000 households. The data analyzed cover four product classes: ready-to-eat cereal, facial tissue, shampoo, and deodorants and anti-perspirants. The period analyzed covers the 12 months of 1975.

In order to provide an adequate basis for classifying households, the analysis was based on all households who made at least five purchases in each of the four product classes. This yielded a sample of 385 households.

A brief summary of the data is presented in Table 1. The first row of the table shows the average number of purchases in each of the four product classes. It ranges from 10 for shampoo and deodorants to 46 for cereal. Row two shows the average percent of volume purchased with a coupon (e.g. on average 9.8% of all facial tissue purchases for this sample were made with either a manufacturer or store coupon). Row three shows the percent of households whose fraction of volume was above the average for all households. The corresponding figures for store loyalty are shown in rows four and five.

TABLE 1

SUMMARY STATISTICS ON COUPON USAGE AND STORE LOYALTY BY PRODUCT CLASS^a

	Product Class			
	Cereal	Facial Tissue	Deodorant	Shampoo
1. Average Number of Purchases per Household in one year	46	17	10	10
2. Average Proportion of Volume Purchased with a Coupon	12.2%	9.8%	9.5%	8.1%
3. Percent of Households whose fraction of Volume with a coupon was above the average	36%	33%	29%	28%
4. Average Proportion of Purchases Made at Favorite Store for this Product Class	76.1%	68.9%	62.3%	60.3%
5. Percent of Households whose fraction of Transactions at their favorite store was above the average	54%	49%	45%	41%

^a Based on 385 families who made 5 or more purchases in each product class during a twelve month period.

Method Of Analysis

As a household purchases each product class over an extended period, such as a year, the household makes some percent of its purchases with a coupon. Let $PC_{i,c}$ denote household i 's percent of purchase volume that is made with a coupon in product class c . The percent of volume purchased with a coupon is used rather than the total volume of coupon purchases since households differ widely in their total volume of purchases in each product class, and a light user household might otherwise be classified as a light coupon user. The average of $PC_{i,c}$ over all households is denoted by APC_c . If $PC_{i,c}$ exceeds APC_c the household is considered to be a "heavy" user of coupons for this product class¹.

Similarly, let $PS_{i,c}$ denote household i 's percent of purchases for product class c that are made in household i 's favorite store for this product class. This is a measure of store loyalty for product class c . The "favorite" store is defined as the one in which the household shops most frequently for that product class. The average of $PS_{i,c}$ over all households is denoted by APS_c . If $PS_{i,c}$ exceeds APS_c the household is considered to be relatively store loyal for product class c .

Households are considered to be relatively consistent in their coupon usage behavior across product classes to the extent that they are consistently above or below the average for each of the 4 product classes. Similarly, they are considered consistent in their store loyalty across classes to the extent that their store loyalty is uniformly higher or lower than the average for each class. Thus "consistency" in purchase behavior is used here in the sense of systematic repetition in behavior across product classes. Table 2 contains hypothetical values of $PC_{i,c}$ and $PS_{i,c}$ for four households in each of four product classes. This illustrates how households might vary in their coupon usage and store loyalty across

¹ While it was possible to split the sample into more than two groups, for instance into "heavy," "medium" and "light" coupon users, this would reduce the sample size in each of the groups and thus might invalidate the statistical procedures used subsequently.

product classes. For household 1, $PC_{i,c}$ is above the average (APC_c) for all classes. That is, the percent of volume purchased with a coupon for this household is consistently greater than the average percent of volume purchased with a coupon for each of the four classes. This household is also above average in store loyalty for all four product classes. Thus household 1 is considered to be highly consistent both in terms of its coupon usage and store loyalty. Household 2, on the other hand, is consistently store loyal across classes but is not consistent in its coupon usage; it exhibits lower than average coupon usage for 2 of 4 classes.

TABLE 2

EXAMPLES OF POSSIBLE PURCHASING PATTERNS FOR ONE YEAR

Household Number	Percent of Volume Purchased With A coupon in Product Class:				Percent of Purchases Made at Favorite Store in Product Class:				Consistent Behavior With Respect to	
	A	B	C	D	A	B	C	D	Coupons	Store Loyalty
1	20%	18%	20%	12%	74%	72%	85%	70%	Yes	Yes
2	10	12	10	9	70	68	75	50	No	Yes
3	10	2	4	4	74	68	83	57	Yes	No
4	20	8	14	7	70	72	77	63	No	No
Average Over Households	15%	10%	12%	8%	72%	70%	80%	60%		

Let $DC_{i,c}$ and $DS_{i,c}$ denote dummy variables which represent above average coupon usage and store loyalty, respectively, in household i 's purchases of product class c . That is,

$DC_{i,c} = 1$ if $PC_{i,c} > APC_c$ and $= 0$ otherwise.

$DS_{i,c} = 1$ if $PS_{i,c} > APS_c$ and $= 0$ otherwise.

While some information is lost by using dummy variables rather than the original percentages, this procedure allows us to use certain statistical tests (such as the chi-square test) which would not be possible otherwise, and captures the phenomena of interest—households' coupon usage and store loyalty relative to the average for the product class.

Let $n(CU)_i$ and $n(SL)_i$ be the sums, respectively, of $DC_{i,c}$ and $DS_{i,c}$ across the product classes:

$$n(CU)_i = \sum_c DC_{i,c}$$

and

$$n(SL)_i = \sum_c DS_{i,c}$$

The variables $n(CU)_i$ and $n(SL)_i$ are measures of consistency in coupon usage and store loyalty across product classes. Note that consistency is greater to the extent that $n(CU)_i$ and $n(SL)_i$ take on extreme values. Thus, for $c=1, \dots, 4$, $n(CU)_i$ varies from 0 to 4, with high consistency in coupon usage indicated by values of either 0 (the household is consistently below average in its coupon usage across product classes) or 4 (above average in coupon usage for all classes). Similarly, $n(SL)_i$ equals 4 if a household is consistently store loyal and equals 0 if the household is consistently below average in loyalty.

The values for $n(CU)_i$ and $n(SL)_i$ for the four families in Table 2 are shown in Table 3.

TABLE 3

CHARACTERIZING HOUSEHOLDS' CONSISTENCY ACROSS PRODUCT CLASSES (BASED ON DATA SHOWN IN TABLE 2)^a

Household Number	Variable $DC_{i,c}$ for Product Class:				Variable $DS_{i,c}$ for Product Class:			Consistency Vector	
	A	B	C	D	A	B	C	$n(CU)_i$	$n(SL)_i$
1	1	1	1	1	1	1	1	4	4
2	0	1	0	1	0	0	0	2	0
3	0	0	0	0	1	0	1	0	2
4	1	0	1	0	0	1	0	2	2

^a $DC_{i,c} = 1$ indicates above average coupon usage. $DS_{i,c} = 1$ indicates above average store loyalty. $n(CU)_i$ and $n(SL)_i$ are the sums of $DC_{i,c}$ and $DS_{i,c}$ across classes.

Each household can thus be characterized by the vector $[n(CU)_i, n(SL)_i]$. For the 4-product-class case, each of the 2 elements in the vector can have 5 values. The 25 possible outcomes can be represented as cells in a 5x5 matrix as shown in Table 4. In this matrix, the corner cells $[0,0]$, $[0,4]$, $[4,0]$ and $[4,4]$ represent highly consistent behavior; households which fall into these cells are consistently below or above average in both their coupon usage and store loyalty. On the other hand, households which fall into cells along the borders of the matrix (where either $n(CU)_i=0$ or 4 and $0 < n(SL)_i < 4$, or $n(SL)_i=0$ or 4 and $0 < n(CU)_i < 4$) are consistent on one variable but not the other. Finally, households which fall into the interior cells (where $0 < n(CU)_i, n(SL)_i < 4$) have little or no detectable consistency across product classes.

TABLE 4

JOINT DISTRIBUTION OF 385 HOUSEHOLDS BY CONSISTENCY OF COUPON USAGE AND CONSISTENCY OF STORE LOYALTY ACROSS FOUR PRODUCT CLASSES^a

Number of Product Categories With Above Average Store Loyalty $[n(SL)_i]$

Number of Product Categories With Above Average Coupon Usage $[n(CU)_i]$	Number of Product Categories With Above Average Store Loyalty $[n(SL)_i]$				
	0	1	2	3	4
0	22 (4.7)	36 (20.0)	27 (31.6)	35 (21.9)	36 (5.6)
1	15 (11.0)	12 (62.2)	18 (59.1)	14 (35.8)	10 (7.9)
2	18 (9.6)	21 (32.7)	23 (40.4)	12 (21.4)	15 (4.1)
3	11 (3.7)	12 (11.0)	10 (11.9)	8 (5.5)	3 (0.9)
4	13 (0.5)	6 (1.4)	4 (1.3)	4 (0.5)	0 (0.1)

^a Numbers in parentheses are the expected frequency under the hypothesis of independence across product classes.

Each of the households in the sample was assigned to one of the cells in the matrix on the basis of its observed $n(CU)_i$ and $n(SL)_i$ values. The resulting distribution of households across cells is shown in Table 4, along with the expected frequencies for the cells under the assumption of independence in purchase behavior across product classes.

The expected frequency for each cell was computed by considering all the possible combinations of $DC_{i,c}$ and $DS_{i,c}$ that would result in that particular $[n(CU)_i, n(SL)_i]$ vector, computing the joint probability of each such combination as the product of the observed proportions for each product class, and multiplying the sum of these joint probabilities by the total sample size.

For example, the only possible combination that can result in the cell [0,0] is $DC_{i,c}=0$ and $DS_{i,c}=0$ for all c . Thus the expected frequency for that cell, denoted $E_{0,0}$, is computed as:

$$E_{0,0} = N \cdot \text{prob}[\text{observing } DC_{i,c}=DS_{i,c}=0 \text{ for } c=1,\dots,4] \\ = N \cdot P_{1,00} \cdot P_{2,00} \cdot P_{2,00} \cdot P_{3,00} \cdot P_{4,00}$$

where N = the total number of households in the sample, and

$P_{c,rs}$ = the overall proportion of households with $DC_{i,c}=r$ and $DS_{i,c}=s$, where $c=1,\dots,4$, $r=0,1$ and $s=0,1$.

Similarly, there are four combinations of $DC_{i,c}$ and $DS_{i,c}$ values that can result in the cell [0,1] since there are four product classes and $DS_{i,c}$ can equal 1 for each of them in turn. The probability of each combination is computed from the appropriate $P_{c,rs}$ values and summed to yield the probability for the cell [0,1]. Probabilities for the other cells in the matrix are computed using the same procedure.

Note that we are treating $p_{c,rs}$ as the "guessing" distribution for households across c , r and s . That is, if a household is drawn at random from the sample, the probability that it will have $DC_{i,c}=r$ and $DS_{i,c}=s$ for a given product class c is $P_{c,rs}$. By computing the joint probability of observing a specific combination of $DC_{i,c}$ and $DS_{i,c}$ values for each class as the product of the $P_{c,rs}$ values, we are making the assumption that the "guessing" distributions are independent across classes. Thus if the distributions are not in fact independent, the theoretical probabilities computed in this manner will differ from the proportions observed in the data.

Results

As Table 4 shows, the observed frequency of households in the cells along the borders of the matrix (i.e. where $n(CU)_i=0$ or 4, and/or $n(SL)_i=0$ or 4) is much higher than the expected frequency. This suggests that households are more consistent in their coupon usage and store loyalty across product classes than would be expected by chance. In other words, for the households in this sample, information about the extent of coupon usage and store loyalty for one product class can be a useful predictor of these variables for the other product classes.

We first consider the presence of consistency in coupon usage alone. Table 5 shows the observed and expected frequencies of households for different values of $n(CU)_i$ (these are simply the row totals from Table 4). A chi-square test revealed that the two were significantly different at the .001 level, thereby rejecting the null hypothesis that coupon usage was independent across product classes. As can be seen, the actual frequency was much higher than expected for extreme values of $n(CU)_i$. For $n(CU)_i=0$, the observed frequency was nearly twice that expected (41% of the sample versus 22%), while for $n(CU)_i=4$, the observed was nearly seven times as large (7% versus 1%). Thus 48% of the households in the sample were consistently above or below average in their coupon usage for all 4 classes.

A similar pattern was observed for store loyalty. Table 6 shows the distribution of households for different values of $n(SL)_i$, along with the expected distribution if store loyalty was independent across classes (these are the column totals from Table 4.) Again, the chi-square test rejected the hypothesis of independence at the .001 level. Of the 385 households in the sample, 21% were below average in store loyalty for all 4 classes (compared to an expected value of 8%), while 17% were consistently above average in store loyalty for all 4 classes (compared to 5% expected). Taking the two together, 37% of the households were consistent in their degree of store loyalty across product classes.

TABLE 5
FREQUENCY OF HOUSEHOLDS WHO MADE AN ABOVE AVERAGE PERCENT OF THEIR PURCHASES WITH A COUPON IN n PRODUCT CLASSES

n	Observed Frequency	Expected Frequency ^a	Percent of sample (observed)	Percent of sample (expected) ^a
0	156	84	40.5%	21.8%
1	69	156	17.9	40.5
2	89	108	23.1	28.1
3	44	33	11.5	8.6
4	27	4	7.0	1.0
	385	385	100.0%	100.0%

$$x^2(4 \text{ d.f.})=249.5$$

^a assuming independence in coupon usage across product classes.

TABLE 6
NUMBER OF HOUSEHOLDS WHOSE DEGREE OF STORE LOYALTY WAS ABOVE AVERAGE FOR n PRODUCT CLASSES

n	Observed Frequency	Expected Frequency ^a	Percent of sample (observed)	Percent of sample (expected) ^a
0	79	30	20.5%	7.7%
1	87	107	22.6	27.9
2	82	144	21.3	37.5
3	73	85	19.0	22.1
4	64	19	16.6	4.8
	385	385	100.0%	100.0%

$$x^2(4 \text{ d.f.})=218.7$$

^a assuming independence in store loyalty across product classes.

Finally, in order to examine the interaction between consistency in coupon usage and in store loyalty, we considered the frequency of households that were either below or above average in coupon usage for 3 or more classes ($n(CU)_i=0,1,3,4$), and below or above average in store loyalty for 3 or more classes ($n(SL)_i=0,1,3,4$).² These households, therefore, were those that exhibited moderate to high consistency in both coupon usage and store loyalty. Table 7 shows the frequency of households under this classification scheme.

Of the households that were below average in store loyalty, nearly a third were above average in coupon usage (Cell C in Table 7). At the same time, among those households that were above average in store loyalty, less than a sixth were above average in coupon usage as well (Cell D). These results suggest the presence of a strong interaction effect between coupon usage and store loyalty for households that are relatively consistent in their purchase behavior across classes. Those who are consistently below average in store loyalty are more likely to be above average in coupon usage than those who are consistently store loyal, and

²The cells were defined in this manner to ensure that the sample size in each was large enough to permit the use of the chi-square test.

TABLE 7

DISTRIBUTION OF HOUSEHOLDS ABOVE OR BELOW AVERAGE IN COUPON USAGE AND STORE LOYALTY FOR 3 OR MORE PRODUCT CLASSES

		Store Loyalty ^a		Row Total
		Below Average in 3 or more classes	Above Average in 3 or more classes	
Coupon Usage ^a	Below Average in 3 or more classes	(A) 85 (22%)	(B) 95 (25%)	180
	Above Average in 3 or more classes	(C) 42 (11%)	(D) 15 (4%)	57
Column Total		127	110	

$$\chi^2 (1 \text{ d.f.}) = 11.3$$

^a numbers in parentheses are percentages of total sample of 385 households.

vice-versa. A chi-square test of independence showed the interaction to be significant at the .001 level.

Two cells in Table 7 are of particular interest. The households in Cell C are consistently heavy users of coupons and exhibit low store loyalty for most product classes. This group, which might be described as "activist shoppers", constituted 11% of the entire sample. The household in Cell B are quite the opposite. These households (25% of the sample) are consistently store loyal and consistently below average in coupon usage. They might be labeled "inert" shoppers.

The above analyses were repeated for households that made 2 or more purchases over the 12-month period. Similar results were obtained for this larger sample of 1247 households.

Conclusions

The major finding is that more households are consistent in their usage of coupons and their degree of store loyalty across product classes than would be expected by chance. The finding concerning consistency in coupon usage is an important one, both from a theoretical and a managerial perspective, since it indicates that knowledge about households' purchase behavior in one product class can be a useful predictor of behavior in other classes. Thus managers may be able to predict the effectiveness of coupon promotions in a given product class based on information about coupon redemptions in other product classes in the past.

The fact that households tend to be relatively consistent in their store loyalty also has important implications for retailers. In particular, it indicates that if consumers can be induced to shop in one store for a given product class (for example, by providing a large selection of brands and frequent "specials" for that product class), they will tend to make their purchases of other product classes in that store as well, thus increasing total revenues for that retailer.

One can also identify an "activist" segment consisting of households that are both high in coupon usage and low in store loyalty (see Cell C in Table 7). From a managerial standpoint this is an important segment to study since their response elasticity to coupons and other promotions is probably the highest. Future research may be able to profile this segment in terms of its demographic descriptors and media habits, which would allow managers to target their promotional activities more efficiently. Another possibility is to determine if this group would

still redeem coupons even if they were for lower face values or were harder to collect.

There is also a larger than expected segment of households that is above average in store loyalty and below average in coupon redemption (Cell B, Table 7). If one is to promote to this "inert" segment, one might consider alternatives to coupons, such as free samples. Alternatively, one might decide that it is not profitable to promote to this group at all.

Yet another possibility is to focus on households that consistently use an above average level of coupons for several product classes (see Table 5). These households are likely to be more responsive to multiple brand coupons (coupons which are redeemable only if two or more brands are purchased). Again, demographics and media habits could be studied for this group and used to reach it more efficiently.

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HOLISTIC CONJOINT

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Abstract

Considerable research has focused on the role of product attributes in consumer preferences. Many approaches present the subjects with a set of attributes on which to rate available choices. This study contends that such a presentation heightens the salience of the attributes. An alternative procedure is presented where the subject is given a set of choices, but the underlying attributes under investigation are not made explicit. The nonstated attributes are orthogonally arrayed which allows for simple estimation of their partworths.

Introduction

A critical issue in marketing is the determination of the importance of characteristics to consumers in their evaluation of choice alternatives. From such information, product and advertising decisions can be directed towards improving consumer's judgments of the products being offered by a firm. The task facing researchers in this field has been the measurement of the consumer importances associated with the product attributes. In this paper we present an alternative method for measuring product attribute importances without distorting the salience of the attributes through the data collection instrument.

Literature Review

Multi-Attribute Attitude Models

Throughout the late sixties and early seventies the marketing literature was filled with studies which focused on the evaluation of choices along a set of product attributes, and the assessment of their importance in forming an overall attitude or preference toward the choices. The origin of such work is often associated with Fishbein (1967) and Rosenberg (1956). Such efforts, founded in psychology, quickly evolved in the marketing literature, and were well reviewed by Wilkie and Pessemier (1973).

The underlying theory in this literature was that a consumer had an attitude toward an object which was based upon the object's intrinsic characteristics. The issue was then one of identifying the characteristics, evaluating the choices on these characteristics, weighting the characteristics, and then aggregating them (usually through some linear additive model) into an overall attitude or preference towards the object. The measurement task usually entailed the tedious respondent evaluation of each of the objects across each of the characteristics.

Aside from possible consumer fatigue, several possible problems arose (Wilkie and Pessemier, 1973). First was the identification of the correct set of underlying characteristics which led to overall choice. It was generally believed that this was best accomplished through management judgment and a pretest of consumers where the attributes were elicited. This presumed that the managers or the consumers would be aware of which characteristics were critical in leading to choice. Any unconscious attributes that were part of the evaluation would be overlooked by the method.

A second problem was termed "halo effects" (Wilkie, McCann and Reibstein, 1973; Beckwith and Lehmann, 1975). "Halo effects" refer to the respondents mapping their

preferences back onto the attribute evaluations, thereby rating each of the favored choices highly on each of the attributes, and the disfavored choices poorly on each of the attributes, beyond their true levels. This implied that it was the affect which drove the beliefs and not the reverse. Such response made the importance weights associated with the attributes difficult to assess.

The initial process for evaluating the attribute importances was through a direct evaluation of the attributes (Lehmann, 1969). This, too, was problematic because a) consumers may be incapable of evaluating the true importance of a characteristic in their overall evaluation, b) consumers may be unwilling to confess the true weights because they may feel their process was irrational, i.e., the use of color in their assessment, c) they may not remember what characteristics were instrumental in their initial evaluation, d) there may be socially desirable answers which could make their answer "look better", i.e., fuel efficiency in their evaluation of automobiles, or e) the attribute may be salient, although not determinant, because of minimal variance across the choice alternatives.

This difficulty led Bass and Wilkie (1977) to recommend deriving the importance weights via regression based on the preferences (the dependent measure) and the attribute beliefs (the independent measure).

Conjoint Measurement

An alternative approach, with the same underlying theory, evolved and gained in popularity throughout the mid to late seventies and into the eighties. This approach was conjoint measurement. Although not specifically designed for these purposes, conjoint measurement answered many of the problems in multi-attribute attitude models.

Again, the approach was to describe choices along a set of attributes and ask the respondent to rate, rank or choose between two choices based on these characteristics. (See Green and Srinivasan (1978) for a thorough review of conjoint measurement.) However, in conjoint, no consumer beliefs were measured, only the overall choice evaluation or preference. With a carefully balanced design of choice attributes, it was possible to assess the impact of each attribute on the ultimate evaluation using analysis of variance (either MONANOVA or ordinary least squares). The belief still remained that the overall evaluation was based on the underlying choice characteristics.

A major possible problem with this approach is the cueing of respondents created by the data collection approach. The respondents are explicitly told to evaluate the choices based on these characteristics. Generally, the products are nonidentified, or, more likely, hypothetical. Hence, the respondent can only evaluate the choices based on these characteristics. The respondent is usually told to ignore all other characteristics or to treat the choices as if they are equal on all nonstated attributes.

All that can be measured from a conjoint study is the relative importances of the attributes included in the exercise. It is unrealistic to expect to have included all of the relevant attributes. A method for measuring whether the relevant attributes have been included is to look at the individual model's fit or, if OLS is used, R^2 . A low degree of fit would indicate either that the respondent is inconsistent or that the model is

misspecified, i.e., some relevant attributes have been excluded. The inconsistency may even be the result of the truly determinant attributes being excluded.

Alternatively, in many conjoint studies the model's fit may be quite high; unfortunately, this may be the result of heightening the salience of the attributes on which the choices are described. This heightened salience may distort the natural process of evaluation.

Holistic Evaluation

An alternative procedure, which we propose, is to present the choices to the subject, where the attributes are orthogonally arrayed, but the attributes are not directly explicated to the subject. The subject makes evaluative judgments about the choices from which the attribute importances or partworths can be described.

Holistic judgments are not new. One of the distinguishing characteristics about multidimensional scaling (MDS) techniques is that they are based on holistic or gestalt evaluations, from which the underlying dimensions can be derived.

Unlike MDS where the relevant dimensions are not known by the researcher until after the data are collected, in our approach the attributes will be known by the researcher, but not the subject. This is very similar to the economic technique of hedonic regression, or to psychophysical research. There are also several examples in the marketing literature.

Huber (1975) gave subjects iced tea to drink, compare, and evaluate. Presented in a full factorial design, the various iced teas differed in amounts of tea and sugar. Based on subject judgments, he was able to determine the ideal levels of sugar and tea and their importance in forming preference. Holbrook (1981) analyzed both perceptions and affect, in an integrative model of evaluative judgments, for presentation of a piece of classical music. Each presentation differed in tempo, rhythm, dynamics, and phrasing. Buchanan and Morrison (1984) have analyzed holistic judgments where subjects make judgments in blind taste tests, either in pairs or triplets, and select either which choice is preferred or different. From this they can test on individual's ability to discriminate, although they do not relate the judgments to the underlying attributes.

The Study

In many cases it is difficult, sometimes even impossible, to ask subjects to evaluate choices without describing the choices along some set of attributes. This is particularly true when one is dealing with hypothetical products which could neither be shown or even described by brand name. In such cases, the only alternative may be to use a conjoint design. However, in other cases, it is possible to present the choices either physically, visually, or verbally without making it explicit which attributes are under investigation.

We selected food products which could be presented to consumers without making the basic ingredients explicit. In particular, we were interested in the role of basic nutrients in food choice and preference formation. In this case, the respondents would have a low level of awareness of different nutrients, might not know how the nutrients influence their food preference, or, if aware, would know what is socially designated as appropriate behavior. There has been a considerable amount of publicity on "eating right." All of these conditions would make it extremely difficult for a respondent to assess the importance of various food nutrients or to rank/rate their choice of foods described on a set of nutrients.

Hence, the subjects were given pairs of meals from which they would have to select their preferred meal. The meals were described in terms of the foods, not their

underlying nutritional content.

Each respondent had to rate sixteen pairs of meals (32 meals in total). The pairs were constructed, with the help of a nutritionist, to represent an orthogonal array of six basic nutrients — protein, carbohydrates, fiber, fat, sodium, and cholesterol.

Respondents were handed a deck of sixteen cards, each containing one pair of meals. They were first asked to go through the deck, one card at a time, and to indicate which of the two meals they would personally prefer to eat on an individual taste basis. They then were asked to repeat the task with respect to which meal they would be most likely to eat at home, considering cost, time, etc. They repeated the task a third time, but this time they were to choose the meal that they thought was the most healthful. The three measures were intended to indicate preference, behavioral intentions, and nutritional perception or knowledge.

The study was conducted with a national probability sample of 700 consumers — participating in an on-going research project funded by the United States Department of Agriculture in a grant to the Marketing Science Institute (Schmalensee, et al., 1982). Subjects were selected as the "primary food purchaser and preparer in the home" and were 93% female. Each subject was interviewed in the home and also completed a lengthy leave-behind questionnaire.

Results

Individual regression analyses were performed for each of the three dependent measures. Unlike a conjoint study or the Huber (1975) study, it was not necessary to dummy-variable code the individual factors, since they were on a continuous scale. Each observation was choice "A" meals, coded either a zero (if rejected) or a one (if selected), and the independent variables were the actual differences (grams, milligrams) between the meal pairs on each of the six nutrients. The "B" choices were excluded since they would simply provide redundant (mirrored images) information.

The choices for "prefer" and "prepare" were most similar, with a Pearson correlation coefficient of .70, while "nutritious" and "prefer" were least correlated with a correlation coefficient of .47.

As an example of the results, one individual's regressions are shown in Table 1, in this case, we may assume she "prefers" meals with higher fat content, with none of the other partworths being significant at the $P < .10$ level. However, when asked which meal she is actually likely to prepare at home for her family, a different selection pattern begins to emerge. It appears this person is more likely to "prepare" meals higher in protein ($P < .01$) and sodium ($p < .01$) and lower in carbohydrates ($P < .01$), fiber ($p < .05$) and cholesterol ($p < .10$). Her assessment of what she considers most nutritious is quite different. It should be noted that for this individual the R^2 is significant for both the "prepare" and "nutritious" models.

Given that the respondents are not cued as to the underlying attributes, it would be expected that for many individuals the models would not be significant. This is different than what one generally finds for traditional conjoint models, where the subjects are specifically directed to make choices based on the dimensions of the models. The average R^2 for the three models across the population was .41 for preference, .42 for "prepare" or behavioral intention, and .46 for "nutritious," with the variance of the R^2 's equal to .17 for each model.

The average coefficients (partworths) for each of the three models are shown in Table 2. The mean values and the standard deviations across the population are shown in the first two columns. The next column is the

percentage of individuals that had the coefficient significant ($P < .10$).

TABLE 2
SUMMARY STATISTICS ON THE
DIRECTION AND STRENGTH OF B's
(n=700)

TABLE 1
SIGN AND SIGNIFICANCE LEVELS
FROM INDIVIDUAL REGRESSIONS
SUBJECT 1

	$P <$	Prefer	Prepare	Nutritious
PROT		+ .20	+ .01	+ .05
CARBO		- .20	- .01	- .10
FIBER		+ .30	- .05	+ .01
FAT		+ .05	- .40	- .01
SODIUM		+ .30	+ .01	- .01
CHOLESTEROL		+ .30	- .10	+ .50
		R^2	$p <$	
Prefer		.22	.40	
Prepare		.61	.00	
Nutrition		.66	.00	

Independent Variables	Mean B	Standard Deviation	% Respondents Significant ($p < .10$)
<u>Preference</u>			
Protein	.12	.33	10.4
Sodium	-.06	.33	9.3
Fat	-.06	.32	11.6
Cholesterol	.10	.30	12.7
Fiber	.02	.27	9.1
Carbohydrate	-.05	.25	7.3
<u>Preparation</u>			
Protein	.13	.34	8.9
Sodium	-.06	.33	9.7
Fat	-.10	.31	10.6
Cholesterol	.09	.32	12.7
Fiber	.01	.27	10.3
Carbohydrate	-.06	.25	10.3
<u>Nutritious</u>			
Protein	.16	.33	11.1
Sodium	-.11	.32	11.1
Fat	-.20	.30	10.3
Cholesterol	.11	.31	15.3
Fiber	.17	.26	11.7
Carbohydrate	-.09	.23	9.3

As can be seen, the percentage is relatively small for any one attribute. In fact, only 15.2% of the sample had two or more significant factors. This implies either that a) respondents base their evaluations on a particular nutrient, b) that the stimuli set (sixteen cards) was not large enough to detect underlying nutritional preferences without undue distortion by specific food likes and dislikes, or c) that there are a number of other factors which are not included in the model; that is, the respondents make their choices relying on a number of factors other than nutrients. This is totally realistic, and this approach does not force the evaluations to be based on the factors which are included.

It should be noted from Table 2 that the two attributes which are most commonly positive for the preference and behavioral intention models are protein and cholesterol, while fat, sodium and carbohydrate are negative. There apparently is some nutritional knowledge, as in the third model, the fiber dimension grows in importance. It would appear that consumers know fiber is good for them, they just don't like it nor intend to eat it. The results for cholesterol are also illuminating, as it appears to be a consistently positive predictor of all three dependent variables. This positive effect would be unlikely if consumers are specifically cued to cholesterol content. It would appear that consumers are either unable to detect high cholesterol foods or have natural tastes for such foods. This finding would be obscured in a traditional conjoint design.

In many cases it is essential that we identify which characteristics are important to consumers in their choice process. The question facing researchers is one of how to measure these importances. In some cases, it is difficult for respondents to indicate directly what is important to them. It may even be difficult for them to indicate not just the degree of importance, but even which attributes are used in their choice process. Describing choices along a set of dimensions may overly cue the respondents to give added weight to the selected dimensions.

We have presented a methodology which should ameliorate this problem. Rather than listing the attributes for product evaluation, the holistic choices themselves are presented. From these choices, the respondents make their selections. This provides the information from which the partworths can be derived.

In many cases the proposed approach would not be logical. When the product category has numerous potential/hypothetical products it would be impossible to present the subjects with the actual choices. Alternatively, a product category may contain far too few alternatives to allow the model to be specified. In many cases, however, the researcher is interested in the role of specific attributes which play a significant role, but may not be directly recognizable to the respondent. The example we chose was a nutritionist's concern about the role of basic nutrients — general characteristics unknown to the subject.

The potential with food products should be clear, but the opportunities are also apparent in other product categories. In the context of verbal v. pictorial presentation, Holbrook and Moore (1981) note that holistic evaluations may be appropriate if evaluative judgments depend on aesthetics, taste, symbolic meaning, or sensory experience. For example, fashion designers may be concerned about the influence of specific designs, fabrics colors, and patterns. Rather than describing alternative apparel which vary on these dimensions, thereby heightening their salience, specific pictorial or actual choices could be presented.

Future Direction

The next step in this research is to collect direct importance measures in a conjoint design which would

allow weights to be derived. These weights could then be compared with weights derived from a holistic conjoint. This would allow one to determine if the weights were different, but would not serve as a basis for determining which set of weights were true.

What clearly remains, for all procedures, is the need to determine the validity of the various alternative measures. Future research needs to collect behavioral data with real stimuli that can be compared with responses predicted by sets of conjoint weights.

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PROCESSING COMPLEXITY IN MAGNITUDE VERSUS CATEGORY SCALING

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Abstract

This study supplements previous research on measurement qualities of magnitude versus rating scales. Its primary purpose is to determine the complexity in cognitive processing between these two scaling methods on responding to advertisements and erotic pictures. Secondly, it is to ascertain the conceptualization of collative properties of stimuli (e. g. the complexity and novelty of an object) as a more cognitive judgment compared to affective responses. The results suggest that magnitude scaling allows for fewer cognitively controlled responses and the conceptualization of collative responses as a cognitive judgment which could be empirically supported.

Background

The effects of affective factors in consumer behavior are now gaining closer attention. A splendid overview about the importance of consumers' moods and emotions on their behavior is given in the 1984 ACR-Proceedings (Vol. XI, pp. 525-547). Let me summarize the main thoughts of the mood debate as far as the research conducted here is concerned. In emotion psychology at least two trends can be distinguished. On the one side, it is assumed that affect and cognition are under the control of separate and partially independent systems that may influence each other in a variety of ways (e.g. Zajonc 1980). This position is supported, at least partially, by research on hemispheric specialization of affective processes (Tucker 1981; Bryden and Ley 1983) and research on the biological determinants of human behavior, called "human ethology" (Eibl-Eibesfeldt 1980).

On the other side, it is argued that thought is a necessary condition of emotion (e. g. Lazarus 1982). This position is based on the concept of cognitive appraisal which means that the way one interprets one's own state at any given moment is a crucial determinant of the emotional response.

Since humans have the ability for autonomic discrimination without awareness, it is even reasonable to assume that perceptions can be global rather than built up sequentially of structural elements. Therefore, emotionally relevant meanings could be triggered by inputs, denotations of which had not been achieved completely.

However, the crucial question of this debate, whether the original affective reactions themselves - on which evaluative judgments are presumably based - must also contain cognitive components cannot be answered empirically given the current state of knowledge and research technology (Zajonc and Markus 1982, p. 124).

Of central interest for our further argumentation is the assumption, which may rely on both families of emotional theories, that emotional reactions, require a minimum of cognitive participation, at least on the self-report level (Lazarus, 1982). At the same time,

The author wishes to express his gratitude to Professor W. Kroeber-Riel and Professor Jerry Olson for ideas on the subject and helpful editorial comments.
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there is support that affective reactions are difficult to verbalize and rely much more on nonverbal channels (Zajonc 1980; Ekman and Friesen 1969).

If we consider these two extremes - i.e., affective and cognitive behavior - not as dichotomous types but as ends of a continuum, it is possible to distinguish between different self-report methods along this continuum.

Recently, the validity of an alternative direct scaling procedure, called magnitude scaling or "new" psychophysics has been shown for emotional stimuli (Neibecker 1984; see also Stevens 1975; Marks 1974). In this paper it will be argued along with others (Kroeber-Riel 1984; 1985) that magnitude scaling allows for responses which are less cognitively controlled because subjects can express the magnitude of their sensory experiences on nonverbal continua, such as the length of a line, the duration of pressing a button, the loudness of a tone, etc. These analogue and nonverbal response modalities are quite different from the conventional rating-scale/category task, where subjects are asked to express their impressions of sensation intensities by choosing among a limited number of categories labelled with such cues as agree/disagree.

A second point of interest relevant for this research is derived from environmental and emotional psychology. The dimension theorists in emotional psychology have conceptualized a small set of independent dimensions that best describe the differences in emotional behavior (Mehrabian and Russell 1974; overview by Ekman et al. 1982). The most widely accepted dimensions are pleasantness-unpleasantness and activation or arousal. In addition, Ward and Russell (1981) discuss the collative properties of stimuli. This construct is based on research of Berlyne (1974) and Mehrabian and Russell (1974) and more generally known as the "information rate-arousal hypothesis". Collative properties of stimulus patterns are structural or formal characteristics measured with items like familiar-novel, simple-complex, expected-surprising etc. Ward and Russell (1981) have conceptualized this collative construct as a cognitive judgment about the complexity and novelty of an object.

The usefulness of the collative dimension is supported by research on TV-commercials (e. g. Aaker and Bruzzone 1981). But this prior research in consumer behavior lacks a clear theoretical foundation and uses the novelty component only as an empirically derived construct. The psychological background given here helps to interpret the different sets of adjectives developed to measure consumers reactions to advertising.

Hypotheses

Based on these theoretical considerations, two hypotheses were formulated. One concerned the measurement qualities of magnitude scaling as a more nonreflective and spontaneous measurement tool compared to rating scales. The second concerned the collative properties of stimuli which postulates that this construct is accompanied by more cognitive processing than the affective dimensions pleasantness and activation.

It was hypothesized that:

- H₁: Nonverbal responses (e.g. magnitude scaling) allow for less cognitively controlled responses than verbal responses (e.g. rating scales) when measuring emotions.
- H₂: Judgments about collative properties require more extensive cognitive processing than do affective responses.

Method

The experimental data reported herein were supplied by an extensive laboratory experiment conducted at the Institute for Consumer and Behavioral Research, University of the Saarland, FRG. The study was performed on a random sample of 136 persons with a quota sampling of 50 per cent students, the remainder being adult men and women aged 25 to 54 (non-students). Four stimuli were chosen, including advertisements and erotic pictures. The ads were selected from current image ad campaigns of two leading German chemical enterprises. Pictures 1 and 4 were erotic pictures showing a woman with little clothing; picture 2 was an ad with a woman's and a man's hand touching in an affectionate manner with a small amount of copy below; picture 3 was an ad showing three children sitting in a small pasteboard house with copy below. Because of time limitations, subjects were divided into two groups, one consisting of 69 subjects evaluating pictures 1 and 2 using category and magnitude scales and the other made up of 67 subjects evaluating pictures 3 and 4 using category and magnitude scales.

To reduce the time needed to collect and process data and reduce method-dependent artifacts, magnitude scaling was integrated into a computer-controlled questionnaire facility. The interview was conducted via a computer-controlled system. Respondents sat directly in front of a cathode ray tube (CRT) terminal and answered questions by pressing keys on the terminal. For our experiment, the following modalities were implemented: visual length (line length), time duration with simultaneous presentation of a white noise, and brightness by a regulated lamp.

First, the subjects received a description on the CRT screen of how to use the apparatus. These instructions included a learning session on how to use the equipment for the magnitude task (about four minutes). Subjects were ascertained initially to make approximate proportional judgments. The first group made their judgments with rating scales and the magnitude modalities line length and brightness for pictures 1 and 2, the second group with rating scales and magnitude modalities line length and duration for pictures 3 and 4.

The rating scales were of the semantic differential type. The typical scale had the following form:

Picture x is
slightly dynamic(1) (2) (3) (4) (5) (6) (7)very dynamic

For magnitude scales, only a mnemonic statement was given. The typical statement for the modality line-length had the following form.

Picture x is
slightly dynamic very dynamic
(short line) (long line)

where the length of the line was under the control of the respondent.

The sequence of the pictures as well as of the items

and methods were rotated randomly by the computer and only one item was shown at a time. To produce a line, the subjects pressed a button on the CRT and the computer started to draw a line on the screen. For the modality duration, subjects pressed a separate button. In addition a white noise was presented. The brightness could be regulated by turning a knob (potentiometer) until the adequate lamp brightness was reached. At the beginning of a response, reaction time was measured unobtrusively (non-reactive) by the computer. This was the time starting with the appearance of the item on the screen until a response was given.

The questionnaire consisted of 10 emotion descriptive adjectives. Convergent and discriminant validity of the arousal measuring items were shown already elsewhere (Neibecker 1984). For this research, items were separated according to these results into three treatment factors: arousal, collative judgments and evaluation. The respective items were: dynamic, lively, tiring, lifeless (for arousal) / common, average (for collative properties) / beautiful, disgusting (for evaluation).

To operationalize the cognitive processes involved in responses the reaction time was measured. The faster responses are given, the fewer cognitive processes are assumed. This is a usual operationalization to determine the relative complexity in cognitive processing (e.g., Mandler and Shebo 1983; Paivio 1978).

Results

For a descriptive overview, the mean reaction times (or response latencies) are given in seconds (see Table 1). Furthermore, they are divided into three different judgment tasks (rating, line length, duration / brightness), three response types (evaluation, collative judgments, activation), and two picture categories (erotic pictures and advertisements).

TABLE 1
RESPONSE TIME IN SECONDS

	Rating	Line Length	Duration/Brightness	
EV	4.2	3.4	3.6	E
COL	4.8	4.0	3.8	r
ACT	4.2	3.8	3.6	o

EV	4.2	3.0	3.4	i
COL	5.4	4.3	4.0	c
ACT	4.7	3.6	3.8	A

EV	4.2	3.4	3.6	d
COL	4.8	4.0	3.8	
ACT	4.2	3.8	3.6	

EV=evaluation; COL=collative judgements; ACT=activation

As can be seen, reaction times for rating scales are longer than those for magnitude measures (in columns). Likewise, response times for collative judgments are longer than those for affective responses (evaluation and activation).

In a further step, two 2 x 3 x 3 analyses of variances were performed. The effects were stimulus x method x judgment task (or dimension). Stimulus was treated as between subjects factor and the others as within subject factors. The raw scores were rescaled according to MacLachlan (1977). By this rescaling procedure,

typical skewness is diminished from 1.30 to about 0.40 (highest skewness 1.17) and typical kurtosis is diminished from 1.70 to about -0.70 to 0.70.

$$ART_{ik} = \frac{\overline{RT}_i}{RT_{ik}}$$

(i = subject; k = item; \overline{RT}_i = mean reaction time of subject i; ART = adjusted reaction time; RT = reaction time)

Results are given in Table 2.

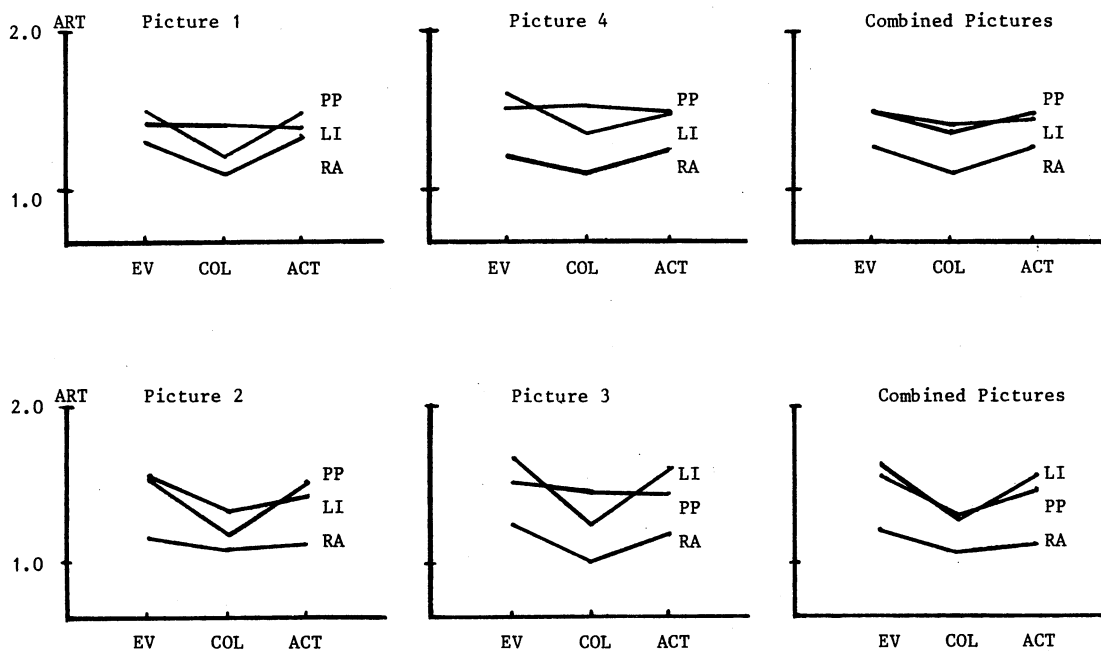
As can be seen, none of the stimulus factors (erotic pictures and advertisements) reached significance showing that no differences exist between the over-all reaction times of the two groups of subjects. In fact, the evaluated pictures in each group resembled each other strongly. The division into these groups was only necessary because of time limitations. Of central interest for our hypotheses are the factors method and judgment task (dimension). Each one of these factors is highly significant reflecting that affective responses are given faster than collative judgments, and non-verbal responses via magnitude scaling are given faster than those with rating scales. Up to now the three-way interactions are difficult to interpret. Figure 1 shows that this is due to the unsystematic deviation of one method in pictures 1, 3 and 4 from the over-all main effects. It reads as follows:

TABLE 2

ANOVA FOR EROTIC PICTURES AND ADVERTISEMENTS

Factor	df	F-Value	Significance
Erotic Pictures	1/130	3.21	0.075
Method	2/260	23.46	0.000
Dimension	2/260	14.67	0.000
Eroticism x Method	2/260	2.86	0.059
Eroticism x Dimension	2/260	1.043	0.354
Method x Dimension	4/520	0.924	0.450
3 x Interaction	4/520	6.077	0.000
Advertisements	1/130	0.343	0.559
Method	2/260	39.035	0.000
Dimension	2/260	39.282	0.000
Ad x Methode	2/260	0.235	0.791
Ad x Dimension	2/260	0.302	0.740
Method x Dimension	4/520	3.342	0.010
3 x Interaction	4/520	9.830	0.000

FIGURE 1
INTERACTIONS



ART=Adjusted Reaction Time; RA=Rating; LI=Line length; PP=Duration or Brightness

The upper left-hand side of Figure 1 represents the plot of the profiles for the Method x Dimension interactions for the two levels of the erotic pictures. On the upper right-hand side, the profiles of the over-all Method x Dimension means are given. These three profiles are parallel, indicating that the Method x Dimension interaction is not significant. Since some profiles for each level of the picture factor are not parallel to the respective profile of the combined picture data the three-way interaction is significant.

For the advertisements, profiles are given at the bottom of Figure 1. Here, the profiles on the right side of the over-all Method x Dimension means are not parallel indicating a significant Method x Dimension interaction. Again, some profiles for each level of the advertisement factor are not parallel to the respective profile of the combined advertisement data. This finding implies a significant three-way interaction.

Conclusions

This research does not claim to answer the opposing question, whether or not there exist two distinct, qualitatively different systems for affect and cognition. Since this question cannot be answered empirically given the current state of knowledge and research technology, we proposed a more pragmatic position. Considering the requirements of the respondents by answering questions, we expected a more or less complex processing in making evaluative judgements. It can be assumed that the usual response situation, in which a questionnaire has to be completed, tends to be as least as complex as simple lexical decision judgements, for example.

On the other side, emotional reactions, even if cognitive mediation should be necessary, could be triggered by inputs whose full-fledged denotations had not yet been achieved. In addition, considering that emotional reactions rely more on non-verbal channels and are difficult to verbalize, we suggest that affective responses be measured more adequately and spontaneously by non-verbal response modalities.

Based on these arguments, it has been shown that magnitude scaling with non-verbal modalities like "length of a line" or "duration of pressing a button" allows for shorter reaction times than category scaling with ratings. Since it is of central interest to measure the first affective reaction, which is not cognitively masked and less influenced by social desirability, quick responses are preferred. Thus, magnitude scaling seems to have a more direct (non-verbal) path to emotional processes which are probably more concentrated in the right hemisphere of the brain.

At the same time, if reaction time is an effective operationalization for the amount of cognitive processing, then our distinction between affective items and information rate items, conceptualized as a cognitive judgement concerning the complexity and novelty of a stimulus, should hold. This distinction could be empirically supported. Thus, with some modification of the prior theorizing of Berlyne (1960), who predicted a direct relationship between collative properties of a stimulus and activation (arousal), the conceptualization of Ward and Russell (1981) was supported.

Unfortunately, the main effects are overlapped by three-way interactions, which are due to a rest of unsystematic variations between methods and dimensions.

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Q - TIPS: USING QUALITATIVE AND
QUANTITATIVE TECHNIQUES IN TANDEM
TO ASSURE VALID MANIPULATIONS

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Abstract

Multiple Discriminant Analysis (MDA) has received widespread use as a quantitative predictor equation for categorical group membership. Focus groups and other qualitative data generation methods have also been receiving widespread use as preliminary classificatory tools. This paper explores the feasibility of using these techniques in tandem to assure valid experimental manipulations in certain settings. Data were collected via survey questionnaires for a study concerning the product class involvement levels of four different product types.

MDA was then used as a manipulation check on the qualitative involvement classification. The results of the MDA technique's application as a manipulation check seem to suggest a continuing use of the statistical technique when data configurations are compatible.

Introduction

Multiple Discriminant Analysis (MDA) has enjoyed fairly widespread use as a multivariate statistical technique in the marketing discipline (e.g., Wiley and Richard 1974). Dillon and Westin (1982) state that the availability of multiple discriminant analysis procedures in canned computer software packages has made the application of MDA very easy for the marketing practitioner. The use of MDA, however, has apparently been seen as being limited to that of a predictor equation for some given categorical criterion variable. For example, the probability of a given product or service strategy succeeding or failing to induce consumers to buy a product.

The purpose of this paper is to suggest a different application for multiple discriminant analysis. That role is that of a manipulation check technique. Since the MDA procedure is applicable when there is a categorical dependent variable and interval independent variables, many experimental situations created by marketers could lend themselves to data configurations appropriate for the use of MDA in such a context. Such use, under the correct conditions, could provide researchers with greater confidence concerning the success of the manipulation than would a simple t-test of means or similar techniques performed on the data.

Churchill (1979) has advocated the use of qualitative and quantitative techniques in tandem to produce richer constructs. This paper demonstrates an effective combination of a qualitative technique (i.e., the nominal group technique) and a quantitative technique (i.e., MDA). When research involves vague or loosely specified constructs (e.g., involvement), qualitative approaches to construct operationalization can reveal novel and insightful interpretations of the construct. MDA can then be employed, as this study demonstrates, to assess the validity of the resulting operationalizations of construct dimensions.

If marketing research is to be considered scientific, reliability assessment of constructs is essential (Peter 1979). It is also desirable to explore alternative techniques for assessing statistical significance in marketing research (Sawyer and Peter 1983). Clearly, there has been an increased sensitivity to questions surrounding methodological rigor in marketing research.

It is not the intent of this paper to delve into the many statistical issues surrounding the estimation and application of the linear discriminant function (LDF). Rather, the intent here is to suggest a possible expanded role for

the technique in research being conducted in marketing. The remainder of this paper presents an example of the application of MDA as a manipulation check technique for nominal group technique generated construct dimensions.

The Study

In the Spring of 1984 a study was conducted to assess the impact of product class involvement on individual's cognitive consistency. As part of that study, it was necessary to generate four products classes for use in the study. Two of these products classes had to be considered low involvement product types and two had to be considered high involvement product types by the target population.

The samples used throughout this study consisted of undergraduate students at two major mid-Atlantic universities. The use of a student sample was deemed appropriate since the products used were relevant to the population from which the sample was drawn (i.e., students). While some authors (Cunningham, Anderson, and Murphy 1975) question the assumption that students are "real people," others (Lamb and Stem 1980) argue that use of student samples is appropriate given that the students are relevant to the context of a given study. That is, those types of situations where students were not expected to be affected in their behavior by simply being students. Since the products utilized in the study were relevant to the student as a consumer, no threat to the external validity of the results was anticipated from selection-treatment interaction.

In order to provide high and low involvement product classes and brands which were more meaningful and relevant to the subjects used in the broader study's major procedure and hypothesis testing, a valid classification of involvement was crucial. Too often, involvement studies have relied strictly on a researcher's "feeling" that "this" is high involving and "that" is low involving. Manipulations of involvement are sometimes questionable at best, relying on other research from different populations, or post-hoc assignments to classify objects/situations as high or low involving. (See Moore and Rahtz 1984 for a methodological review of involvement studies.)

In the present research, care was taken to provide an involvement classification of product classes based on the population's own feelings, not a single researcher's contention. These initial product classes were later employed to generate relevant brands and product attributes used in purchase decisions by the population under study.

While some authors, (c.f., Lastovicka and Gardner 1978) have developed multi-item scales for measuring involvement, their use in this study was deemed unwarranted for two reasons. First, such scales are of a reactive nature. This could create a demand artifact (Sawyer 1975) in that products rated are selected by the researcher and not the subjects. That is, the product pool from which the specific products are selected is predetermined by the researcher. This then limits the possible responses to the a priori defined set. Second, from a logistical standpoint, the number of responses required (as many as 1,100 per subject for 50 products (22 scale items used by Lastovicka and Gardner, 1978 to define product class involvement \times 50 products = 1100) renders this approach untenable.

Given the unwieldiness and reactive nature of such a quantitative approach, the present study sought to explore an

alternative qualitative approach to generate the needed product information. The qualitative approach chosen was the nominal group technique (NGT) (Huber and Delbecq 1972). The NGT is linked with the family of "brainstorming" groups discussed by Osborn (1957). The NGT operates in a manner such that individual creativity is not hindered by group processes, an often bothersome aspect of interactive groups (Collaros and Anderson 1969; Taylor, et. al., 1958), but enhanced and sharpened (Delbecq, Van de Van, and Gustafson 1975). That is, individual responses can be explained and interpreted more clearly through the group discussion session of NGT, allowing the individual to sharpen the response or make other related corrections to uncover more quality and a greater quantity of ideas. Claxton, Ritchie, and Zaichkowsky (1980) support the method's use in a somewhat similar setting of attribute generation for conjoint studies. In this study, the nominal group technique procedure utilized in obtaining the high and low involvement product classes followed the procedure outlined by Delbecq, et. al. (1975). Tables 1 and 2 summarize the NGT procedures and benefits as adapted for this study.

TABLE 1
NGT PROCEDURES

Step 1: Preliminary Setup

- Procedures: a) Arrangement of classrooms into seating clusters of five chairs (eight clusters)
b) Providing of ten index cards, two sheets of paper and one pencil per seat

Step 2: Introduction

- Procedure: a) Preliminary statement of greeting to subjects including:
1) Cordial welcome;
2) Sense of importance of group's task;
3) Clarification of the importance of each member's contribution;
4) Indication of purpose of meeting's output.

Step 3: Silent Generation of Ideas in Writing

- Procedure: a) Presentation to group of question in written form;
b) Verbal presentation to question to each group;
c) Asking group to work silently and independently;
d) Reminding them to take as long as necessary to exhaust their ideas.

Step 4: Round Robin Recording of Ideas

- Procedure: a) In a round robin manner, the researcher and assistants ask for one idea from each individual. This continues until all ideas are exhausted. Duplicates are scratched during the listing. Respondents are informed they may add any ideas that come to mind to the list during this step. When all ideas are exhausted, the group is then instructed to move to Step 5.

Step 5: Serial Discussion for Clarification

- Procedure: a) Each group is instructed to proceed through the group list of ideas discussing each idea independently;
b) After the group has discussed each idea they are instructed to move on to Step 6.

Step 6: Voting on Item Importance

- Procedure: a) Each member is asked to record their top then choice of ideas independently. Each

of these choices is then recorded on 5 x 7 index cards. They are then asked to rank order their ten choices from 1 (most important) to 10 (least important)

Step 7: Conclusion of NGT

- Procedure: a) All rank ordered cards are then collected by the researcher to be analyzed;
b) Subjects are thanked for their cooperation and debriefed

(Source: Delbecq, Van de Van and Gustafson, 1975)

TABLE 2
NGT BENEFITS

Step 1: Silent Generation of Ideas in Writing

- Benefits: 1) Adequate time for thinking and reflecting
2) Social facilitation (that is, the constructive tension created by observing other group members working hard;
3) Avoidance of interruptions;
4) Avoidance of undue focusing on a particular idea or train of thought;
5) Sufficient time for search and recall;
6) Avoidance of competition, status pressures and conformity pressures;
7) The benefits of remaining problem-centered;
8) Avoidance of choosing between ideas prematurely.

Step 2: Round Robin Recording of Ideas

- Benefits: 1) Equal participation in the presentation of ideas
2) Increase in problem-mindedness;
3) Depersonalization - the separation of ideas from personalities;
4) Increase in the ability to deal with a larger number of ideas;
5) Tolerance of conflicting ideas;
6) Encouragement of hitchhiking;
7) Provision of a written record and a guide.

Step 3: Serial Discussion for Clarification

- Benefits: 1) Avoidance of focusing unduly on any particular idea or subset of ideas;
2) Opportunity for clarification and elimination of misunderstanding;
3) Opportunity to provide the logic behind arguments and disagreements;
4) Recording of differences of opinion without undue argumentation.

Step 4: Vote on Item Importance

- Benefits: 1) Having individual members of the group make independent judgements;
2) Expressing these individual judgements mathematically by rank-ordering and/or rating items;
3) Using the mean (x) value of independent judgements as the group's decision.

(Source: Delbecq, Van de Van, and Gustafson, 1975)

Assessment of Product Class Involvement

Eighty subjects from undergraduate business classes were enlisted to assess product class involvement. Half were assigned to eight NGT groups of five members each to obtain two high involvement product classes. The remaining half were assigned to eight NGT groups of five members each to obtain two low involvement product classes. Assignment to high and low groups was assumed to be random by computer assignment to various sections of the same class. Within these classes, individuals were randomly

assigned to groups. Since Shaw (1981) had pointed out that single sex groups may operate more along conformist lines, thus limiting possible idea generation quality, groups included no more than three members of the same sex.

Students assigned to each involvement group were then instructed to proceed with the NGT process, see Table 1. The question presented to the respondents concerning involvement with the product class was derived from work by Lastovicka (1979a), Cialdini, Levy, Herman, Kozlowski, and Petty (1976), Ray Sawyer, Rothschild, Heeler, Strong, and Reed (1973), Ray and Webb (1976), Lastovicka and Gardner (1978), and DeBruicker (1979) which related involvement to a combination of commitment, importance, perceived product differentiation, and information processing levels (thinking) by the individual.

In order to provide a selection of product classes which would most likely be of high or low involvement to the entire population to be used in the broader study, an additional step was added to the NGT procedure at this stage. The products in both the high and low involvement procedures were rank ordered by the researcher. The procedure for rank ordering was to give ten points for a top ranked product, nine points for the second ranked product, on down to one point for the tenth ranked product for each subject. Those products not receiving a top ten ranking were not awarded any points. The points were then totaled across subjects for each product and the products ranked with respect to their overall point scores. From the top ten for each of the involvement conditions, two products were selected for inclusion in the study for a total of four products. These products were: (1) stereos and (2) clothes (jeans) for high involvement; and (3) bar soap and (4) paper towels for low involvement. Table 3 and Table 4 summarize the results of this ranking procedure.

TABLE 3
TOP TEN PRODUCTS
NGT High Involvement Product Summary
N = 38

Product Class	Range of Ranking	Total Points	Rank
Automobile	1 - 9	278	1
College Education	1 - 5	239	2
House	1 - 5	170	3
Housing	1 - 6	144	4
Insurance	1 - 10	135	5
Stereo	2 - 10	121	6*
Clothing	2 - 10	118	7*
Computer/Calculator	2 - 10	116	8
Investments	2 - 10	114	9
Television	3 - 9	105	10

*Selection for Study Inclusion

*Rating generated on the following scale:

Subjects top rated attribute = 10 point rating
2nd rated attribute = 9 point rating
3rd rated attribute = 8 point rating
4th rated attribute = 7 point rating
5th rated attribute = 6 point rating
6th rated attribute = 5 point rating
7th rated attribute = 4 point rating
8th rated attribute = 3 point rating
9th rated attribute = 2 point rating
10th rated attribute = 1 point rating

TABLE 4
TOP TEN PRODUCTS
NGT Low Involvement Product Summary
N = 40

Product Class	Range of Ranking	Total Points	Rank
Paper Towels/Napkins	1 - 10	125	1*
Pens & Pencils	1 - 10	120	2
Eggs	1 - 9	113	3
Milk	1 - 10	97	4
Bread	1 - 7	78	5
Soap	1 - 10	74	6*
Gasoline	1 - 10	69	7

TABLE 4 -- Continued

Rubber Bands	1 - 3	66	8
Laundry Detergent	3 - 10	54	9
Aspirin	2 - 6	47	10+
Envelopes	1 - 5	47	10+

*Selected for Study Inclusion

+Two Tied at 10

See Table 3 for rating scale

Selection of the products was based on ranking and perceived appropriateness for the broader study's contrived purpose. Participants in the broader study were asked to complete a product advertising survey concerning individual's feelings about randomly selected brands for sale in their area and advertising in general. For example, while a college education is viewed as high involving, it is hard to classify as a tangible "brand". Jeans were chosen as the specific clothing garment since a substantial portion of the clothes listed were jeans or designer jeans. In addition, earlier work by Lastovicka and Gardner (1978) had shown jeans (as well as stereos) were rated as being highly involving for college students.

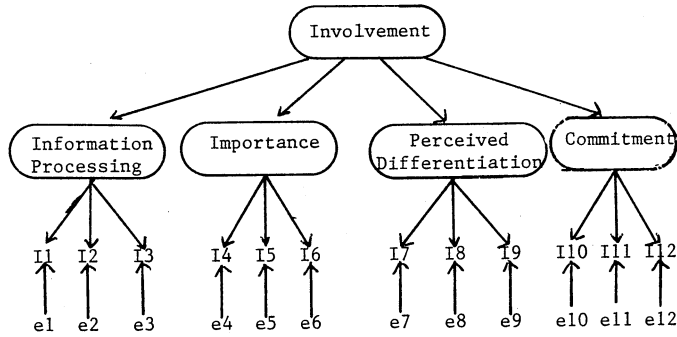
The two low involvement products, paper towels and bar soap were selected on the basis of their rankings. Bar soap was ranked sixth out of ninety products listed. Those products finishing in front of bar soap, as Table 4 shows, were mostly grocery type products, often bought as unbranded or store branded products (e.g., milk, eggs). This was felt to be in conflict with the cover story of the research being concerned with advertising and brands.

The Role of Manipulation Checks

As Bagozzi (1980) points out, a definition of causality relies on a "human agent" being about something while controlling for all other possible effects. In order to actually profess a cause (e.g., involvement) and effect (e.g., cognitive consistency of the individual) relationship, a manipulation check is necessary to control for extraneous interferences by showing the "agent" (e.g., involvement) did in fact cause the effect, or was present at all.

To determine if the product classes used in the study were correctly classified as to their involvement levels (high or low), a number of items in the broader study's scale served as manipulation checks. These items consisted of nine-point semantic differential scale statements (e.g., "strongly agree" to "strongly disagree") measuring four elements of involvement gleaned from the literature. As noted, involvement was operationalized as a combination of four components: (1) information processing levels; (2) importance; (3) differentiation of salient attributes; and (4) commitment. Most studies agree that a high involvement state elicits higher levels of information processing on the part of the individual than does a low involvement state. A majority of the work also alludes (implicitly or explicitly) to importance, whether it be internally or externally instigated. Involvement seemed to be related to the ability of the individual to differentiate relevant (salient) relationships between objects and beliefs. Finally, there is agreement on commitment by the individual. These four components are developed from the work on involvement by Lastovicka (1979a, b), Lastovicka and Gardner (1978), DeBruicker (1979), Mitchell (1981), Petty and Cacioppo (1979, 1981), Kiesler (1971), Robertson (1976), and Ray, Sawyer, Rothschild, Heeler, Strong, and Reed (1973) and others. Figure 1 illustrates the operational measurement model for the involvement indicators used in the multiple discriminant analysis manipulation check.

FIGURE 1
OPERATIONAL MEASUREMENT MODEL
FOR THE MANIPULATION CHECK INDICATORS



Results and Analysis

A reliability analysis was run on the four indicators of product class involvement using the internal consistency measure of Cronbach's Alpha (Cronbach, 1951). Each of the four indicators of product class involvement (importance, commitment, information processing, and perceived differentiation) were operationalized by three items from the main questionnaire. The analysis on each of the sixteen scale combinations (four products X four indicator scales) yielded reliabilities above or near the generally accepted level of 0.8 (Peter 1979). Only one scale, the commitment scale for the low involvement product class of paper towels, yielded questionable results. This scale had had problems for the same product in the pretest and had been modified and retested qualitatively on a small group with no apparent problems. It is speculated, however, that the nature of the product itself may have caused the inconsistency to occur. That is, since paper towels may have been such an obviously low involvement product type, subjects may have not cared to bother with being consistent at all. These results can be seen in Table 5.

TABLE 5
INTERNAL CONSISTENCY MEASURES (ALPHA)
FOR INVOLVEMENT MANIPULATION CHECK SCALES

Scale	Product			
	Stereo	Bar Soap	Paper Towels	Jeans
Importance	.84	.89	.87	.87
Information Processing	.86	.88	.76	.85
Commitment	.78	.84	.60	.80
Perceived Differentiation	.82	.89	.88	.84
Combined Scale Alpha	.86	.88	.82	.80

n = 250

Following this overall reliability analysis, another set of reliabilities was calculated for the involvement indicators. This procedure generated reliabilities for the combined involvement scales for each product class. In the procedure a four item analysis was used with commitment, importance, information processing, and perceived differentiation as the individual items for each product class involvement scale. Once again, the reliabilities were above the 0.8 level. An item analysis conducted on the scales showed that there would be a slight decline in the Alpha if any of the items were removed. There appeared to be significant declines if the commitment or importance items were removed for the jean or paper towel product class involvement scales. These product class involvement scales were four item scales comprised of the four components of involvement presented earlier: (1) importance; (2) commitment; (3) information processing; and (4) perceived differentiation. Each of these scale items was an averaged index of the three items from the questionnaire used to measure each of the product class involvement components. Scale means are an averaged mean of the four items over a scale from zero to one.

Scale means for the four product classes were .60 for jeans, .643 for stereos, .176 for paper towels and .413 for bar soap. These means indicate a higher mean scale involvement for the two preclassified high involvement product classes than for the two low involvement product classes. However, while these results suggest a difference, it was felt further analysis would be beneficial to help verify a correct preclassification of the involvement product classes.

Using MDA

To verify the involvement levels, as high or low, multiple discriminate analysis (MDA) was used. Multiple discriminant analysis is a multivariate extension of the univariate t-test for differences between means under the assumption of equal variances. Since the design was a within design, the procedure was well suited for use here. Maximal separation for the means was accomplished by taking linear combinations of the original variables which maximized the ratio of the between to within group variance.

Multiple discriminate analysis was deemed appropriate in this setting due to the nature of the predetermined nominal groups (i.e., high and low involvement) and the interval type involvement manipulation check scales (Hair, Anderson, Tatham, Grablovsky 1979; Klecka 1980). Using the involvement groups (high and low) as the dummy coded dependent variable and the four scaled item responses to the product class involvement measures as the independent variables; allowed an examination of whether or not the respondents viewed the predetermined involvement levels as correct.

In this procedure, each of the four product measures for each subject was treated as a separate case. By doing so, a sample for analysis of 1000 was created. The use of the two high and the two low involvement products effectively created a preassigned grouping of 500 subjects per involvement category.

It is noted that the artificial inflation of sample size from 250 to 1000 significantly increases the degrees of freedom for the statistical procedure. However, due to the restriction of this analysis to use as a manipulation check, this inflation was not viewed as critical. An additional note is added here concerning the violation of the independence criterion of the observations (see Klecka 1980). Since the 1000 observations are four observations per individual, a possible violation of the statistical assumption of independence exists. However, it was not felt that individuals' responses to one product class would affect their responses to another. Therefore, the violation of the independence assumption was not viewed as crucial to the use of the procedure as a manipulation check. Use of these data beyond simple manipulation check, however, is advised only with clear recognition of their limitations.

The discriminant equation for the analysis was generated by using a sample of ninety-nine subjects from the base sample of 250. Since each of the respondents had generated four distinct product class responses, the actual "cases" used to generate the discriminant equation totaled 396 (four products X ninety-nine subjects). The canonical correlation for the discriminant function was .600736, significant at the p=.00 level. The eigenvalue was .56466. Table 6 summarizes the standardized canonical discriminant function coefficients, structure matrix and canonical discriminant function evaluated as the group centroids (means).

This MDA output provides the researcher with substantive information as to the effectiveness of the manipulation and the explanatory ability of the manipulation check operationalizations. As Table 6 shows a substantial portion of the variance was explained by the discriminant function. It is also possible to assess the magnitude of the influence of each of the operationalized components in the explanation. For example, the commitment portion of the

scale offers the most explanation of the four operationalized elements of involvement.

TABLE 6
SUMMARY OF MDA ANALYSIS

	Std. Canonical	Structure Matrix
	Discriminant Function Coefficients	Pooled Within Group Corr.
Importance	.56120	.52539
Info. Processing	.53214	.70516
Commitment	.73654	.85873
Per. Different.	.39001	.73617

Canonical Discriminant Function at Centroid		
Group	Function 1	
0	-.74954	
1	.74954	

The classification table for this analysis is shown as Table 7. As can be seen in Table 8 the cross-validation MDA procedure using the discriminant functions from the prior sample gave support to the classification of the study's products into their respective involvement categories. Using the remaining 151 respondents to generate 604 "cases", the results in Table 6 show a large proportion of the cases were classified correctly (81.79 percent). Hair, Anderson, Tatham, and Grablovsky (1979) liken this "hit percentage" to a regression procedure's R-square. The MDA results support the contention that the NGT procedures had generated correct classificatory data for use in the main study.

TABLE 7
CLASSIFICATION RESULTS FOR CASES
SELECTED FOR USE IN THE ANALYSIS

Actual Group	No. of Cases	Predicted Group Membership	
		Low	High
Low Involvement	198	148 74.7%	50 25.3%
High Involvement	198	43 21.7%	155 78.3%

Percent of "Grouped" Cases Correctly Classified: 76.52%

TABLE 8
CLASSIFICATION RESULTS FOR CASES
USED FOR CROSS VALIDATION

Actual Group	No. of Cases	Predicted Group Membership	
		Low	High
High Involvement	302	239 79.1%	63 20.9%
High Involvement	302	47 15.6%	255 84.4%

Percent of "Grouped" Cases Correctly Classified: 81.79%

Conclusions

Very often, when manipulations are employed one finds ANOVA's and t-tests being used as the statistical manipulation check technique. The authors are unaware of any studies where MDA has been used. Clearly, in cases where the data is appropriate MDA should be explored as a technique to use.

Often in marketing researchers may be led by the techniques they are familiar with rather than by the technique which may be best suited for the task at hand. It is hoped that this paper has contributed to a greater awareness of a different method (MDA) which may be appropriate for manipulation check techniques under certain data configurations.

In addition, it is hoped that researchers (especially those working in the involvement area) may be more predis-

posed to using combinations of qualitative and quantitative methods to assure valid manipulations. As noted, manipulations may be at times be simply based on a researcher's "notion", not "hard data". The MDA results here indicate that the NGT procedure appears to hold promise for marketers exploring nebulous constructs for which consumers subjective responses are salient to an explanation of the construct.

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SELF-MONITORING AND PRODUCT CONSPICUOUSNESS ON
REFERENCE GROUP INFLUENCE

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Abstract

Two facets of product conspicuousness--public/private and luxury/ necessity--and their impact on reference group influence were examined. The self-monitoring orientation of the respondent was included as an individual difference variable that may influence the relation between product conspicuousness and reference group influence. Two dimensions of reference group influence were identified--normative and informational. Products perceived as conspicuous; that is, public and luxury products, were more susceptible to group influence. The self-monitoring orientation of the individual, however, had little impact on the relation between product conspicuousness and reference group influence.

Introduction

Marketers and advertisers have long recognized the apparent influence of reference groups on consumers' decision. Several researchers have demonstrated consumers' susceptibility to reference group influence when making product or brand purchase decisions (Bearden & Etzel 1982; Burnkrant & Cousineau 1975; Park & Lessig 1977; Stafford 1966). The influence of the visibility of the purchase decision, sometimes referred to as the "conspicuousness" of the decision (Bourne 1957), has also been examined extensively as a factor that affects reference group influence on purchase decisions (Bearden & Etzel 1982; Burnkrant & Cousineau 1975; Witt 1969; Witt & Bruce 1970, 1972).

Behavioral theorists differ in explaining how reference groups affect consumer behavior. Several similar underlying dimensions of reference group influence appear in the literature. Deutsch and Gerard (1955) described two types of social or reference group influence. One is informational influence, which facilitates the transfer of information among reference group members. Information, here, could include product evaluations, preferences, or opinions and can occur through either active transfer, i.e., verbal interaction or through observation of group members. The second type of influence identified by Deutsch and Gerard is normative, which includes any influence to conform to group norms or expectations.

Recently, Park and Lessig (1977) used a three dimensional structure to describe reference group influence. By combining the theories of Deutsch and Gerard (1955), Asch (1952), Jahoda (1972), and Kelman (1961), they defined three forms of reference group influence:

(a) Informational reference group influence - information will influence an individual if it is accepted and is perceived as enhancing the individual's knowledge of the environment and/or their ability to cope with some aspect of this environment, e.g., purchasing a product.

(b) Utilitarian reference group influence - is similar to the normative influence (Deutsch and Gerard 1955 and the compliance process (Kelman 1961; Jahoda 1972). In a purchasing decision, an individual will comply with the expectations of a reference group if s/he thinks the group can produce rewards or punishments, if the behavior would be visible or known to the group members, and if the individual is motivated to receive the reward or avoid the punishment (Park and Lessig 1977).

(c) Value-expressive reference group influence - an individual is influenced by the reference group because of a desire to enhance his/her self concept or because of a liking (affect) for the group.

The normative influence described by Deutsch and Gerard (1955) may be viewed as the basis of the value-expressive and the utilitarian influence dimensions. Both reflect the awareness of group norms, accepted practices, and values. Given this potential dual effect of normative influence, one aspect of the current study will examine whether the value-expressive and utilitarian influences are perceived as distinct, across different products, or are both measuring the same underlying normative dimension.

Product Characteristics

Several researchers have noted that reference group influence is affected by the type of product or situation studied. In two separate studies of brand choice, Witt (1969) found that brand decisions vary in their susceptibility to group influence. Subsequently, Witt and Bruce (1970) found that reference group influence is related to the amount of social involvement associated with the product and that influence differs as a function of product characteristics.

Bourne (1957) found a relationship between reference group influence and product conspicuousness; where a product may be conspicuous (or visible) in two senses: (a) it is consumed publicly and (b) it is exclusive in some way. A good consumed publicly would be seen by others and, hence, be more conspicuous than a good consumed privately. Similarly, an exclusive product (i.e., luxury), defined as not commonly owned or used, would be more conspicuous than a product that is a necessity. Bearden and Etzel (1982) operationalized the conspicuousness of the product by creating two factors: (1) a public-private factor and (2) a luxury-necessity factor. They found that "...consistent with Bourne's framework, the luxury-necessity and public-private dimensions were consistently significant" (p. 192). These authors suggest, however, that several issues need to be explored, including individual difference variables that may moderate the relationship between reference group influence and product choice.

Self-Monitoring

One individual difference variable that has received some attention in consumer behavior is self-monitoring (Becherer and Richard 1978). Snyder (1974) postulates that a high self-monitoring individual is one who identifies social cues for appropriate behavior and modifies his/her self-presentation accordingly. A low self-monitoring individual is less sensitive and responsive to these situational cues. Snyder developed a self-monitoring scale to "...discriminate individual differences in concern for social appropriateness, sensitivity to the expression and self-presentation of others in social situations as cues to social appropriateness for self-expression, and use of social cues as guidelines for monitoring and managing self-presentation and expressive behavior" (Snyder 1974, p. 125).

Using Snyder's self-monitoring scale, Becherer and Richard (1978) hypothesized that the behavior of low self-monitoring individuals would be more affected by dispositional factors i.e., personality variables, and that high self-

monitoring individuals would be more affected by situational factors i.e., social cues. These authors found that self-monitoring was useful in identifying "...individuals for which situational or dispositional variables have primary influence" (1978, p. 62). In the present study, self-monitoring was used to examine potential differences in the amount and type of reference group influence among individuals.

In sum, the present study was conducted to examine: (1) the structure underlying the three reference group influence scale items proposed by Park and Lessig (1977), (2) the influence of self-monitoring and product conspicuousness on reference group influence.

Method

We adapted Bearden and Etzel's (1982) procedures to examine three forms of reference group influence (Park & Lessig 1977) and two forms of product use conspicuousness (Bearden & Etzel 1982). In addition, Snyder's (1974) self-monitoring scale was used as a dispositional factor that may influence the relations between product conspicuousness and reference group influence.

Pilot Study

Two factors were used to examine the conspicuousness of the product: (1) a public/private factor and (2) a luxury/necessity factor. A pilot study was conducted to identify those products that best represented the 2 x 2 combination of factors. Ten products were selected initially to represent each of the four conspicuousness combinations, i.e., public luxury (PUL), public necessity (PUN), private luxury (PRL), and PRN (PRN).

A sample of sixty undergraduate students were asked to classify each of the forty products into one of the four categories using the definitions listed below.

1. Public luxury (PUL) - a product that other people are aware you possess and use. If they want to, others can identify the brand of the product with little or no difficulty. This product is not needed for ordinary day-to-day living.
2. Public necessity (PUN) - a product that other people are aware you possess and use. If they want to, others can identify the brand of the product with little or no difficulty. The product is needed for ordinary day-to-day living.
3. Private luxury (PRL) - a product that is used at home or in private. Except for your immediate family, people would be unaware of the brand you own. This product is not needed for ordinary day-to-day living.
4. Private necessity (PRN) - a product that is used at home or in private. Except for your immediate family, people would be unaware of the brand you own. This product is needed for ordinary day-to-day living.

In addition, subjects rated each product placed in one of the four categories, on a seven point Likert scale, ranging from very representative to very unrepresentative.

Based on the classification of the product and the mean representativeness judgments, the following products were selected (the value in the parentheses represent the percent of respondents who placed the product in the appropriate category): golf clubs (73%) and a walkman (73%) for the category of public luxury; record album (77%) and stereo (73%) for the category private luxury; rain coat (65%) and winter coat (81%) for the category of public necessity; and clock (68%) and toothpaste (77%) for the category of private necessity. A two-way ANOVA (luxury/necessity by public/private) was conducted using the re-

presentativeness of the product as the dependent variable. No significant differences were found. The results of the pilot study suggest that no systematic differences exist in the categorization or representativeness of the products.

Dependent Measures

For the main study, a questionnaire, developed by Park and Lessig (1977) and adapted by Bearden and Etzel (1982), was used to measure reference group influence for each of the eight products. The wording of the items was modified slightly from the original Park and Lessig (1977) questionnaire to connote not an evaluation of what "the individual," meaning other consumers, would do, but what "I" would do. This modification of the original questionnaire is important for the present study because the impact of an individual difference variable (self-monitoring) is being investigated. To compare self-monitoring tendency and susceptibility to reference group influence, the reference group items must measure what each subject would do with respect to the product being considered.

A six point bipolar agree (1) - disagree (6) scale was used to measure the reported reference group influence for each of the 14 items in the questionnaire. These items, which represent informational, utilitarian, and value-expressive reference group influence, were repeated for all eight products. The order of both the three types of reference group items as well as the presentation of the products was randomized. Snyder's (1974) 25 item self-monitoring scale was used to measure self-monitoring.

Design

A 2x2x2x2 factorial design was used with public/private, luxury/necessity and two products per category as within subject factors and high/low self monitoring score (derived using a median split of the self-monitoring scale) as a between subject factor.

Subjects and Procedure

A total of 80 undergraduate students participated in the study, resulting in 75 useable respondents. The five respondents were eliminated from further analyses due to substantial missing data. Subjects were scheduled for one-hour sessions in groups of 10 to 15. On entering the lab, subjects were given an instruction sheet that described the basic purpose of the study as well as the types of scales to be used in the study. They were then given several "warm-up" questions to become familiar with the scales.

Results

Structure of Reference Group Items

A principal components analysis with a varimax rotation was used to examine the underlying structure among the reference group items for each product separately. Based on a scree test and the interpretability of the factors, a two factor solution was selected for each product. The median percent of variance accounted for by the two factor solution across the eight products was 57% (range from 50% - 60%). The median correlation of the first factor across the eight products was .87 and for the second factor across the eight products .88. Because the factor structure was highly similar across the eight product categories, only one product is presented to represent the obtained factor structure. Table 1 contains a summary of the factor loadings of the reference group items associated with the toothpaste product.

The two factors were identified as informational and normative. Examination of the factor loadings indicates that the informational items loaded highly on factor 2 whereas the utilitarian and value-expressive items (except item B3) loaded highly on factor 1.

TABLE 1

FACTOR LOADINGS OF REFERENCE GROUP ITEMS FOR TOOTH PASTE

Reference Item	Category	Factor Loadings	
		Factor 1	Factor 2
seeks information from professionals or experts	A	.17	.77
seeks information from salespersons	A	.46	.57
seeks information from friends, relatives, neighbors, or work associates	A	.05	.79
brand choice influenced by approval of independent testing agency	A	.08	.80
brand choice influenced by observations or purchases of experts	A	.27	.79
classmate's brand preferences	B	.86	.02
friend's brand preferences	B	.89	.02
family member's brand preferences	B	.01	.35
satisfy expectations of friends	B	.89	.11
enhance image others have of me	C	.78	.10
those who purchase brand possess the characteristics I would like to have	C	.73	.12
nice to be like person in ads	C	.51	.28
people who purchase brand are admired and respected by others	C	.74	.10
purchase of brand shows others who I am or who I would like to be	C	.86	.06

1

- A = informational influence
 B = utilitarian influence
 C = value-expressive influence

Product conspicuousness and self-monitoring

Two influence subscales were developed by summing the items labelled "A" in Table 1 to form an informational subscale and by summing the items labelled "B" and "C" to form a normative subscale. These subscales were then used as the dependent variables in the subsequent ANOVA analysis. We will focus our discussion on the effects of self-monitoring, public/private, and luxury/necessity factors. We will not discuss the impact of the product factor because of its limited theoretical interest.

For the normative subscale, there were significant main effects for the public/private factor ($F=103.49$; $df=1,73$; $p<.01$, $\bar{X}(\text{public}) = 33.2$, $\bar{X}(\text{private}) = 38.1$) and for the luxury/necessity factor ($F=45.62$; $df=1,73$; $p<.01$, $\bar{X}(\text{luxury}) = 34.0$, $\bar{X}(\text{necessity}) = 37.4$). The main effect of the public/private and luxury/necessity factors indicates that products perceived as public (or luxury) had more of an affect on normative influence than private (or necessity) products.

In addition, there was a significant self-monitoring (A) by luxury/necessity (C) interaction ($F=40.05$; $df=1,73$; $p<.01$) and a public/private (B) by luxury/necessity (C) interaction ($F=36.37$; $df=1,73$; $p<.01$). A simple main effects test was conducted to examine these interactions further. For the AxC interaction, high self-monitoring individuals were more affected by normative influence for a product perceived as a luxury ($\bar{X} = 32.9$) than low self-monitoring individuals ($\bar{X} = 34.9$) ($F = 4.09$; $df=1,75$; $p<.05$). For necessity products, however, low self-monitoring individuals were more affected by normative influence ($\bar{X} = 36.3$) than high self-monitoring individuals ($\bar{X} = 38.9$) ($F = 6.91$; $df=1,75$; $p<.05$). For the B X C interaction, a private/necessity product had less of an affect on normative influence ($\bar{X} = 41.3$) than public/necessity product ($\bar{X} = 33.4$) ($F = 63.66$; $df=1,75$; $p<.05$). There was no difference between private/public products for luxury products.

For the information subscale, there was a significant main effect of the public/private factor ($F=40.05$; $df=1,73$; $p<.01$, $\bar{X}(\text{public}) = 13.9$, $\bar{X}(\text{private}) = 15.7$) and for the luxury/necessity factor ($F=8.58$; $df=1,73$; $p<.01$, $\bar{X}(\text{luxury}) = 14.2$, $\bar{X}(\text{necessity}) = 15.3$). In addition, there was a significant public/private (B) by luxury/necessity (C) interaction ($F=9.86$; $df=1,73$; $p<.01$). Public luxury products had more of an affect on informational influences ($\bar{X} = 12.9$) than private/luxury products ($\bar{X} = 15.6$) ($F = 29.52$; $df=1,75$; $p<.05$). In addition, public/necessity products ($\bar{X} = 14.8$) had more of an affect on the informational subscale than private/necessity products ($\bar{X} = 15.8$) ($F = 4.1$; $df=1,75$; $p<.05$).

Discussion

The two factor structure of reference group influence found here suggests that the theory of Deutsch and Gerard (1955) should not be expanded. Only two types of reference group influence were identified--informational and normative. Perhaps, as Kelman (1961) has argued, reference group influence operates through three separate processes, two of which are associated with the normative influence. Burnkrant and Cousineau (1975) relate Deutsch and Gerard's reference group influence types with Kelman's three processes. They suggest that normative reference group influence is accomplished through either the process of compliance (utilitarian influence) or identification (value-expressive influence).

Both utilitarian and value expressive reference group influences motivate behavior based on expectations. Whether one is attempting to identify with a group to enhance one's self image or to comply with its norms and behaviors to avoid chastisement, a desire for some association with the group exists; that is, both forms of influence are derived from normative pressure.

Bourne's (1957) theory of reference group influence on brand decisions for two forms of product conspicuousness was supported for both the normative and informational influence subscales. Both public and luxury products, which represent two features of conspicuousness, had more of an affect on reference group influence than private and necessity products. Further, the significant interactions indicate public/luxury products had more of an affect on reference group influence than private/luxury or necessity products.

An individual's self monitoring orientation had limited relation to reference group influence and brand choice. We may interpret the self-monitoring by luxury/necessity interaction for the normative subscale to suggest that individual's who are likely to attend to social cues will do so when the product is a luxury rather than a necessity. This finding is consistent with the hypothesized impact of self-monitoring; that is, individuals influenced by social cues (high self-monitors) when considering luxury products, are most likely to be susceptible to reference group influence.

In sum, product conspicuousness did impact on the effect of reference group influence. Two rather than three dimensions of group influence were identified--normative and informational. Products perceived as conspicuous were more susceptible to group influence. Finally, the self-monitoring orientation of the individual had little impact on the relation between product conspicuousness and reference group influence.

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PEOPLE WHO USE PEOPLE :
THE OTHER SIDE OF OPINION LEADERSHIP

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Abstract

Most consumer research has explored opinion leadership entirely from the viewpoint of the opinion giver in the exchange. This research examines opinion seeking across a broad range of product classes. In contrast to previous research, this research examines the extent to which the opinion seeker is also an opinion leader in the same product class or in other product classes. In addition, this research examines the information seeking, information transmission and demographic profile of the opinion seeker. The results, based on a national study of over 1500 households, suggest a high overlap between opinion giving and seeking. Further, the results indicate that opinion seekers, compared to the rest of our sample, show greater inclination to seek and diffuse market information. Demographically, the profile of opinion seekers is similar to the profile of opinion leaders.

Introduction

The importance of informational interpersonal influence in consumer decision making has been recognized for decades. Considerable research on interpersonal influence has focused on opinion leaders. Primarily because of their product knowledge, opinion leaders influence others in their purchases. It is important to remember, however, that opinion leadership is social communication between opinion givers and opinion seekers. As a consequence, understanding opinion leadership requires an examination of the relationship between opinion givers and opinion seekers. Despite the importance of understanding this relationship, almost all research has focused on the opinion giver in the exchange (Gatignon and Robertson 1985). Specifically, most consumer research has explored opinion leadership entirely from the viewpoint of the self-designated expert and influencer. Further, researchers have restricted their consideration of interpersonal influence to communications about a single product class (or a researcher designated selection of product classes).

The purpose of this research was to examine the second party involved in the interaction -- the opinion seeker. This research explores the opinion seeker across product classes, employing a receiver-based definition of opinion leadership. In contrast to previous research, this research affords an opportunity to examine the extent to which the opinion seeker is also an opinion leader in the same product class or in other product classes. Moreover, it allows examination of the characteristics of the opinion seeker. By contrasting people who seek the opinions of knowledgeable individuals with those who do not, this research sheds new light on informational interpersonal influence and the relationship between opinion givers and opinion seekers.

Background

A variety of research has suggested the pervasive role of interpersonal sources in consumer decision-making (Arndt 1967, Feldman and Spencer 1965, Katz and Lazarsfeld 1955, King and Summers 1970). This research suggests that across a wide range of product classes, interpersonal sources are more likely to influence consumer choice than any other source of information (Assael 1984, Price and Feick 1984). Considerable research has attempted to explore the nature of this influence. Three sources of influence have been identified: (1) the information supplied (informational); (2) Identification with the source (comparative); and (3) pressure to conform (normative). Park and Lessig (1977) suggest that products that are

technologically complex or require objective criteria for selection are most likely to be subject to informational influence. Research has suggested that across product types, informational influence is the most important of these three types (Burnkrant and Cousineau 1975, Hansen 1969, Moschis 1976, Park and Lessig 1977, Price and Feick 1984).

In part because of the importance of informational interpersonal influence in consumer decision-making considerable research has focused on the opinion leader. The definition of an opinion leader is an individual who is regarded by other individuals as having expertise and knowledge on a particular subject (Assael 1984). Because of their knowledge on a particular topic, opinion leaders presumably are then used as information sources by opinion seekers. Research indicates that the distinction between opinion leader and opinion seeker is artificial, however. For example, studies have indicated that individuals most likely to influence others in a particular product category are also most likely to be influenced in their decisions about that product category. This finding has been documented for doctors adopting a new drug (Coleman, Katz and Manzel 1957); and consumer adopters of a stainless steel razor blade (Sheth 1971), a new food product (Arndt 1967), and several other low risk innovations (King and Summers 1967). Thus "a consumer who frequently expresses opinions about sports equipment will also be more likely to listen to others' opinions about such equipment," (Assael 1984, p. 413).

Studying Opinion Giving And Receiving

There are a number of ways to study information exchange. Perhaps the ideal way is to use sociometric analysis and trace the pattern of communication among members of a social system (Arndt 1967, Coleman 1959, Jacoby 1972, Martilla 1971, Schiffman 1971). While sociometric methods allow an examination of interrelationships among participants in the transmission of information about products, the approach is practically limited to applications involving small, closed social systems. Since consumer product influence may extend beyond a single social system, other techniques appear necessary.

The most common method of examining interpersonal influence employs some form of self-designation of the opinion leader (King and Summers 1970, Reynolds and Darden 1971, Rogers and Cartano 1962, Silk 1966). Using this approach, opinion leadership has been based on self-designated product expertise and influence in a prespecified product class. For example, research on opinion leaders in clothing fashions would ask a series of questions to establish whether or not individuals have product expertise and believe they influence others in their choice of clothing. Both expertise and influence are defined by the perceptions of the opinion giver. While this approach allows the research to explore the perceptions, attitudes and characteristics of the opinion giver in some detail, it is a view of information exchange defined entirely from the perspective of the self-designated influencer.

An alternate way of exploring interpersonal information exchange would be from the viewpoint of the opinion seeker. However, almost no research has specifically focused on the consumers' use of knowledgeable others to acquire information (Price and Feick 1984). A focus on the opinion seeker appears to have a number of advantages. First, it provides a means for examining a group that has been ne-

glected in past research. This approach allows the researcher to contrast the information acquisition and transmission patterns and general descriptive characteristics of opinion seekers and other respondents. Second, the focus provides a markedly different point-of-view from which to examine the relationship between opinion givers and seekers. In particular, it should yield a different perspective on the extent to which opinion leaders are used by others and on the overlap between opinion seeking and opinion giving. Finally, a focus on the opinion seeker should redirect attention from opinion leadership as one-way influence in a particular product class toward a view of opinion leadership as social communication to acquire product information (Assael 1984). Self-designation approaches usually focus on communications about a particular product class. They do not address the extent to which an opinion leader in sports equipment trades information with an opinion leader in stereo systems. A focus on the opinion seeker should provide a clearer picture of informational interpersonal influence by emphasizing the social communications aspects of opinion leadership.

Method

Data used in the study were obtained through telephone interviews with 1531 residents of the contiguous states. The interviews, conducted during the middle two weeks of August 1984, averaged eighteen minutes in length. Random digit dialing was used to obtain the sample. Household heads were selected for interviewing by preassignment of sex to the telephone numbers, alternating male and female. Interviewers screened for the pre-assigned household head. If that person did not exist, interviewers talked to the lone household head. If the person was unavailable, a call back was scheduled. At least three call backs were made to individuals who were unavailable and to numbers that were busy or not answered. The response rate (completed interviews as a percentage of completed interviews, refusals and terminations) was 47 percent. The demographics of the sample, with the exception of sex, closely mirrored the 1980 census and relevant 1984 updates from the U.S. Department of Commerce. The sample somewhat overrepresented females compared to our estimate of the proportion of female heads-of-households in the population.

Development of Measures

Opinion Leaders

As noted previously, consumer researchers usually have used self-designation in a predetermined product class to measure opinion leadership. Most have used a modification of the Rogers and Cartano (1962) scale proposed by King and Summers (1970) to identify opinion leaders. Silk (1966) and Reynolds and Darden (1971) have used other self-designation measures.

In this study, opinion leadership was defined to include knowledge and influence and was measured using two self-designation items. First, "Is there a particular type of product that you feel you are very knowledgeable about?" Respondents were encouraged to name all product categories in which they were very knowledgeable. The second item focused on the one product category about which respondents felt they were most knowledgeable. It read: "Do you think that you ever influence other people in their purchase of or opinions about this kind of product?" Respondents who answered yes to both questions were classified as opinion leaders in the product category about which they were most knowledgeable.

In pilot testing, the two-item dichotomous measure of opinion leadership showed a high (.75) correlation with the King and Summers (1970) scale. The use of a self-specified product allowed us to more accurately measure opinion leadership across the sample and across product types. Obviously, using predetermined product classes would tend to underestimate the incidence of opinion leadership.

Opinion Seekers

Opinion seekers have been defined as individuals who sought information or opinions from interpersonal sources in order to find out about and evaluate products, services, current affairs, or other areas of interest (Arndt 1968, Feldman 1966, Sheth 1968, Wright and Cantor 1967). In the past, items used to measure opinion seeking, typically in a predetermined product class, service or activity, have been tailored to the individual researcher's study. Consequently, there has been little consistency among the measures. Feldman (1966), for example, researched non-family interaction dyads, defining opinion seekers as people who used non-family interpersonal sources as their dominant source of influence in selecting a physician. Alternatively, Wright and Cantor (1967) classified as opinion seekers people who had frequent discussions about, asked peers for information about, and knew an opinion leader in a particular predetermined topic area.

Opinion seeking in this study was measured by self-designation and based on our measure of opinion leadership. Respondents indicated their acquaintance with an individual who was knowledgeable in up to three product classes. Then, they specified their use of that person to help find out about or evaluate new brands or models in the product class in which respondents identified the person as being most knowledgeable. Specifically, respondents were asked the following questions: "Do you know someone other than yourself, who is very knowledgeable about a particular product?" If yes, "What product is this person knowledgeable about?" If more than one product was offered, respondents were prompted to specify that one about which the individual was most knowledgeable or had the most expertise. Two seven-point items were used to measure the importance of the opinion leader to the opinion seeker: "How important is this person to you (a) for finding out about new brands or models and (b) in evaluating different brands and models of this type of product?" Respondents who said they knew an opinion leader in a self-specified category and who indicated the person was very important (the top three categories on the seven-point scale) in either finding out about or evaluating brands or models were classified as opinion seekers. The choice of the top three categories is somewhat arbitrary but includes all respondents who fell into categories above the midpoints on either scale.

Results

Incidence of Opinion Leadership and Opinion Seeking

Almost one-half of the total sample (46.2%) were opinion leaders in a self-specified product class. Opinion leadership was most prevalent in food (42.8%) and household goods (19.2%). Incidences of opinion leadership in other product categories are reported in Table 1.

Approximately 42 percent of the total sample were opinion seekers; that is, people who knew one or more knowledgeable individuals who helped them to find out about or evaluate products in some product class. The highest incidence of opinion seeking was also in the food category; one-fourth of opinion seekers were opinion seekers in food. A large percentage of individuals were opinion seekers in major durables, somewhat fewer respondents were opinion seekers on other nondurables. Incidences of opinion seeking in the product categories are also listed in Table 1.

TABLE 1

PERCENTAGE OF OPINION LEADERS AND
OPINION SEEKERS IN SPECIFIC PRODUCT CATEGORIES

PRODUCT CATEGORY	OPINION LEADERS	OPINION SEEKERS
Food	42.8	24.7
Electronic Products	12.9	17.6
Automobiles and Related	10.5	12.7
Hobbies	9.5	11.4
Home Appliances	7.6	7.9
Household Goods	19.2	7.7
Health and Beauty Products	10.6	7.6
Clothing and Accessories	9.2	7.0
Non-prescription Drugs	8.3	6.7
Sporting Goods	6.4	5.0
Other	14.1	10.6
Number of Cases	708	660

Information Seeking and Diffusion Characteristics of
Opinion Seekers

Opinion seekers, by our definition, use knowledgeable individuals to find out about or evaluate products. The questionnaire also examined general information seeking tendencies using three seven-point items: "I often read advertisements just out of curiosity," "I find out about new products sooner than most other people," and "I read advertisements because they are a good source of information about new products." The results, listed in Table 2, indicate that opinion seekers have a greater inclination to seek general marketplace information than the rest of our sample ($p < .01$).

Although the two step flow model holds that opinion leaders, attending to mass media, provide information to opinion followers (Katz and Lazarsfeld 1955, Lazarsfeld, Berelson and Gaudet 1948, Rogers 1983), results in several studies (Sheth 1971, Arndt 1968) suggest that people influenced by personal sources were themselves likely to transmit information to others. The information transmission characteristics of respondents were measured using these seven-point items: "I like introducing new brands and products to my friends," "I like helping people by providing them with information about many kinds of products," "People ask me for information about products, places to shop or sales," "If someone asked where to get the best buy on several types of products, I could tell him or her where to shop," and "My friends think of me as a good source of information when it comes to new products or sales." The results, listed in Table 3, suggest opinion seekers were more likely to diffuse marketplace information than other respondents. In fact, opinion seekers were significantly higher ($p < .01$) on all items measuring information transmission.

TABLE 2

INFORMATION SEEKING CHARACTERISTICS

INFORMATION SEEKING CHARACTERISTICS	OPINION SEEKERS	NOT OPINION SEEKERS	t-VALUE ^a
I often read advertisements just out of curiosity.	4.97	4.67	2.82*
I find out about new products sooner than most other people.	3.77	3.22	5.58*
I read advertisements because they are a good source of information about new products.	4.88	4.61	2.59*
Number of Cases	660	871	

*One-tail t-test of mean differences

* $p < .01$

TABLE 3

INFORMATION DIFFUSION CHARACTERISTICS

INFORMATION DIFFUSION CHARACTERISTICS	OPINION SEEKERS	NOT OPINION SEEKERS	t-VALUE ^a
I like introducing new brands and products to my friends.	4.12	3.64	4.55*
I like helping people by providing them with information about many kinds of products.	4.74	4.22	5.04*
People ask me for information about products, places to shop or sales.	4.34	3.74	5.87*
If someone asked where to get the best buy on several types of products I could tell him or her where to shop.	4.92	4.40	5.36*
My friends think of me as a good source of information when it comes to new products or sales.	4.47	3.91	5.58*
Number of Cases	660	870	

^aTwo-tail t-test of mean differences
* $p < .01$

Incidence of Opinion Seeking and Opinion Leadership in
Same Product Category

Our study required respondents to indicate if they were opinion leaders in a self-specified product category and also if they were opinion seekers in a self-specified product category. Therefore, we were able to examine the co-occurrence of opinion giving and seeking in both the same and different product categories.

Approximately two-thirds (64.5%) of opinion seekers were opinion leaders in a product category. The percentage of opinion seekers in a product who were also opinion leaders in that same product category ranged from 54.5 percent in sporting goods to 21.3 percent in home appliances. The highest coincidence of opinion seeking and leadership occurred in more frequently purchased products: food (44.2%), health and beauty products (42.0%), household goods (39.2%), clothing and accessories (30.4%) and non-prescription drugs (22.7%). There was a somewhat smaller coincidence of opinion seeking and leadership in major durables. Table 4 presents these results. Table 4 should be interpreted carefully because of the small numbers in some of the product categories.

TABLE 4

PERCENTAGE AND NUMBER OF OPINION SEEKERS IN A PRODUCT
CATEGORY WHO ARE ALSO OPINION LEADERS IN THAT SAME CATEGORY

PRODUCT CATEGORY	PERCENT	NUMBER
Sporting Goods	54.5	18
Food	44.2	72
Health and Beauty Products	42.0	21
Household Goods	39.2	20
Clothing and Accessories	30.4	14
Electronic Products	25.0	29
Hobbies	24.0	18
Non-prescription Drugs	22.7	10
Automobiles and Related	20.2	17
Home Appliances	19.2	10

Demographic Characteristics

Opinion leaders typically have been characterized as higher education, higher income individuals (Assael 1984, Robertson, Zielinski and Ward 1984). It would seem reasonable to expect opinion leadership to be similarly characterized, given the high coincidence of opinion seeking and opinion leadership. Our results indicate

opinion seekers are more educated than other respondents, an average of 13.9 and 13.1 years of school, respectively ($p < 0.1$). In addition, opinion seekers have higher annual household incomes, \$29,960, compared to \$24,150 for other respondents ($p < 0.1$). Opinion seekers are significantly younger than other respondents, 41.4 and 44.9 years of age, respectively ($p < 0.1$). There were no significant differences between opinion seekers and the rest of our sample on race, marital status, people per household or number of children under 18.

Discussion

The results of this research are interesting in a number of respects. First, the results suggest a relatively high incidence of opinion seekers in the population. Although our measure does not define the extent of opinion seeking (i.e., the number of product experts relied on and the degree of reliance), our results provide evidence on the prevalent use of others as information sources by consumers.

Second, our results suggest that opinion seeking is not restricted to particular types of products, but ranges from non-durable to major durable goods. Specifically, the highest incidence of opinion seeking was in the food category. This result is intriguing since food is unlike the kinds of products for which interpersonal influence has been viewed as most important. Results on opinion seeking across a diversity of kinds of products directs our attention to social communications as a means of acquiring product information, rather than focusing on interpersonal sources as a means of risk-reduction or evaluation of complex products.

Third, in contrast to the often suggested role of the passive seeker or follower, our findings suggest that opinion seekers (like opinion leaders are important links in the flow of market information. In fact, the results suggest the similarity of opinion leaders and opinion seekers. In part, this result occurs because of the coincidence of opinion giving and receiving. The finding that almost two-thirds of opinion seekers also view themselves as opinion leaders in a product category substantiates the belief that opinion leadership is more of an exchange of opinions and information than a one-way flow of influence.

Perhaps the most interesting finding in the research involves the coincidence of opinion giving and seeking. Our research demonstrates that interpersonal information exchanges may occur between opinion leaders in the same product category or different product categories. It is interesting to speculate about the reasons some product categories show a higher coincidence of opinion seeking and leadership than do others. Several interpretations of the degree of overlap are possible. For example, the amount of overlap of opinion seeking and opinion leading is probably affected by the pervasiveness of product use, product complexity, economic incentives for seeking knowledgeable individuals, varying levels of product interest, and the level of aggregation of the product categories.

One possible framework for organizing the degree of overlap might be the combined effects of the pervasiveness of product use and product complexity. First, consider the large overlap in sporting goods, a product category with a relatively low level of product complexity and a lower pervasiveness of use relative to food, clothing, automobiles. The large overlap in this category could be a result of sports buffs having conversations with one another about sports equipment. We can also speculate about the relatively small overlap in major durables. This result could occur because many people purchase automobiles, electronic products, and other major durables and have an incentive to seek a product expert (Price and Feick 1984). A relatively smaller number of individuals, however, are likely to have an enduring involvement or are able to obtain the amount of knowledge necessary to be an expert in more technically complex product classes. Thus we might expect to see, and do find a relatively low coincidence

of opinion seeking and leadership in these categories. One might want to speculate further that products are highly complex and have a low pervasiveness of use, for example special industrial products or professionally related products, might have an even lower coincidence of opinion leading and seeking.

Our results represent only a first attempt at understanding opinion seeking. While we have demonstrated some important findings about opinion seeking across a wide range of product types, research still needs to pursue the relationship between opinion givers and seekers in multiple product categories. Because of space limitations on the questionnaire, we could not examine multiple product opinion seeking for given individual, nor could we examine multiple product influence on the part of a given opinion leader. Clearly, exploring these multiple product situations are needed in order to better understand the relationship between opinion seekers and opinion leaders. In addition, this study was limited to an examination of opinion givers and receivers for products, not for services or other intangibles. The relationship between opinion seekers and leaders in these choices are also important areas for consumer research.

Perhaps most importantly, our results suggest more research attention be directed to the phenomenon of opinion leadership as a form of social communication. Specifically, more research is needed on the comparison of the type of information transmitted in exchanges between opinion leaders in similar product categories and the type of information transmitted between an opinion leader and an individual who is not an opinion leader in the product category.

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SOURCE CREDIBILITY: ON THE INDEPENDENT EFFECTS OF TRUST AND EXPERTISE

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Abstract

Marketing researchers and practitioners have tended to assume that a more trustworthy source is more credible than a less trustworthy source. However, previous studies have either confounded trustworthiness with expertise and/or attractiveness, or found that trustworthiness did not influence persuasion. In the 2 x 3 between subjects factorial experiment three levels of source expertise were crossed by two levels of trustworthiness. Careful pre-testing assured that the manipulations did not influence ratings of source attractiveness. The results supported the hypotheses developed from attribution theory that sources perceived to have external reasons for making a persuasive argument will be discounted. In addition, the results revealed that expert sources influenced perceptions of the product's qualities.

Introduction

Marketers have a long held belief that a source with superior intrinsic characteristics is more persuasive. Examples abound of the desire of companies to use intrinsically positive sources and to avoid sources which are perceived as biased. National advertisers pay vast amounts to famous endorsers, such as sports stars, while local advertisers cite favorable evaluations from local customers. Estimates are that one in three television commercials use endorsements (*Business Week* 1978). In fact, companies will go to great lengths to have their products associated with positive sources. For example, the Regina Co. argued in a Federal Appeals court that it had the right to cite in its advertisements a favorable Consumer Union evaluation of its Electricbroom Powerteam. In other instances companies have tried to avoid having sources, which might be perceived as biased, associated with a product or idea. Thus, when dietary manufacturers sponsored advertisements opposing the banning of saccharin, the advertisements were attributed to a third party, "The Calorie Council" [Sturdivant 1981]. Similarly, when the natural gas lobby initiated its direct mail campaign to create grass-roots support for deregulation, the pamphlets were attributed to "The Alliance for Energy Security."

Early research supported the intuitive belief that positive sources enhance persuasion. Generally, the methodology of the studies assessed the immediate attitude change, or the extent of agreement with a message, induced by an intrinsically superior source in comparison to that induced by an intrinsically inferior one. With one critical exception, these studies found that greater immediate agreement or attitude change was induced by the superior source [McGuire 1968]. From these studies emerged the construct of source credibility. A credible source was one who had such intrinsic attributes as trustworthiness, expertness, and attractiveness [e.g., Dholakia and Sternthal 1977, Harmon and Coney 1982].

However, a fundamental problem exists in the way in which both marketing practitioners and marketing researchers conceptualize the effects of source credibility. The presumption that a source is more credible if he or she is more "trustworthy and/or expert" [e.g., Dholakia and Sternthal 1977] is not supported by experimental studies. In their reviews of the source credibility literature, both Anderson & Clevenger (1963) and McGuire (1968) concluded that strong support exists for attractiveness and expertise as components of source credibility, but none for trustworthiness. McGuire argued that the belief that a more trustworthy source is more persuasive is an

example of "bubbapsychology" (i.e., a compendium of psychological principles that one's grandmother knew but which aren't so., p. 183)

The issue of whether or not trustworthiness influences persuasion is of theoretical importance. Sternthal, Phillips, and Dholakia (1978) proposed that source effects could be understood by a framework which integrates cognitive response ideas with attribution theory. Attribution theory predicts that a claim made by a biased source will be discounted (Kelly 1973). In justifying their framework, Sternthal, Phillips, and Dholakia (1978) cited the prototypical example of a biased source's claim being discounted. If McGuire is right, Sternthal et al. (1978) are wrong.

The issue of whether trustworthiness contributes to persuasion also has pragmatic significance. The creation of a seemingly trustworthy source can be costly, as well as unethical. One can argue that it is unethical for a company to create in a self-serving manner a seemingly "trustworthy" organization to act as a "false-front" for the presentation of ideas. Costs can arise if the company is caught in its duplicity. For example, the natural gas lobby created a false front, the "citizen" alliance, to support deregulation of the industry. The major news story produced in response to the creation of the "citizen alliance" was that the organization was comprised of the industry's employees.

The primary purpose of this paper is to further investigate the relationship between the constructs of trust and credibility. Secondly it investigates expertise as a component of the construct of source credibility. It first reviews the literature on source credibility for evidence of the relationship. Next, it presents an experiment in which source trust and expertise are orthogonally manipulated while holding the attractiveness of the source constant.

Source Credibility and Attitude Change

The numerous empirical studies of the relationship between source credibility and attitude change were reviewed by Anderson and Clevenger (1961), McGuire (1968), and Sternthal, et al. (1978). The first two reviews focused upon the issue of whether or not a source's intrinsic characteristics affect the persuasiveness of a message. The reviews reached a common conclusion--a source that was more expert and/or more attractive was more persuasive. The review by Sternthal et al. (1978) focused upon the issue of what situational factors interacted with source credibility to enhance, vitiate, or reverse the persuasiveness of a more credible source. They reached the conclusion that trustworthiness is one of the components of credibility. What is the evidence supportive of Sternthal et al.'s presumption that trustworthiness is a component of source credibility?

Table 1 lists the studies cited by Sternthal et al. (1978) and Dholakia and Sternthal (1977) to support their contention that more trustworthy and/or expert sources induce more immediate attitude change than do sources having less of these attributes. Note that in most of the studies source credibility was manipulated by creating a highly attractive source (e.g., President Eisenhower or genius doctor) versus a high negative source (e.g., Nazi leader or convicted quack). The use of such highly attractive or negative sources tends to confound the concepts of trustworthiness and expertise, which are purported to form the construct of credibility.

TABLE 1

EXAMPLES OF STUDIES MANIPULATING THE "SOURCE CREDIBILITY" CONSTRUCT

Study	Issue	High Credibility Sources	Low Credibility Sources
Hovland & Weiss (1951)	anti-histamines	medical journal	mass market magazine
	atomic submarines	Dr. Oppenheimer	Pravda
	steel shortage	planning board	"rightest" newspaper columnist
	future of movies	<u>Fortune</u>	gossip columnist
Kelman & Hovland (1953)	trest of delinquents	judge [expert on issue, wonderful person]	young nasty crook
Wash & McGuire (1964)	tax laws	presidential council	evil tax cheater
Johnson et al. (1969)	medical issue	"genius" doctor	convicted quack
Warren (1969) ¹	bathing every day	dermatology expert	person in audience, "Susie Feathering--Queen of the Hippies"
Shulman & Worrall (1970)	legalization of drugs	expert committee	gathering of "beatniks" and addicts
Miller & Basehart (1969)	smoking cigarettes	President Dwight D. Eisenhower	Goerge L. Rockwell (Head, American Nazi Party)
Whittaker & Meade ² (1968)	numerous	high authority	low authority

¹Two low credibility sources were used.

²In a pretest, subjects identified high and low authority sources. In the main test, subjects were provided with the two sources which they identified.

Methodology

The study employed a 2 x 3 between subjects factorial design. Thus, two levels of the trustworthiness independent variable were crossed by three levels of source expertise.

The trustworthiness manipulation was based upon Kelly's (1973) augmenting-discounting ideas. In the study subjects received messages from a mechanic concerning the mechanical condition and value of an automobile. In the high trust conditions, subjects learned that a car mechanic had no relation to a nearby automobile dealership. In the low trust conditions the mechanic was described as part owner of the automobile dealership. Hence, trustworthiness was equated in this study with intrinsic self-interest. Importantly, no normative statements, such as honest or dishonest, were used to describe the source. It was anticipated that in the low trust case, the consumer should discount the message and place less trust in it.

Expertise was manipulated by altering the individual's training, experience, and certification. Certification

was by the National Association of Mechanics. The salient differences are depicted by Table 2.

Two major dependent variables were used: the subjects' perceptions of the automobile's mechanical quality and of its value. Each dependent variable was measured via a seven-point semantic differential scale.

Hypotheses

Two major hypotheses were formulated.

- H₁: Subjects will reveal higher agreement with the claims of the mechanic regarding the car's mechanical condition and value in high trust than in low trust conditions.
- H₂: Subjects will reveal higher agreement with the claims of the mechanic regarding the car's mechanical condition and value in high expertise than in the moderate expertise conditions and more agreement in the moderate than the low expertise conditions.

Hypothesis 1 was based upon Kelly's (1973) discounting principle and is consistent with the arguments of Strenthal, Phillips, and Dholakia (1978). Hypothesis 2 is also derived from the literature on source effects. As various reviewers have noted, highly expert sources have proven to be more persuasive than less expert sources. The contribution of the present study is that the two variables (trust and expertise) are manipulated independently.

TABLE 2
THE EXPERTISE MANIPULATION

Source	Training	Experience	Certification
high	courses in general auto mechanics	2 years evaluating automobiles	yes
moderate	courses in auto air conditioner repair	6 months evaluating automobiles 18 months air conditioner repair, body work	no
low	courses in auto air conditioner repair	2 years air conditioner repair, and body work	no

Procedure

In order to insure the construct validity of the manipulations, the study was divided into two phases--a pretest and a main test. In both the pretest and main test, all subjects were presented with a common situation. The situation was described to the subjects as follows:

You have found a 1979 mid-size American sedan, with am/fm radio but no air-conditioning, at an auto dealership. You are thinking of buying it. You decide that a mechanic should inspect it before you buy it. You take it to a large auto repair center in a nearby mall so that you can eat while they inspect it.

You are especially interested in learning how long you can expect major components, such as the transmission, to last before they will need to be replaced or repaired.

The man who inspects the car is in his mid-twenties, polite, friendly, and well-spoken. He says that he is married, has a daughter, and that his family is going to Yellowstone for their vacation next month.

After high school he joined the Army, received an award for bravery, and several promotions. After being discharged he went to work for his uncle who owns the garage. The mechanic is part owner of the garage. Since the guy who normally does the inspections is sick, he is doing it.

The brief common biography was included in order to create a generally favorable view of the source of information. The goal was to create a source who would be equally attractive to respondents regardless of the trustworthiness or expertise condition. The use of a common biographical sketch is a distinguishing feature of the methodology. For example, Ward and McGinnies (1980) explicitly described the trustworthy source as "honest, sincere, and trustworthy; whereas the untrustworthy source was described as "devious, calculating, and sympathetic to the Nazi party."

In all cases the mechanic made the assertion that:

Because it is in excellent mechanical condition I would say it is worth a lot more than the average automobile of its year and make. In fact I'd say it's worth 10% more than the blue book value.

The automobile example was used because most undergraduates are sufficiently familiar with automobiles to understand questions, but are not so familiar as to hold strong prior beliefs. To check the latter point, data on sex, experience, (buying) selling used cars, and experience with mechanics was collected from respondents.

The manipulations were pretested on a class of 40 undergraduate business students. The manipulations of trust and expertise were pretested independently. The trustworthiness manipulation was assessed via three, seven point semantic differential scales: trustworthy/not trustworthy, partial/not partial and biased/not biased. The expertise manipulation was measured by the scales used previously by Harmon and Coney (1982) and Dholakia and Sternthal (1977), i.e., expert/not expert, trained/not trained, and experienced/not experienced. The two manipulations were successful, i.e., at the .05 α level there was a significant difference between the scale scores of the treatment groups. The scales revealed good internal reliability; Cronbach α scores were .73 for trustworthiness and .89 for expertise. The pretest revealed that the manipulations of inherent self-interest did strongly influence perceptions of trustworthiness. In addition, the variations in source training, experience and certification did influence perceptions of expertise.

Results

In the main study, students were randomly assigned to one of the 6 (2 trustworthiness x 3 expertise conditions). In all conditions the common situation and biography were used. After reading the material they indicated their level of agreement with the source's claim (dependent variables), and then evaluated the source (the manipulation checks).

In the main study, tests were first run to identify any halo or attractiveness effects. Optimally, no significant effects for attractiveness should be found across any of the manipulations. Attractiveness was measured by using the 3 item scale used by Harmon and Coney (1982) and Dholakia and Sternthal (1977); the items are attractive/not attractive, dynamic/not dynamic, aggressive/not aggressive. The Cronbach α levels were .71 for attractiveness, .76 for trustworthiness, and .84 for expertise. Using a .05 α level criterion, attractiveness was not found to be influenced by variations in expertise or trustworthiness. In addition, the expertise manipulations did not influence perceived trustworthiness and the trustworthiness manipulations did not influence perceived expertise.

Tables 3 and 4 present the means and the summary table for the two-way analyses of variance used to analyze the mechanical quality and automobile value claims. The semantic differential scales used to measure persuasions were anchored by excellent mechanical quality/not excellent mechanical quality, and worth a lot more/not worth a lot more. For the dependent variable of mechanical quality, significant main effects occurred for expertise ($p < .01$), and trust ($p < .03$). A Scheffe test of expertise found that (at the .05 level) only the high and low expertise manipulations were associated with different agreement levels. The size of the trustworthiness and expertise effects were measured by omega squares. The variance accounted for was in line with that typically found in social psychological research. It is interesting to note that the expertise measure accounts for more than twice the variance trustworthiness measure (.15 vs. .06). For the dependent variable of automobile value, significant effects were found only across levels of trust ($p < .03$). A significant main effect for value was not found across levels of the expertise independent variable.

Discussion

The results for both the major dependent variables (mechanical quality and automobile value) supported the attribution theory component of Sternthal et al.'s (1978) source credibility framework. In conditions in which one

would expect a source to have a bias (i.e., low trust conditions in which external pressures exist to elicit a particular message), the results revealed that subjects had lower perceptions of the automobile's value.

TABLE 3
MEAN AGREEMENT SCORES FOR DEPENDENT VARIABLES
OF MECHANICAL QUALITY AND AUTOMOBILE VALUE

EXPERTISE	MECHANICAL QUALITY		AUTOMOBILE VALUE	
	Low Trust	High Trust	Low Trust	High Trust
Low	2.75 (12)	3.75 (12)	2.25 (12)	3.75 (12)
Moderate	3.77 (11)	4.27 (10)	2.82 (11)	3.70 (11)
High	4.37 (11)	4.54 (13)	3.28 (11)	3.46 (13)

Note (70) is sample size

The finding that variations in trust influence consumer reactions to messages is important for the understanding of source effects. McGuire (1968) has argued against trustworthiness as a factor influencing persuasiveness. Indeed, the effects of trustworthiness had not been unambiguously demonstrated in the literature heretofore. Previous work tended to confound trust with the expertise of the source.

TABLE 4

ANOVA RESULTS

Source	Mechanical Quality				Value		
	DF	F	$P_r >$	ω^2	F	$P_r >$	ω^2
Trust	1	5.19	.026	.06	8.46	.005	.10
Expertise	2	17.60	.001	.15	.57	.568	--
Trust X Expertise	2	2.04	.402	--	1.73	.185	--

In two previous studies trustworthiness and expertise were investigated. In the Hovland and Mandell (1952) study, variations in trustworthiness were not found to affect persuasion. A possible explanation for their failure to find trustworthiness effects was the overwhelming effects of source expertise. In the present study, a comparison of the mean agreement scores in the highly expert case (see Table 3), supports such a conjecture. The effects of the trustworthiness variable showed signs of being mitigated in the high expertise cases. In other words, the situation may be similar to ones in which evidence is used to overwhelm the source effects (Hunt 1972, Hendrick and Schaffer 1970).

In the second study investigating trustworthiness and expertise, McGinnes and Ward (1980) confounded trustworthiness with attractiveness. In the present study, efforts were made to hold attractiveness constant while manipulating trustworthiness. Results revealed that these efforts were successful. An attractiveness scale was not influenced by levels of trustworthiness. The significant effects found for trustworthiness, therefore, supported the arguments of Sternthal et al. (1978) and removed the construct of trustworthiness from the realm of "bubba-psychology" (McGuire 1968).

The study also found that the level of expertise of the source strongly influenced perceptions of the auto's

mechanical quality. McGinnes and Ward (1980) previously found no evidence for the increased persuasiveness of expert sources. Possibly their extremely strong manipulation of attractiveness/trustworthiness overwhelmed the effects of variations in expertise so that subjects failed to attend to expertise differences. Note, however, that variations in expertise did not influence perceptions of the automobile's value. This outcome may have occurred because perceptions of value were not inferred directly from knowledge of the source's expertise. Instead, expertise may influence value through its influence on the mechanical value perception. Therefore, the likelihood of expertise affecting value perceptions is lowered because of the requirement of a two-step inference process. In this two-step process, observers may first evaluate expertise. Second, they may form beliefs about the mechanical quality of the car from the message and the expertise. After estimating the car's mechanical quality, they would then assign some value to the car. The additional cognitive effort required to engage in such complex reasoning lowers the likelihood that subjects would engage in such a two-step process resulting in variations in expertise failing to influence the value of the car.

From a managerial perspective, the results are straightforwardly applied. When the receiver is being influenced by peripheral cues, such as source characteristics, a message from a source of information, who is perceived to be biased, has less impact than a message from a source not perceived to be biased independent of the source's attractiveness and expertise. Similarly, the greater the perceived expertise of the source, the greater the impact of a message upon technical, but not product value, beliefs independent of the source's attractiveness and perceived level of bias. Based upon these findings, advertisers, public relations officers, and sales managers should carefully consider the extent which prospective target audiences perceive the level of bias and expertise of sources of information.

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SATISFACTION AND CONSUMER SERVICES

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Abstract

This paper seeks to make a conceptual contribution to the measurement of consumer satisfaction for services. This involves a conceptualization of product evaluation in the services context and a description of the confirmation/disconfirmation paradigm of satisfaction/dissatisfaction. The author proposes that the unique characteristics of services implies different consumer evaluation processes from those used when assessing tangible goods. An effort is made to integrate a taxonomy of "qualities" into the confirmation/disconfirmation model which will account for these differences.

Introduction

While the consumer satisfaction/dissatisfaction literature continues to grow at a substantial rate, comparatively little attention has been paid to consumer satisfaction and dissatisfaction with respect to services (Liechty and Churchill 1979; Zeithaml 1981). Given the escalating significance of services in the economy, it is suggested that satisfaction with these offerings should be a concern to both consumers and businesses. The primary objective of service providers is to develop and provide offerings that satisfy consumer needs, thereby ensuring their own economic survival. To achieve this objective, service providers will need to understand how consumers choose and evaluate their offerings.

The objectives of this paper are threefold. The first is to present a conceptual basis for understanding consumer satisfaction processes. Second, the unique characteristics of services will be identified. Finally some propositions concerning the consequences of these characteristics on expectation formation and perceived performance which, in turn, effect outcome judgments will be presented.

The Disconfirmation Paradigm

The key elements of the satisfaction/dissatisfaction process are: (1) some a priori basis of evaluation (e.g., expectations of product performance); (2) comparison of perceived performance with expectation; and (3) a post-purchase judgment that the experience was noticeably better or worse than anticipated leading to feelings of satisfaction or dissatisfaction. The disconfirmation paradigm is presented graphically in Figure 1.

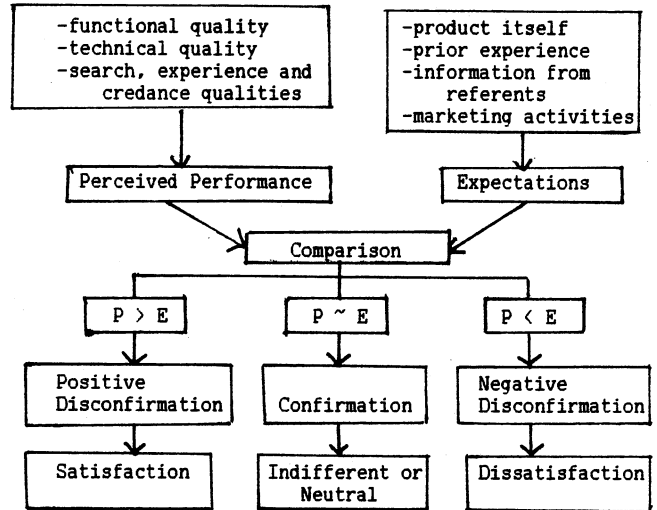
Satisfaction is an evaluation rendered that the (product) experience was at least as good as it was supposed to be (Hunt 1977). Specifically, an individual's expectations are: (1) positively disconfirmed when performance exceeds expectations; (2) negatively disconfirmed when performance is less than expectations; and (3) confirmed when performance is approximately equal to expectations. Satisfaction is related to the size and direction of the disconfirmation experience where disconfirmation is related to the person's initial experience (Churchill and Surprenant 1982). However, the relationship may not be so simple, Woodruff, Cadotte and Jenkins (1983) suggest that the relationship, instead of being monotonic and continuous is rather one of zonal ranges.

Although in the traditional disconfirmation approach to satisfaction/dissatisfaction the exact confirmation of expectations is the definition of satisfaction, it is assumed here that exact confirmation does not produce feelings of either satisfaction or dissatisfaction. Oliver (1980) suggested that one's expectations perform the function of an adaptation level in that they define the baseline or standard against which subsequent performance is judged, i.e., a norm. Woodruff et al. (1983) suggest that expectations are based on experience (product

and brand) and that some interval around a performance norm is likely to be considered equivalent to the norm. They call this interval a "zone of indifference." Positive or negative disconfirmation results when perceived performance is compared with expectations and the resulting evaluation is outside the zone and thus different enough from the norm to be recognized as such.

FIGURE 1

THE DISCONFIRMATION PARADIGM



*P = perceived performance
E = expectations

Weak disconfirmation of expectations whether positive or negative tends to be assimilated away (Olshavsky 1977). Perceptions of performance which are close to expectations are within a latitude of acceptable performance, and are assimilated toward the expectation (Olson and Dover 1977; Olshavsky and Miller 1972). Performance which is above or below the norm, but within the indifference zone, leads to indifference. Positive disconfirmation logically leads to satisfaction which, in turn, may lead to positive responses such as brand or store loyalty, favorable word of mouth, and "complimenting behavior." Negative disconfirmation has the opposite effect. That negative disconfirmation has adverse consequences to the producer, including a tendency for negative word of mouth to occur, is well documented (Richins 1983).

An expectation is the perceived likelihood that a product possesses a certain characteristic or attribute, or will lead to a particular event or outcome (Olson and Dover 1979). In this view expectations are belief probabilities of attribute occurrence. These beliefs perform two functions: (1) they serve to provide the foundation for attitude formation and (2) they serve as an adaptation level for subsequent satisfaction decisions (Oliver 1980).

Expectations are formed based on such factors as: (1) the actual product including prior experience and brand attributes, (2) exposure to marketing activities including advertisements, price and image, and (3) communication from social referents such as word of mouth information or observation of referents usage of the product.

As noted earlier, expectations are compared to perceived performance in order to arrive at an evaluation. Perceived

performance is affected by characteristics of the product and circumstances surrounding its acquisition. Gronroos (1983) suggested that perceived performance is composed of two qualities, functional and technical. Technical quality has to do with what the consumer receives from purchase of the product. Functional quality has to do with how the consumer receives or purchases the product, the events surrounding the acquisition of a product. In general, technical dimensions can be judged in a much more objective manner than can functional quality dimensions which are perceived in a very subjective way.

Nelson (1970) distinguished between two characteristics of products: search qualities, attributes which are very tangible and can be evaluated by examination prior to purchase; and experience qualities, attributes which can only be evaluated during or after consumption. Darby and Karni (1973) added a third dimension, credence qualities, which are characteristics the consumer may find impossible to evaluate even after purchase and consumption.

Perceived performance is a very complex area but it seems evident that it is a function of both technical and functional elements. Consumers are quite capable of having responses to each element that differ from the other. "The food was great, the service poor" are comments often encountered in an evaluation of a restaurant. Secondly, the timing of the performance evaluation and the ability of the consumer to evaluate the product will vary by characteristics of the offerings itself. These characteristics include search, experience and credence qualities. Zeithaml (1981) has proposed a taxonomy based on these last three qualities.

Distinctive Features of Services

There is a growing literature stream which deals with differentiating physical goods from services (Bateson 1977; Eiglier and Langeard 1977; Shostack 1977; Berry 1980). Although not all authors agree that services marketing should develop as a distinct area of marketing theory, (see Wyckham, Fitzroy and Mandy 1975 for another point of view) there is general consensus that services share some unique characteristics that differentiate them from physical goods. The three most frequently mentioned ones are: intangibility, nonstandardization, and simultaneous production and consumption.

A service is mainly immaterial or intangible. Intangible means that the product has no existence except to the degree that it is produced and consumed, the finished product cannot be inventoried. Bateson (1977) states that "services are doubly intangible; they are impalpable" -- they cannot be touched by the consumer -- and they are difficult for the consumer to grasp mentally ("the mental image" of the service is "fuzzy"). Czepiel (1980) poses that services often have a larger number of relevant attributes than physical goods; and that intangibility means a larger proportion of those attributes are not amenable to physical methods of measurement or control. That is, services tend to be high in experience qualities and low in search qualities.

This experience quality implies that services are an activity or a process rather than a physical entity. The service can be consumed only as long as this process continues. This simultaneous production/consumption nature of services implies that the customer has a high degree of involvement in the production of the service. In fact, Eiglier and Langeard (1977a) define a service as the outcome of an interaction between the client, the service personnel, and the physical environment. Two other implications evolve from this characteristic. First, because the service encounter is frequently a dyadic interaction, the abilities of an individual as a consumer are linked inextricably to characteristics of the seller. The ability of the service provider to perform the service is frequently dependent upon the consumer fulfilling certain role behaviors. For instance, in order for the physician to arrive at a correct diagnosis, the patient must correctly describe symptoms. Second, the high involvement of the

consumer means that services are not very standardized, that is, there is a great deal of variability from one service encounter to the next for one individual and between individuals engaging the same service.

Other differentiating factors frequently cited are the complex nature of most services compared to physical products, a higher level of perceived risk (Eiglier 1977), greater search costs in brand switching (Zeithaml 1981), a lack of both pre- and postpurchase evaluative criteria (George, Weinberger and Kelly 1985) and difficulty of the service firm in attempting to differentiate itself from its close competitors (Eiglier and Langeard 1977b). This last characteristic implies that services tend to be grouped by the consumer into product categories rather than being differentiated by brand. This, in turn, implies that product based rather than brand based expectations are more extensively employed in evaluation of services. For instance, expectations concerning performance of a physician will more likely be based upon experience with physicians in general and not one in particular.

Finally, there is really no such thing as a pure physical good or a pure service. Most, if not all, examples used in the services marketing literature lie somewhere on the physical good/service continuum. Taxonomies built on the aforementioned dimensions can be quite useful to researchers interested in developing theoretical frameworks for the study of products positioned near the service end of the continuum. Therefore several taxonomies useful for the purposes of this paper are presented in Appendix A. Taxonomies can be useful in explaining Lovelock's (1983) proposition that "many commonly heard generalizations about service marketing do not hold true across a wide range of service industries or situations."

Consequences Of These Characteristics On Outcome Judgments

Intangibility

As products move along the continuum from tangible to intangible expectations become more "fuzzy" and it therefore becomes more difficult for the consumer to develop a clear precise norm or standard for evaluation.

Hypothesis 1a: The more intangible a service becomes, the wider the zone of indifference.

Hypothesis 1b: As information concerning a service moves from high to low, the zone of indifference becomes wider.

In the absence of a tangible product upon which to base one's evaluation of the exchange the social and physical contexts increase in importance (Berry 1980; Lovelock 1979; Shostack 1979). Green, Langeard and Favell (1974) found, in their study of attitudes toward new and existing retail services, that word-of-mouth was used to: (ascertain projected levels of confidence in an untried service; (2) alleviate the no prepurchase testability problem; and (3) form an image of the otherwise nontangibly representable service.

Price and physical facilities have also been shown to be important cues to the service consumer since expectations must be formed without employing such tangible factors as style, color, label, feel, package, brand name, etc. (Eiglier et al.; Beesom 1973).

Hypothesis 2: As intangibility increases there is greater reliance on functional quality as opposed to technical quality dimensions for evaluation of perceived quality.

It is expected, however, that technical service quality is always paramount. No amount of functional encounter satisfaction can compensate for a service never performed. Some researchers have suggested that the performance attributes that lead to dissatisfaction are different from those that lead to satisfaction (Swan and Combs 1976). Dissatisfaction

is caused by a failure of technical performance, while complete satisfaction also requires that the functional performance is above or at expected levels. It has been suggested by Czepiel, Solomon and Surprenant (1985) that functional satisfaction can overcome only small deficiencies in technical service quality.

Hypothesis 3: There exists a latitude of acceptance for the service customer within which small deficiencies in technical service will be overcome by encounter satisfaction.

This latitude of acceptance is wider for services than for physical goods due to the fact that services involve more encounters.

Recall from our foregoing discussion that if information obtained prior to product exposure is negative or positive, then weak disconfirmation will produce assimilation in the same direction.

Hypothesis 4: The following sources of information have a larger effect on evaluation of services' performance than on evaluation of the performance of tangible goods:

- a. word of mouth
- b. price
- c. image

Not all information is weighted equally. For instance word of mouth is generally held to be more credible than commercial messages and usage experience beliefs are held much more confidently than beliefs based on external sources. In addition, information which is similar to information already obtained is perceived as not adding much to overall knowledge but information which is different may receive more attention and weighting (Nisbett and Ross 1980).

Mizerski (1982) presents findings that suggest unfavorable word of mouth ratings, as compared to favorable word of mouth ratings on the same attributes, prompt significantly stronger attributions to product performance, belief strength and affect toward products. Furthermore, the less objective the criteria available for evaluation, the more this information is viewed as reflecting the source's personal feelings and thus should prompt more potential nonstimulus causal attributions. A larger potential causal array (which exists for services) would then provide more latitude for differences in attributions with each information type. The greater the attributional differences, the greater the impact on belief and effect formation. Oliver (1977) suggests that the impact of personal influence depends on the discrepancy of the influence attempt from the recipient's initial opinion.

Hypothesis 5: Negative word of mouth, when received has greater impact on outcome evaluation, than positive word of mouth.

Hypothesis 6: The more intangible the service the more likely the consumer is to view the information as reflecting the source's personal feelings, and this in turn will mediate it's effect. The mediation will be either negative or positive depending upon such factors as the source's expertise, credibility and the consumer's initial opinion.

Inseparability

For services which are more inseparable, the product is produced by both parties sometimes with equipment. Several researchers have suggested that in such situations role theory can be used to explain expectation formation (Solomon, Surprenant, Czepiel, and Gutman 1985; Smith and Houston 1983). It is assumed that each party to the transaction has learned a set of behaviors (a script) that is appropriate for the situation. Furthermore, in the case of a person's encounter with a novel situation, he or she will attempt to employ an existing script similarly structured (transferring a script for purchase

of bus fare to purchase of air fare) or an idealized script derived from TV, movies or books. Within this conceptualization satisfaction with a service is seen as a function of the congruence between perceived behavior and the behavior expected by role players. Such a view implies that role similarity across services is a viable basis for classifying services.

Hypothesis 7: As the degree of personal encounters with the customer increases the more opportunity exists for both positive and negative evaluations.

Degree of personal encounter can be measured in terms of complexity, length or degree of personal involvement from the service provider.

When high consumer involvement is required for delivery of the service failure to obtain satisfaction may not be blamed entirely on the producer, since the consumer must adequately perform his or her part in the production process as well. Consumers have three sources to which attribution of blame may be placed: the service provider, the consumer himself, and the equipment used in the service delivery. For instance a perm that turns out poorly could be the fault of the hairdresser, the consumer for not adequately describing the desired style, or the perm formula itself.

Hypothesis 8a: The more sources there are to which to attribute blame the wider will be the zone of indifference.

This in turn implies that the initiation of unusual satisfaction or dissatisfaction outcomes is (i.e., recommendations to friends, letter writing, legal action, etc.) is less likely to occur with services than with products where there are fewer personal encounters and interaction between service provider and customer.

Inseparability frequently implies a high degree of variability as services high in separability depend on who provides them and when and where they are provided. This, in turn, means that expectations as a norm become more difficult to develop.

Hypothesis 9: As service increases in variability the width of the indifference zone increases. This is accentuated as experience and expertise narrows.

Simultaneous Production and Consumption

As production and consumption move closer together there is a tendency to evaluate the service during, rather than after, consumption. This means that other people in the purchasing process have an opportunity to impact upon the evaluation. Other people here would include not only peripheral service providers such as clerks but other clients as well. Such encounters may take place in queue or reception areas or in a group setting (such as exercise classes or group therapy). Furthermore, other hypothesis already suggested would imply that there is a halo effect created by the early stages of any service encounter.

Other Characteristics

Many services are very complex, some services (e.g., medical diagnosis or pest control) are so technical or specialized that consumers possess neither the knowledge nor the experience to evaluate whether they are satisfied, even after they have consumed the product. These products are high in credence qualities. Experience and credence qualities imply high search costs. Gathering information for such products often involves trial usage or personal visits to examine only one brand at a time, and often the information is simply not available or extremely difficult to obtain.

Hypothesis 10: As services become more complex consumers will:

- a: form fewer expectations
- b. perceive others as more knowledgeable about alternatives

- c. reduce search activities
- d. depend upon other's recommendations as opposed to commercial sources

Hypothesis 11: As services become higher in credence qualities consumers will turn to others for evaluation.

Concluding Comments

There are two main directions in which customer satisfaction can be influenced: (1) what the customer expects and (2) what the customer perceives. The point is that these two factors need to be conceptualized as psychological phenomena and not necessarily as reality. The unique characteristics of intangibility, nonstandardization and simultaneous production and consumption lead to a much different process for evaluation of services than tangible goods. The psychological phenomena taking place is mediated by these special characteristics. In an early study, Day and Bodur (1977) reported that, compared to tangibles, dissatisfaction with services was related to the quality of the supplier's performance rather than to marketing practice and price related issues. This in turn, may be a reflection of the psychological phenomena taking place within the service sector.

Although some of these processes are implicitly understood and utilized by service providers, they have not been systematically integrated into the satisfaction/dissatisfaction paradigm. Such an integration would benefit not only the researcher but the service provider as well. By learning to research and understand the dimensions of their own services, managers can have a significant impact upon their customers' satisfaction with the service encounter. Researchers need to identify unique and relevant dimensions of physical and service products and then systematically relate these to the process of evaluation. As Zeithaml, Parasuraman and Berry (1985) suggest a research priority in services marketing is empirical study that transcends specific industries in order to test service marketing concepts across service industries as a whole.

Appendix A
TAXONOMIES OF PRODUCTS

Figure 1. Degree of Tangibility

Classification	Product Category
Products that are tangible dominant	Salt, necktie, computers, dishwasher, shampoos
Balanced tangible/intangible	Retailing, automatic vending, mail order
Intangible dominant	Repairs, personal care, insurance, advertising agencies, airlines
Pure intangible	Teaching, consulting, nursing, psychotherapy

Figure 2. Degree of Inseparability

Classification of service systems by extent of required customer contact in production of the service	
High contact	Health care Passenger transportation Beauty salons Exercise clinics Restaurants Haircutting
Intermediate	Banks Legal services Accounting Real estate/insurance
Low contact	Post office Laundry and dry cleaning Landscaping/lawn care Auto and appliance repair

Figure 3. Search, Experience, and Credence Qualities (as suggested by Zeithaml, 1981)

Continuum for different types of products

High in search qualities	clothing jewelry furniture houses automobiles
High in experience qualities	restaurant meals vacations haircuts child care
High in credence qualities	television repair legal services root canal auto repair medical diagnosis

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THE DETERMINANTS OF SATISFACTION FOR A HIGH INVOLVEMENT PRODUCT:
THREE RIVAL HYPOTHESES AND THEIR IMPLICATIONS
IN THE HEALTH CARE CONTEXT

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Abstract

In contrast to our understanding of satisfaction with low involvement products, there is still very little understanding of the factors that influence satisfaction with high involvement products. This paper draws upon two distinct bodies of research, satisfaction theory and decision making theory, to develop three rival hypotheses on satisfaction with high involvement products. These three hypotheses have important, yet different implications, for satisfaction with a unique high involvement product - health care. According to these hypotheses, satisfaction is determined by (1) by the discrepancy between patient expectations and physician performance, or (2) primarily by physician performance, or (3) by providing the consumer with more information about health care alternatives.

Introduction

While researchers have focused on the determinants of satisfaction for a low involvement, frequently purchased, convenience product (Olshavsky & Miller 1972; Prakash & Lounsbury 1983; Swan & Combs 1976), less attention has been devoted to the factors that influence the satisfaction with a high involvement product (Day 1977; Oliver & Bearden 1983; Churchill & Suprenant 1982). The Disconfirmation Theory, which is the dominant paradigm in the satisfaction literature, has been successful in explaining satisfaction/dissatisfaction with a variety of low involvement products, but it is less successful in explaining the same phenomenon for high involvement products (Oliver & Bearden 1983; Churchill & Suprenant 1982). Other explanations of satisfaction with these types of products are suggested by the empirical research on consumer satisfaction but have not been systemically explored (Oliver & Bearden 1983; Churchill & Suprenant 1982).

It is important to understand the processes by which the satisfaction with a high involvement product is determined, since involvement affects the extent and nature of post-purchase processing, which in turn influences satisfaction. As defined by Petty and Capicippo (1981) and others, involvement refers to the activation of problem solving behavior when the act of purchase or consumption is seen by the decision maker as having high personal importance or relevance. The greater the involvement with a product, the greater the likelihood of post-purchase evaluation, and the more extreme the post-purchase evaluations (Gronhaug 1977; Richins 1982). The strength of post-purchase evaluations influences satisfaction, which determines the post-purchase behaviors such as repeat purchase and word-of-mouth. While the importance of repeat purchase is self-explanatory, word-of-mouth communication is important because it influences the purchase of others for high involvement products (Assael 1981; Engel & Blackwell 1982). Thus, satisfaction becomes an even more important issue for a high involvement product.

In this context, this paper examines the determinants of satisfaction for a high involvement product. Its contribution is that it studies the factors which influence satisfaction not only from the perspective of current research in consumer satisfaction theory but also from the consumer decision making theory perspective.

Consumer Satisfaction Theory: The Disconfirmation Paradigm

The disconfirmation theory is the dominant framework in the consumer satisfaction literature (Cardozo 1965; Olshavsky & Miller 1972; Swan & Combs 1976). According to this theory, satisfaction is related to the size and direction of the discrepancy between prior expectations and actual

performance. Specifically, when performance is equal to the prior expectations, confirmation results, which leads to satisfaction. Disconfirmation results when performance does not equal prior expectations. Positive disconfirmation is the result of performance exceeding prior expectation, which also leads to satisfaction. Negative disconfirmation, in contrast, is the result of performance being less than prior expectations, which leads to dissatisfaction. Thus, satisfaction results when prior expectations are confirmed or positively disconfirmed. Based on the disconfirmation theory of consumer satisfaction it is hypothesized that:

H1: Satisfaction with a high involvement product is determined by the discrepancy between expectations and performance.

Thus, according to the Disconfirmation Theory, EXPECTATIONS and PERFORMANCE determine satisfaction with a high involvement product. The theory and its building blocks, expectations and performance, have to be tailored to the study of satisfaction with high involvement products, since the dimensions of these building blocks that are relevant for high involvement products are different from those that are relevant for low involvement products. These dimensions will be briefly discussed next. EXPECTATIONS differ by type (Miller 1977), nature (Day 1977), and source (LaTour & Peat 1980). Four types of expectations have been identified: ideal, expected, minimum tolerable, and desirable (Miller 1977). "Ideal" expectations seem to be most relevant for high involvement products since highly involved consumers tend to have "higher" expectations (Oliver 1980). In contrast, "minimum tolerable" expectations seem to be a more relevant standard to compare performance with a low involvement product. The "minimum tolerable" standard implies a conjunctive decision making rule (Bettman 1979) that low involvement consumers are likely to use to reduce the cognitive and physical effort of searching and evaluating.

The nature of the expectations refers to the dimensions of the product about which the consumer has expectations (Day 1977). In the purchase of a high involvement product, the social, psychological and functional risks involved are high and consequently, consumers hold expectations about a greater number of attributes than they do for low involvement products. For example, in the purchase of an automobile, consumers have expectations regarding the appearance and style of the vehicle, quality of materials, the quality of the workmanship, warranty coverage, etc. (Day & Ash 1978). In contrast, for a low involvement product, the risks involved are fewer and lower and therefore, consumers have expectations about fewer attributes.

The source of the expectation refers to the information sources from which the consumer derives his/her expectations. Traditionally, research has concentrated on the expectations derived from test reports, manufacturers, and unspecified sources (La Tour & Peat 1980). However, this extant research ignores other important sources of expectations, such as personal past experience and others' past experience (La Tour & Peat 1980). These sources play a key role in the determination of expectations for a high involvement product. Since high involvement product decisions are risky and important, consumers tend to rely heavily on their own past experience and the past experience of others in the determination of expectations. The utilization of information from others tends to alleviate some of the uncertainty surrounding complex product evaluations (Cohen & Golden 1972) such as in the case of a high involvement product.

Two dimensions of PERFORMANCE become important in determining the satisfaction with high involvement products. The first is the functional or instrumental performance of the product. However, this dimension of performance is also important for low involvement products. The second dimension, expressive or psychological performance, becomes particularly relevant for high involvement products due to their high degree of social, financial, physical, and/or psychological risk (Swan & Combs 1976).

In summary, according to the disconfirmation theory, satisfaction for a high involvement product results from the discrepancy between expectations and performance. For a high involvement product, the standards used to compare performance are "ideal" expectations, which the consumer derives from a number of sources; the most important of which is personal sources. Further, the performance dimension that becomes particularly relevant in determining satisfaction with a high involvement product is the expressive/psychological performance dimension.

Rival Hypothesis to the Disconfirmation Theory

While much of consumer satisfaction research is based on the disconfirmation paradigm, alternatives to this classical model are suggested by both the conceptual and the empirical research on consumer satisfaction. Oliver and Bearden (1983) found that the importance of expectations as a determinant of satisfaction decreases for high involvement products and the importance of performance increases. Thus, according to Oliver and Bearden (1983, p. 253), "high involvement decreases his/her sensitivity to pre-usage phenomena and increases his/her sensitivity to outcome phenomena." This means that, performance becomes an independent determinant of satisfaction.

Churchill and Suprenant (1982) report this independent role of performance in the determination of satisfaction for a video disk player. In an empirical research study of 126 respondents, they found that satisfaction with a video disc player is primarily determined by the performance of the product. "Neither the disconfirmation experience nor subjects' initial expectations affected subjects' satisfaction with the product" (Churchill & Suprenant 1982, p. 502). Thus, the authors report the existence of a direct performance-satisfaction link for some products.

Even though these empirical findings could be the result of an artifact of gross differences in the performance manipulation, nonetheless further attention is warranted before a decision can be made to support or disregard the findings. As a result of this conceptual and empirical research an alternative to Hypothesis One is proposed -

H2: Satisfaction with a high involvement product is determined primarily by the performance of the product.

Consumer Choice Literature

The consumer choice literature should help us understand the processes through which satisfaction or dissatisfaction is achieved. However, the research that links consumer decision making processes with satisfaction is very limited (Bettman 1979; Day & Hunt 1979). In applying consumer decision making theory to satisfaction, this paper adopts the interactionist model proposed by Punj & Stewart (1983). This framework is relevant for high involvement products since involvement is the result of the interaction between person and situation (Mitchell 1979; Kassarian 1981).

The research on consumer decision making indicates that involvement has a tremendous impact on consumer choice processes. This research is summarized into five categories: (1) Pre-purchase Expectations; (2) Search; (3) Processing; (4) Post-purchase Evaluation; and (5) Consequences.

Pre-purchase Expectations: Little research has been con-

ducted which relates pre-purchase expectations to choice processes (Bettman 1979).

Search: The risk and uncertainty of high involvement decisions stimulates a high degree of search (Jacoby, Chestnut & Fisher 1978; Swan 1972; Wright 1975) and encourages consumers to rely on referent groups and other alternative sources of information (Assael 1981; Engel & Blackwell 1982; Leibenstein 1976, 1978).

High involvement decisions are associated with high search costs and high experience costs. The high experience costs of high involvement products are a result of the psychological, social, financial, and physical risk associated with purchasing an unsatisfactory product (Price 1981). The high search costs result from a possible delay in the purchase decision (Engle, Blackwell, & Kollat 1978), from the frustrations incurred in search (Downs 1961), and from the amount and appropriateness of existing information (Engel & Blackwell 1982).

Processing: The literature indicates that consumers conduct extensive information processing and attempt to maximize their expected satisfaction with the purchase of a high involvement product (Assael 1981; Engel & Blackwell 1982). Likewise, high involvement decisions tend to produce faster evaluation and more alternative (brand) evaluations (Gardner, Mitchell, & Russo 1972; Wright 1972).

Post-purchase Evaluations: The level of product involvement will affect the strength of the post-purchase evaluation (Oliver & Bearden 1983) and whether or not post-purchase evaluations are triggered (Day 1977). The higher the level of involvement, the more active and more extreme the post-purchase evaluations.

Consequences of Satisfaction/Dissatisfaction: Consumer satisfaction is generally a significant determinant of repeat sales, positive word-of-mouth, and consumer loyalty (Bearden & Teel 1983; LaBarbara & Mazursky 1983). Day and Landon (1977) suggest that dissatisfaction encourages three different consumer behavior patterns: (1) No Action; (2) Private Action, e.g., warning friends, family, etc. and personal decision to stop buying the product and/or boycott the store; and (3) Public Action, e.g., seek redress from the firm or manufacturer; complain to business, private or government agency; take legal action.

To summarize this discussion, the greater the involvement with the product the greater the search for information about the product, the larger the number of information sources used, and the more extensive the information processing undertaken by the consumer. More importantly, the consumer undertakes extensive post-purchase evaluation and attempts to maximize their satisfaction with the product. The implication of this paradigm is that by providing the consumer with more information about a product with which the consumer is highly involved, the satisfaction with the product can be increased, since the consumer will process this information and develop well defined and realistic expectations.

The empirical research on consumer choice behavior for a high involvement product suggests an alternative to Hypothesis One and Two.

H3: The greater the amount of information available the greater the satisfaction of the consumer.¹

This hypothesis suggests that given more information, consumers will conduct extensive choice processing, develop well defined expectations, and consequently make better decisions and be more satisfied. However, this premise has generated some dialogue and controversy in the area of consumer decision making. Those in support of the proposition favored the development of consumer information programs to bring about significant changes in the cognitive processes, behaviors, and satisfaction levels of consumers (Bloom 1976; Richardson 1975). They contended that the possession of more information is a sufficient condition for improved decision making (Stern 1967).

¹This hypothesis assumes that the product's performance would be adequate and/or satisfactory and therefore, the consumer would deserve to be satisfied.

Those in opposition argued that more information is not necessarily better, and in fact, may lead to substantially worse decisions (Jacoby 1974). These less optimal decisions may be due to information overload (Jacoby, Speller, & Kohn 1974). Moreover, not only is the amount of information related to decision making, but the content of the information is also relevant. Consumers are often unable to use the information because they do not understand its significance (Capon & Lutz 1979).

In the case of high involvement products, however, it is hypothesized that more information will lead to better decisions. This is due to the fact that since the consumer is highly involved, he/she is motivated to search for this information, evaluate and integrate it, and base decisions on this information. Thus, the critical difference between research that found that more information does not improve decision making and this research, is the nature of the product.

A Unique High Involvement Situation: The Choice of a Physician

Based on a review of the research on satisfaction and consumer decision making, three alternative hypotheses on the determinants of satisfaction for a high involvement product are proposed. The three explanations are:

H1: Satisfaction with a high involvement product is determined by the discrepancy between expectations and performance.

H2: Satisfaction with a high involvement product is determined solely by performance of the good.

H3: The greater the amount of information available about a high involvement product the greater the satisfaction of the consumer.

The requirements of a decision making context in which to test these hypotheses are (1) It should be a high involvement decision making situation (2) There should be a paucity of relevant information based on which the consumer can make the decision, and (3) Satisfaction or dissatisfaction should have important implications.

The health care context is an appropriate setting in which to test these hypotheses because: (1) the choice of a physician is a high involvement decision with a great deal of risk and uncertainty (Berkanovic & Reeder 1974), (2) there is a lack of objective information on which to base this decision (Feldman 1966), and (3) satisfaction and dissatisfaction have significant implications for consumers (patients), practitioners, and society at large.

High Involvement Situation: According to the definition of involvement previously stated - 'the activation of extended problem solving behavior when the act of purchase or consumption is seen by the decision maker as having high personal importance or relevance' - the choice of a physician and the subsequent utilization of medical services may be considered a high involvement situation. While the level of involvement may vary across different types of health care services, the purchase and utilization of health care services has traditionally tended to have a high degree of personal importance or relevance to the patient. Therefore, in choosing a doctor, patients often experience high levels of perceived risk and uncertainty (Swan & Carroll 1979). Of course the level of risk and uncertainty may vary according to the type of care sought (immunization shot versus pre-natal care), seriousness of the illness (common cold versus lung cancer), costs involved in care (\$25 office fee versus \$1000 surgical fee), and the personality of the person seeking care (healthy woman in her 20's versus a sickly elderly man in his 70's). Moreover, the research indicates that in general, patients, as consumers in the health care market, tend to be highly involved in the purchase of medical services, often fearing blame, punishment, and victimization in medical encounters (Berkanovic & Reeder 1974).

Type of Available Information: In the choice of a physician, an "individual decision maker must rely upon a variety of informal, highly subjective, sometimes inconsequential,

and perhaps conflicting sources of information" (emphasis added) (Feldman 1966, p. 580). One important source of information is the recommendations of friends, family, neighbors, etc. (Wolinsky & Steiber 1982). Although individuals usually consider the information acquired from interpersonal sources the "next best" thing to personal experience (Feldman 1966), this information is sometimes irrelevant, informal, and conflicting which results in confusion. In summary, in the health care context, there is a lack of objective, verifiable, and relevant information on which to base decisions.

Implications of Satisfaction/Dissatisfaction: Patient satisfaction and dissatisfaction has significant implications in the health care context. The former has been shown to enhance patients' psychological trust, physical well-being, compliance, and utilization of medical care. Dissatisfaction has been found to encourage doctor shopping and the incidence of malpractice (Betz & O'Connell 1983; Hulka, Kupper, Cassel, and Babineau 1975; Jasnoski 1985).

Implications of Alternative Hypotheses in the Health Care Context

These three alternative hypotheses have important, yet different implications, for actions that need to be taken to increase satisfaction with health care.

Implications of Hypothesis One

Hypothesis One proposes that satisfaction with high involvement products is determined by the disconfirmation paradigm or the relationship between expectations and performance. This implies that practitioners should attempt to influence both EXPECTATIONS and PERFORMANCE. The former can be impacted through consumer education programs, advertising campaigns, community workshops, brochures about office procedures, cost of services, medications prescribed, etc. The goal of such endeavors is to adequately inform patients about what to expect in the medical encounter. In terms of PERFORMANCE, practitioners should concentrate on the "caring" aspects of performance. Performance will be addressed in more detail in the next section.

Implications of Hypothesis Two

Hypothesis two states that satisfaction with a high involvement product is determined primarily by the performance of the product. Support for this hypothesis would suggest that practitioners should focus their attention on the PERFORMANCE aspect of medical care. Two types of behaviors are important in a patient's evaluation of a physician's performance: (1) Caring behavior, and (2) Curing behavior. The latter refers to the technical competency of the physician and the former refers to his/her affective behaviors or interpersonal skills. Lacking the ability to judge or evaluate the technical competency of a physician, patients confine their judgements to the mode of interaction, the caring behaviors of a physician (Ben-Sira 1976). Thus, to enhance patients' evaluation of performance, efforts should concentrate on the affective or caring behaviors of physicians. Some suggestions would include (1) developing coursework on interpersonal skill training and requiring it in the medical school curriculum, (2) offering continuing education seminars for physicians which allow them to sharpen skills and acquire new skills in verbal and non-verbal communication, and (3) strengthening the physician-patient rapport.

Implications of Hypothesis Three

Hypothesis Three proposes that if consumers are given more information, they will conduct extensive choice processing, develop well defined expectations, and consequently achieve high levels of satisfaction. Support for this hypothesis would indicate that consumers should be provided with more information to assist them in their choice of a health care delivery system such as solo practice, group practice, emergency care centers, health maintenance organizations, preferred provider organizations, etc.

In today's rapidly changing environment, the consumer is faced with a confusing multitude of alternatives that have only recently emerged. The Hypothesis Three suggests that to increase satisfaction with health care services, the consumer needs to be educated about how to choose a health care delivery system. As opposed to Hypothesis One, which implies that consumers must be educated about what to expect from their encounter with the physician, Hypothesis Three suggests the need to educate the consumer about health care alternatives. The focus of such an education program must be two-fold. One objective is to make the consumer aware of the alternatives, and the second is to educate the consumer about the advantages and the disadvantages of the alternatives and the criteria that can be used to evaluate them.

In summary, Hypothesis One implies that to increase satisfaction with health care, consumer education programs need to focus on influencing the consumer expectations about the encounter with the doctor. The performance of the doctor is also important according to this theory, since the discrepancy between the doctor's performance and expectations influences satisfaction. According to Hypothesis Two in contrast, the performance is the sole influencing factor of satisfaction. This suggests that the performance of the doctor needs to be improved especially in terms of the "caring" aspects of the encounter. The third Hypothesis implies that consumer education programs need to be instituted to make consumers aware of the health care delivery alternatives which are available and provide them with criteria to evaluate these alternatives.

Summary

This paper examines the determinants of satisfaction for a high involvement product from the perspective of consumer satisfaction theory and consumer choice theory. This investigation of the determinants of satisfaction leads to the development of three alternative hypotheses on the factors that influence satisfaction for high involvement products. The first hypothesis, based on the dominant paradigm in consumer satisfaction literature, the disconfirmation theory, suggests that the discrepancy between expectations and performance influences satisfaction with a product. The second hypothesis which is derived from recent research on consumer satisfaction proposes that satisfaction is influenced primarily by performance. The third hypothesis, based on consumer decision making theory, is that "reliable" and "valid" information can help increase consumer satisfaction with high involvement products.

The health care context is proposed as a relevant context in which to test these hypotheses because: (1) the choice of a physician is a high involvement decision; (2) there is a lack of objective information; and (3) satisfaction and dissatisfaction have significant implications for consumers (patients), practitioners, and society at large.

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RESEARCH ON PATIENT SATISFACTION:
POTENTIAL DIRECTIONS

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Abstract

This research is concerned with several issues. There is the need for general understanding in the area to help the focus of the public health care system and to help provide guidance to health care marketers in understanding their consumers. Finally, the domain of satisfaction both as patient and generic satisfaction is discussed and the implications for marketing to consumers in general and in the health area are discussed.

Introduction

Most of the studies in what has come to be called consumer satisfaction/dissatisfaction (CS/D) have approached its conceptualization and measurement in terms of consumer products or shopping outlets. Only a few have dealt with services (Day and Bodur 1977, Darden and Rao 1977, Braden 1979). Since a high proportion of consumers report dissatisfaction with some services (Day and Bodur 1977), it would seem appropriate to investigate this area for additional insight into the nature of CS/D. One research area in particular which appears to have been ignored is patient satisfaction with medical services. It is quite likely that research on consumer product/service satisfaction can be enriched by research that adds to the limited existing literature on patient satisfaction (Swan and Carroll 1979).

Besides contributing to a more general understanding of consumer satisfaction/dissatisfaction, additional research on patient satisfaction could prove valuable for resolving certain public policy questions about the U.S. health care system. Public attitudes toward this system, and toward the professions in general, have become more negative, manifesting themselves in the form of a variety of policy proposals that suggest removing some control over health-care delivery from the health-care professions themselves. Evidence concerning patient satisfaction may offer some leverage for the health care sector against social aggregation (e.g., community medicine or the formation of adverse public policy). On the other hand, evidence concerning patient dissatisfaction could suggest a need for greater social control.

Additional research on patient satisfaction could also be useful in guiding the marketing activities of health-care practitioners in the turbulent environment they are facing. There is no longer any question that health care must be marketed; the question now is how to market it. Research on patient satisfaction could contribute to the development of improved marketing approaches.

Thus, research on patient satisfaction can contribute to our understanding of consumer satisfaction/dissatisfaction in general, while at the same time providing practical help for formulating public policy and designing health-care marketing programs. The purpose of this paper is to suggest several directions for future research on patient satisfaction. The discussion begins by reviewing previous research that is relevant to the study of patient satisfaction. Next, the results of a study on patient satisfaction that was recently conducted by the American College of Obstetricians and Gynecologists are reported. Though this study was not actually conducted by the authors, it is discussed here because it is illustrative of the kind of research that has been done in the past on patient satisfaction. The study's research design and findings provide a good basis from which to suggest new research directions. The last section of the paper reviews several research directions where methodological and

substantive contributions can be made to our understanding of patient satisfaction.

Conceptualization of Patient Satisfaction

Research into consumer satisfaction has generally approached its conceptualization and measurement from two distinct theoretical perspectives: (1) in terms of the extent to which the individual feels his/her prior expectations of product performance have been confirmed or disconfirmed in the consumption process (Anderson 1973, Day 1977, Churchill and Suprenant 1982), and (2) in terms of the psychological distance between the product/service and the individual's ideal product/service in a multidimensional space representing salient product attributes (Day 1977). Most studies using the confirmation or disconfirmation of prior expectations approach have used one of three psychological theories as frameworks for studying the psychological processes associated with the assessment of the consequences of decisions: cognitive dissonance or assimilation theory, contrast theory, and assimilation-contrast theory. These theories provide alternative predictions of how the consumer behaves when expectations are not met by product/service performance (Anderson 1973).

The attributional approach visualizes the consumer as making rational decisions in order to maximize utility and satisfaction, and as implicitly or explicitly evaluating the cause of the performance (Valle and Wallendorf 1977). Although utility theory is highly abstract, it does provide an elegant model whereby the consumer experiences satisfaction or dissatisfaction and is also the method used in most previous research on patient satisfaction. Therefore, this approach will be emphasized in the remainder of this paper.

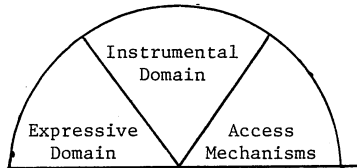
Conceptually, consumer satisfaction has been defined as the overall post-usage response to many different facets of a product/service (Aeillo, Czepiel and Rosenberg 1977), as the person's immediate reaction to a complex situation (Handy 1977), and as dependent on not only the product/service but on the experience surrounding its acquisition (Cardozo 1965). Evaluation may encompass a number of attributes of the product/service, and in the patient satisfaction literature a number of attributes have been reported. According to Churchill and Suprenant (1982), satisfaction can be operationally assessed as the sum of the satisfactions with the various attributes of the product or service.

Several studies have found provision of information to be an important aspect of physician conduct in determining satisfaction (Ware and Snyder 1975, Doyle and Ware 1977, Comstock and Slome 1973, Jenry 1976, Berhanovic and Marcus 1976, King and Goldman 1975), a result paralleled in consumer product research (Hunt 1977, Wall, Dickey and Talarzyk 1977). The lack of information provisions has been found to lead to poor compliance with treatment (Korsch and Negrete 1972) and can be therefore considered an important professional quality, or instrumental attribute, of patient satisfaction. Hulka and others (1970) found three domains: cost/convenience of the service, personal qualities of the physician, and professional qualities of the physician. Similarly, three other independent studies identified much the same domains: professional and personal qualities of the physician, and access mechanisms (cost, payment structure, location, waiting time, etc.) (Ware and Snyder 1975, Doyle and Ware 1977, Manglesdorf 1979). This suggests a limited set of basic attributes which determine satisfaction with a medical service and which describe domains not unlike the instrumental expres-

sion dimensions of consumer satisfaction postulated by Swan and Combs (1976).

The conceptualization for consumer satisfaction/dissatisfaction proposed here is very similar to the above mentioned domains, but it has been generalized for potential application to general CS/D. The three domains of this model include the (1) instrumental domain, which corresponds to professional qualities of the physician, (2) expressive domain, meaning personal qualities of the physician, and (3) access mechanisms, which include cost/convenience.

FIGURE 1
DIAGRAM OF CONCEPTUAL MODEL



Though the study discussed in this paper is about patient satisfaction, it is proposed that this model also applies to general CS/D. Suppose, for example, that a person is going to have dinner in a restaurant. He decides whether to have fast food or eat in a sit down place, what price he wants to pay, and what location he wants to go to. These are access mechanisms. If it is a very expensive restaurant, he wants the hostess and/or waitress to be pleasant and helpful and a nice atmosphere, falling into the expressive domain. Finally, he wants the food to be good and prepared correctly, this would fall into the instrumental domain.

It is expected that levels of satisfaction are expressed by patients according to the extent to which doctor and patient have the same summary evaluation (salience) of attributes or domains. This similarity or overlapping of perceptions has been called agreement or understanding in descriptions of interpersonal systems (e.g. Chaffee and McLeod 1968).

The Study

Typical of the previous research on patient satisfaction is a study recently conducted for the American College of Obstetricians and Gynecologists by a commercial marketing research firm. The study began by interviewing twelve OB/GYNS from across the country and asking them to choose the most important determinants of patient satisfaction. Participating physicians were predominantly male, in group practice, and from urban areas. In-depth interviews were conducted either in person or on the telephone with each of twelve physicians. They were asked (1) to comment on the importance of those issues emerging from the literature to their practice and (2) to discuss those aspects of the physician-patient relationship they wanted most to be addressed in a planned patient survey.

The issues included on the subsequent questionnaire were (1) medical costs, (2) billing and insurance procedures, (3) waiting time and appointment procedure, (4) information about procedures and treatment provided by the physician, (5) prenatal, postnatal, and primary care, (6) perceptions of breast and pelvic examination, (7) desire to learn breast self-examination, and (8) desire to discuss sexual topics with the physician. The three domains discussed most frequently in the literature, access mechanisms (1-3), instrumental qualities of the physician (4-7) and personal qualities of the physician (8) were all judged important issues by the physicians. Personal qualities of the physician appear to be perceived as the least important of the domains to physicians since only one issue (8) addresses this domain.

The questionnaire was pretested among 20 women between the ages of 21 and 35. After minor revisions, 200 questionnaires,

consisting of 45 closed-ended questions and three open-ended questions, were mailed to each of the twelve OB/GYN practices. Closed-ended questions were scaled from 3 to 6 points, depending on the nature of the question (i.e., for attitudes toward aspects of the exam categories were "very comfortable, somewhat comfortable, as comfortable as can be expected, somewhat/very uncomfortable). Questionnaires were personally distributed by a staff member to the first 200 patients who arrived for appointments. Of 2,400 distributed questionnaires, 1,349 were received which were usable--a response rate of 56.2 percent. Table 1 shows the composition of the sample.

TABLE 1
COMPOSITION OF THE SAMPLE

Age	Percent of the Sample (n=1349)
Under 25	20%
25 - 34	50
35 - 49	19
Over 49	12
Length of time Seeing Physician	
First-time visit	2
One year or less	21
More than 1 year	34
Over 5 years	43
Reason for Visit	
Periodic gynecological exam	35
Prenatal or postnatal exam	21
Counseling	1
Other	8
Perception of OB-GYN as Principal Physician	
Yes	63
No	34
Don't know	3

Although the response rate was fairly high, certain biases were present, and the results must be interpreted with due caution. Response rates varied considerably among separate practices, from a high of 99 percent to a low of 19.5 percent. Non-respondents could be the most dissatisfied patients, particularly those in practices with the lower response rates. The distribution of questionnaires to the first 200 patients arriving for appointments may have biased the sample toward those patients with particular reasons for more frequent visits (e.g., obstetrical patients nearer term, gynecological patients with specific problems needing regular treatment). This method also excluded patients in the hospital and, most important, those who no longer used the particular practice. The latter group may well be the most dissatisfied since purchase and consumption are linked to repeat purchase and brand loyalty by satisfaction (Churchill and Suprenant 1982). In addition, the data were collected from private practices and excluded indigents who must rely on public medical care; however, since patients of private practice are freer to exercise choice, satisfaction is a more necessary outcome of continued consumption of the services of a particular practitioner.

Finally, the response categories for most of the questions were upwardly biased. Possible responses to "satisfaction with scheduling appointments" were "very satisfied," "satisfied," and "dissatisfied;" response categories for adequacy of information provided were similar: "very adequate," "adequate," and "inadequate." Such biased items lead the respondent to provide "right" (more positive) answers (Babbie 1973).

Results

For comparison, Tables 2 and 3 contain the responses to the close ended and open ended questions. While positive results were high for close ended questions, nearly 75% of the open ended questions had negative responses.

Access Mechanisms.

Patients seemed quite satisfied with scheduling of ap-

TABLE 2
SURVEY RESULTS

Topic and Response	Percent of Sample
Appointment Scheduling	
Very Satisfied	75
Satisfied	25
Dissatisfied	1
Helpfulness of Staff	
Very Good	75
Good	25
Unhelpful	1
Billing Procedure and Information	
Sufficient	88
Insufficient	12
Fees	
Reasonable	91
Unreasonable	9
Comfort of Exam	
Very comfortable	51
Somewhat comfortable	20
As comfortable as can be expected	25
Uncomfortable	4
Information Given About Problems	
Very Adequate	73
Adequate	25
Inadequate	2
Opportunity to Ask Questions	
Very Adequate	83
Adequate	15
Inadequate	2
Desire for Breast Exam Instruction	41
Prenatal/Postnatal Primary Care	
Very Satisfied	50
Satisfied	45
Dissatisfied	5
Willingness to Discuss Sexual Topics with Doctor	84
Feel Comfortable Discussing Sexual Topics with Doctor	71
Desire to have Physician Initiate Discussions On Sexual Topics	
Yes	32
No	42
Not Sure	26

TABLE 3
SUMMARY OF OPEN ENDED QUESTIONS

Topic	Comment Summary
Miscellaneous	Need more privacy; soundproof rooms; more comfortable furniture.
Appointment Scheduling	Takes too long to get an appt; want varied hours or Saturday hours.
Time in Waiting Room and Exam Room	Wait too long (up to 2 hours); don't call patients when the doctor is running behind.
Support Staff	Staff not friendly or helpful; don't like nurse practitioners; in group practice, don't like seeing a different doctor each time.
Exam	Need new gowns, rooms too cold; don't like discussing things in the exam room.
Doctor as Information Provider	Take more time with patient; make small talk during exam; doctor in too much of a hurry; doesn't explain procedures; doesn't ask if there are questions.
Prenatal/postnatal Care	Spend more time explaining what is happening; give more information; want more printed material.
Fees	Unreasonable; lab fees too high; receptionist shouldn't discuss billing problems in waiting room; don't know.

pointments. About three-fourths of the respondents were very satisfied, about one-fourth were satisfied, and only 1% were dissatisfied. Open-ended responses indicated, however, that a number of patients have to wait too long to get an appointment, and requests were made for more varied hours as well as for receptionist to inform by telephone and in person if the doctor was running far behind schedule.

Helpfulness of the staff was rated as very good (by about 3/4 of the sample) or good (1/4). Again, only 1% reported the staff as not helpful. Open-ended responses indicated less satisfaction with the staff, requesting more respect, friendliness, and more satisfactory information. Most patients (88%) said they received sufficient information on billing and insurance procedures; most (91%) thought fees charged were reasonable, while 9% thought them unreasonable. Open-ended responses again indicated more dissatisfaction; fees were considered too high in relation to the short amount of time spent with the physician.

Instrumental Qualities of the Physician.

Just over half the respondents found examinations very comfortable, 20% found them somewhat comfortable, 25% found them "as comfortable as can be expected," and about 4% found them uncomfortable. Patients rated information received about problems, exams, and treatment as very adequate (73%) or adequate (25%); while opportunity to ask questions and physician willingness to respond were rated even higher (83% very adequate, 15% adequate, 2% inadequate). Again, open-ended responses indicated a desire for the physician to spend more time with them, a feeling of being rushed, and a desire for physicians to initiate more discussion. Many (41%) indicated a desire for more instruction on breast self-examinations; about half were very satisfied with prenatal/postnatal primary care (45% satisfied and 5% dissatisfied).

Personal Qualities of Physician

Most patients (84%) felt the physician was the appropriate person with whom to discuss sexual topics and 71% said they felt comfortable doing so. However, about two-thirds either did not want the physician to initiate the discussion (42%) or were not sure (26%). Verbatim responses ranged from indicating gratitude for special concern to disappointment at seeming lack of concern.

Implications

The implications from the study are that patients are generally satisfied with access mechanisms and the instrumental qualities of the physician. Verbatim responses indicated less satisfaction with these areas, perhaps due to the nature of the closed-ended questions and the halo effect in testing. Typically, high levels of satisfaction with different aspects of medical care have been reported (Freer, Burdette, and Crocker 1971, Day and Bodur 1977, Justice and McBee 1978), but Noyes (1974) argued that these high scores could be due to a tendency for patients to respond with stereotyped, socially acceptable answers.

The results of the study indicate three important findings. First, the conceptual domains of patient satisfaction appear to be adequately identified. Second, although agreement exists between doctors and patients on the importance of two domains, access mechanisms and instrumental qualities of the physician, a lack of agreement appears concerning the third domain of personal physician qualities. The personal qualities of the physician, deemed less important by the physicians themselves, appeared to be more important to patients and the area of least satisfaction. This indicates that physicians are not fulfilling an important need which exists in order to ensure complete patient satisfaction. Third, analysis of open-ended questions (the verbatim responses) indicates some divergence from closed-ended responses. The major shortcoming of closed-ended questions lies in the structuring of responses; that is, the response categories should be exhaustive, mutually exclusive and unbiased (Babbie 1973). This may explain the divergence of responses and may indicate to patient satisfaction researchers and practitioners that "true" responses may not emerge with only closed-ended questions. It seems, therefore, important to continue to encourage open-ended responses in order to get a more accurate impression of satisfaction and also to bring to attention unquestioned

issues which are important to the patient. Consumers of health care, although traditionally "satisfied" according to research instruments, may indeed not be quite as apt to indicate satisfaction when allowed to express themselves freely. Research (e.g., Blair *et al* 1977) indicates that particular methods should be used when eliciting responses on sensitive subjects such as drinking and sex.

Research Directions

This assessment of the ACOG survey reveals some issues which may be useful in directing future research. These directions can be addressed in terms of methodological and substantive issues.

Methodological Issues.

The shortcomings of the sampling approach may be overcome by more careful attempts to include non-respondents. Instead of distribution to the first appointment arrivals, efforts could be made to elicit responses from patients whose visits are less frequent, those who may deliberately schedule appointments on certain days (e.g., Friday or Saturday) or dates (e.g., end of month), those who frequently cancel appointments, those in the hospital after delivery or surgery, and those who have left the practice.

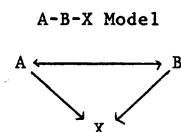
The instrument could also be improved. The three conceptual domains of patient satisfaction which emerged from the literature appeared to have been identified and agreed upon as important by both physicians and patients. However, personal qualities of the physician were deemed more important by patients than physicians, thus there should be a more even balance of attributes represented.

Other consumer satisfaction/dissatisfaction measurement approaches might be used. To avoid the tendency for patients to respond with stereotyped, socially acceptable answers, before and after treatment measures for fulfillment of expectations could be employed (Noyes 1974). Recent research on satisfaction has focused on the relationship among perceived expectations, disconfirmation, and satisfaction (e.g., Oliver 1979, 1980). Churchill and Suprenant (1982) found that the effects of perceived expectations, performance evaluations, disconfirmation and satisfaction differ for durable and non-durable products; disconfirmation positively affected satisfaction with a non-durable good while satisfaction with a durable good was determined solely by product performance. This type of research has not been applied to services and could provide further insights into the determinants of satisfaction in general and patient satisfaction in particular.

Another approach which has not been explored in patient satisfaction research is the analysis of the physician - patient dyad itself, although this is still the primary mode of health care consumption (Parsons 1960). The seller-buyer dyad has often been analyzed in terms of the personal selling role (e.g., Larsen and Rootman 1976), and studies have found a positive relationship between satisfaction with medical care and the degree to which the physician conformed to the role that the patient expected (e.g., Swan and Carroll 1979). One method of such analysis which might be useful would involve assessing perceived expectations and subsequent evaluations of the dyad performance of both patient and physician in order to more accurately determine the amount of agreement which exists between patient and physician. Lack of agreement on expectations and evaluations of certain attributes may result in dissatisfaction.

This method is based on the co-orientation and A-B-X model (Newcomb 1953), where the patient (A) is oriented to both the physician (B) and the object of health care (X) (Figure 2). The differences in orientation and perceptions of the other persons orientation may lead to satisfaction or dissatisfaction.

FIGURE 2



Source: T. Newcomb (1953), "An Approach to the Study of Communicative Acts," *Psychological Review*, 60, p. 396.

Finally, different questioning techniques could be used. The closed-ended response categories should be more carefully balanced in order to reduce yea-saying by respondents. More open-ended/unaided recall items might elicit better accuracy of responses, especially if placed before the closed-ended questions. The use of counterbiasing statements and projective techniques (Kinnear and Taylor 1983) might yield more honest readings of patient satisfaction (Blair *et al* 1977).

Substantive Issues.

From the open-ended responses, it appears that some issues which were not included in the questioning are important to patients. Systemization of appointment scheduling may increase satisfaction based on suggestions that patients be informed both in person (those already waiting) and by telephone (those with appointments later in the day), if the physician is far behind schedule. Other comments indicated lack of support staff courtesy and inadequacy of printed information.

A final issue concerns the restriction of ideas in the study of those specific to obstetricians/gynecologists. Insights might be gained not only from consumer satisfaction/dissatisfaction concepts in general but from even broader perspectives in marketing literature.

There are several areas for research that are suggested based on the results of this study. First, the same basic study could be repeated using unbiased response generators. This would validate the results of the first study. Then, to test the usefulness of the conceptualization to general patient satisfaction/dissatisfaction, a similar study could be performed for a tangible product type (such as an automobile), and a product that has both tangible and intangible aspects (such as a restaurant). Finally, there is the potential to study the applications of this model for general consumer satisfaction/dissatisfaction. For example, in this study the patients found the expressive domain the most important for tangible products or other services? A contingency model might be developed for the three domains and the kind of product or service being offered.

Another issue that can be raised is the affiliation of the party conducting the research. Having an organization conduct it's own research or interpret the results may not lead to the most objective of conclusions. For example, in the ACOG study, there was a lot of yea-saying among the close-ended questions, and even some of the open ended responses were "qualified." An example of this might be "Dr. X seems very rushed and doesn't answer my questions, but otherwise I'm perfectly satisfied and feel he's an excellent doctor." The doctors may interpret that response to mean that the complaint is minor when in fact, it may be a very important concern. This isn't to say this is done on purpose, but one might expect the doctor to subconsciously interpret a response to favor his best interest.

Conclusions

Negative public attitudes toward the U.S. health care system and toward the profession in general indicate a necessity for further research on satisfaction with these services. This study indicates future research directions which may contribute to a more general understand-

ing of consumer satisfaction/dissatisfaction in general and patient satisfaction in particular, and which could contribute to public policy and marketing decisions in the health care industry. If methods of increasing patient satisfaction can be found which do not compromise the patient's trust or the physician's standards of quality then there is less need for public policy which removes control of health care delivery from the health care professionals.

Research on patient CS/D can have impact upon medical practice marketing in several ways. By finding out what patients are unhappy about, the physician has a basis from which to initiate change to bring about an increase in patient satisfaction. While satisfaction is based on how close the patient and the doctor salient attributes are, change can only be made on one side of the dyad - by the doctor. This fact underscores the need for physicians to learn what their patients' expectations are. For example, if many patients feel that the staff is unfriendly and not helpful, the doctor (as a manager) should make sure that the staff does behave in a friendly and helpful manner. Also, research can uncover more broad goals toward which the physician can work. In this study, for instance, it can be inferred that many patients want a doctor who is kind and caring, but not overly friendly, and who is efficient without being mechanical. The study also pointed out the different expectations patients have. For example, some patients want the doctor to initiate conversations on sexual topics, while others feel they should be the ones to initiate the discussion. This gives responsibility to the physician to "feel out" the wishes of his patients, so he can act accordingly. Finally, research on patient satisfaction can bring out important issues that aren't directly related to immediate patient satisfaction. In this study, most of the women considered the OB/GYN to be her primary care physician. With this knowledge, physicians should not overlook problems that are not related to his or her specialty, thinking that it is being taken care of by another doctor. Research on patient CS/D is important because without the knowledge it gives the physician, s/he can't make the informed marketing decisions that are becoming more and more necessary in today's health care market.

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THE CREATION OF PRODUCT SYMBOLISM

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Abstract

A novel perspective of the process of product symbolism and symbolic communication is proposed. Based upon the sociological model of culture production systems, the flow of product meaning through institutional and consumer subsystems is described. Consumers are viewed as active contributors to product symbolism, instead of mere recipients of product meaning.

Introduction

During the 1950's there was substantial discussion concerning the symbolic aspects of products (Gardner and Levy 1955, Levy 1959). As Levy (1959, p. 118) noted, "People buy products not only for what they can do, but also for what they mean." This line of thought was extended forward during the 1960's to incorporate the notion of congruence between the lifestyle a consumer chose and the symbolic meaning of the products s/he purchased (Levy 1963). However, during the 1970's there was a hiatus of research and discussion regarding product symbolism and the ways in which meaning may be ascribed to products. This dearth of interest was possibly due to the excesses of the Motivation Research era, yet there is much to be gained -- both pragmatically and conceptually -- from inquiries into the processes underlying product meaning and consumption (Levy 1980).

The purpose of the present paper is to extend prior ideas on product symbolism in some novel directions. A central proposition is that marketing systems (Bucklin 1970, 1972) may also be appropriately conceptualized as culture production systems (Crane 1976). For our purposes, a culture production system may be defined as a system of specialists whose task it is to create, manage, and disseminate cultural symbols (Peterson 1979, Becker 1974, 1978, Hirsch 1972, Clignet 1979). Let us outline what is meant by each term [see Figure One].

Specialists are individuals whose occupation is the development of cultural symbols. For example, apparel and automobile designers, composers, architects, food chemists, and motion picture directors are members of the creative subsystem (Hirsch 1972). Such individuals originate product concepts, i.e., innovations, which are then selected for development by the managerial subsystem (Hirsch 1972). The managerial subsystem consists of specialists in the manufacture and distribution management of cultural products. Examples include Warner Brothers Records, Procter & Gamble, Paramount Pictures, General Motors, and Sears. In some of these examples, the creative subsystem is incorporated into the managerial subsystem (Procter & Gamble, General Motors); while in others it is separate (Warner Brothers Records, Paramount). Sears operates in both modes -- contracting with creative subsystems for some of its products and generating others internally. A third group of specialists is found in the communications subsystem, which functions to provide information about products to consumers. Examples include advertising agencies and public relations firms, professional critics, the industrial/trade press, and consumer-oriented, specialized media.

Through the integrated efforts of these three specialized subsystems, cultural products are produced and disseminated to consumers. A cultural product is defined within this context as a collection of tangible and intangible attributes, and is conceptually analogous to a marketing product in the sense implied by Kotler (1972) and Bagozzi (1975, 1979): For example, a bottle of aspirin, a motion picture, an automobile, and a concert performance are all products emanating from various cultural production

systems.

Culture Production Systems and Product Meaning

Culture production systems are responsible for providing products with meaning prior to their dissemination to consumers. A closer examination of how this meaning-formation process functions can provide some useful insights into new product development.

In Step 1, a product is conceived within the mind of a specialist in the creative subsystem. At this stage, the product is composed of intangible (i.e., idealized) attributes. These intangible units must then be translated into an external, tangible form to make possible the transference of the product to decision makers in the managerial subsystem. For example, a musician may record a demo-tape, a chemist may formulate a sample of a new food supplement, a playwright may write a new script, and so forth.

Of interest in Step 1 are the criteria used by creative subsystem specialists in formulating new product concepts. It has been proposed (Hirschman 1983; Polanyi and Prosch 1976) that some individuals responsible for originating novel product concepts may follow a set of personal aesthetic/ideological criteria which are not congruent with consumers' wants or managerial subsystem selection criteria; whereas other creators may be much more responsive to both consumers' and managers' values. Thus, new product originators may be ordered along a continuum based upon their willingness to comply with consumer and managerial demands regarding the types of products they create. The dual objectives of being true to one's own creative values, while at the same time achieving large-scale commercial success for one's creations, may be a difficult dilemma for some creative specialists (Michelson-Bagley 1981).

In Step 2, managerial decision makers examine the products emanating from the creative subsystem and select those to be commercially disseminated. As Hirsch (1972) notes, many cultural symbols are filtered out of the system at this point. Many more novels are written, dresses are designed, and foods developed within the creative subsystem than ever are made available to consumers. Further, products that are selected for dissemination usually undergo some modifications in their tangible form, while being prepared for mass distribution by the managerial subsystem. This process is commonly termed commercialization (Hirschman 1981). Such changes may alter the attributes of product so that it no longer resembles the concept originating in the mind of its creator.

Of importance here are the selection criteria used by managerial specialists for procuring novel material. Two tentative propositions may be suggested. The first is that in industries distributing primarily utilitarian¹ products (e.g., aspirin, detergent), feedback from the consumer may be sought more extensively during the commercialization process. For example, consumers' responses may be sought during the successive stages of concept testing, prototype development, new product test marketing, and regional expansion.

There are several reasons supporting this proposition. First, such products lend themselves to the inexpensive development of multiple options, each of which can be tested for consumer acceptance. For example, the color,

¹ By 'utilitarian' is meant products used to achieve functional, extrinsic objectives (e.g., relief of headache pain)

scent, and density of a new detergent can be manipulated relatively easily at the concept and prototype testing stages. Second, consumers can likely provide more reliable data regarding their reactions to alternative treatments of this type of product, because the results are more directly observable (e.g., relief of headache, cleaning of clothes).

Third, the creators of utilitarian products are likely to be more consumer-oriented than their creative counterparts in such areas as ballet or cinematography. In perhaps the majority of industries producing utilitarian products, the creative subsystem is integrated into (and dominated by) the managerial subsystem (e.g., Procter & Gamble, General Foods). Hence, creative specialists in such industries may experience less conflict between their own goals and those of the company for which they work.

Conversely, a second proposition is that for primarily aesthetic² products, such as motion pictures, artworks, and literature, consumer's reactions will be less frequently sought during the selection and development process, and those of creators and managers will be more extensively relied upon. There are several rationales for this: First, products such as musical compositions, sculptures, novels and plays lend themselves less readily to alternative treatments. Their constituent elements combine synergistically to form a unique gestalt (Hirschman 1983; Polanyi and Prosch 1976), and altering even one element of the composition may act to create another gestalt that differs in many, unpredictable ways from the original alternative.

Second, consumers are likely to be less able to predict their reaction to such products in advance of experiencing them in their final form. Hence, concept testing is likely to possess less predictive value (Hirschman 1983). For example, to be given story outline of a potential movie would likely provide consumers with insufficient information with which to gauge their reaction to the finished product. Additionally, developing realistic prototypes of alternative versions of aesthetic products is likely to be almost as expensive as producing each in final form. Finally, the creators of such products would likely be uncooperative in such testing efforts. Many architects, authors, directors, and designers, it is believed, are to be found at the self-oriented end of the creative continuum mentioned earlier. To the extent that they view a song, novel, or painting as arising from some inner vision, they are likely to resist attempts at altering it in order to increase its commercial marketability (Hirschman 1983).

Hence, it is posited that in selecting aesthetic products for commercial production, managerial specialists rely primarily on their own intuitive response to the creator and his/her ideas. Such intuitive decision-making is not uncommon in the motion picture, legitimate theater, and recording industries, where objective criteria are few and consumers' a priori reactions are believed unreliable or very difficult to obtain. In such situations, the most common approach to new product selection is likely to be the track record of the creator and the procuring manager in originating and selecting successful products.³

The final product forthcoming from the managerial subsystem may be viewed as a composition of formal, controlled, tangible attributes. By formal is meant

2

By 'aesthetic' is meant products which are consumed for their intrinsic qualities, e.g., their ability to communicate beauty, awe, or arouse emotion.

3

Based upon author's communications with Bob Krasnow, Vice President-Talent for Warner Brothers Records.

that the attribute is created by institutional specialists; that is, it is incorporated within the product by persons in the creative, managerial, or communication subsystems. This distinction is useful to segregate those attributes added to a product by institutional personnel from those added by consumers, which are termed informal. The term controlled refers to attributes incorporated within the product which are under the jurisdiction of managerial decision makers. This would constitute the portion of product meaning which they control either through the manufacturing process, or by control over advertising/promotional messages emanating from the communications subsystem.

Finally, the term tangible refers to objectively verifiable elements of the product -- its chemical composition, size, weight, color, density, height, length, etc. Hence, the product output by the managerial subsystem consists of a physical entity, whose form and content are the result of decisions made within the managerial subsystem. For example, a bar of soap, a motion picture film print, a record album, and an automobile are formal, controlled, tangible products at their point of departure from the managerial subsystem.

In Step 3, the communications subsystem issues messages which provide the product with additional meaning. There are several important points regarding this phase. First, the content of some communications subsystem messages is influenced by the managerial subsystem, while others are beyond its control. For example, the content of advertisements, publicity releases, package labels, and sales promotion displays are largely controllable by the managerial subsystem. However, the content of other messages is largely uncontrollable. For example, the published reactions of professional critics, reporters, rating services, and so forth are not generally controllable by the managerial subsystem.

Further, in keeping with the controllable/uncontrollable nature of messages output from the communications subsystem, some of the information may be desired by the managerial subsystem, while some is not. For example, Columbia Pictures in distributing a movie may instruct its advertising agency to describe the product as "erotic" and "exciting." We could rephrase this to say that the managerial subsystem wanted these two intangible attributes⁴ to be associated with the product and instructed members of the communication subsystem, which it controlled, to undertake this task. At the same time, professional critics view the movie and issue their reactions in the form of reviews. These may contain several additional intangible attributes (e.g., wonderful, boring), which also become associated with the product, but which are not controllable by the managerial subsystem. Because they are not controllable by managerial decision makers, such messages may contain negative evaluative information regarding the product.

Using our earlier nomenclature, two types of attributes emanating from the communications subsystem can be identified. First are the formal, controlled, intangible attributes, which are added to the product by communications specialists controlled by managerial decision makers. Second are the formal, uncontrolled, intangible attributes added to the product by communications specialists not under the control of managerial decision makers. These two types of attributes provide the consumer with the means to make a symbolic interpretation of the tangible product. In other words, they tell the consumer what the physical entity represents, i.e., what it symbolizes.

4

Intangible attributes are those which do not alter the physical form of the product, but do help to determine its symbolic meaning, e.g., banal, prestigious, masculine.

The Roles of Consumers in Contributing to Product Meaning

A fourth group of participants in the creation of product meaning is consumers. Despite the fact that consumers are often viewed merely as recipients of product meaning, they may also be active contributors to symbolic meaning, as well. A consumer's participation in creating product meaning begins when s/he associates intangible attributes with it, which were not derived from culture production system sources. For example, in reading an advertisement about a new home computer, the consumer may mentally generate a set of product associations, for instance, "complicated" and "expensive", which are not contained in the advertisement. These intangible associations constitute his/her personal contribution to the meaning of the product. These attributes may be unique to the consumer -- being derived from idiosyncratic life events -- and do not necessarily resemble those generated by other individuals (Hirschman 1981).

A second way consumers may influence a product's symbolic meaning is by communicating their idiosyncratic interpretations to other consumers. This type of interpersonal communication represents the spread of uncontrolled intangible attributes from one consumer to another, and has two related effects. First, it decreases the proportion of managerially-controlled symbolic meaning assigned to the product. Second, such interpersonal communication serves to increase shared, uncontrolled symbolic meaning among consumers. In other words, interpersonal communication causes more consumers to share symbolic product beliefs, which are beyond the control of product managers. This can have major implications, especially if interpersonal communication consists of the transmission of negative beliefs concerning the product, and if the sharing of those negative beliefs by consumers leads them to take collective action contrary to managerial objectives. Using the nomenclature previously proposed, attributes associated with products by consumers through personal interpretation and interpersonal communication would be labeled as informal, intangible, and uncontrolled.

Thus, there are two potential sources of informal product meaning (idiosyncratic consumer associations and shared consumer associations) versus three for formal product meaning (managerial subsystem, controlled communication subsystem, and uncontrolled communication subsystem). Also of interest is the fact that there are three potential sources of uncontrolled product meaning (idiosyncratic and shared consumer associations, uncontrolled communication subsystem associations), suggesting the pragmatic problems encountered by managers trying to manipulate product meaning through the formal channels they control. Finally, it should be noted that the proportionate shares for each source could conceivably have a range of $0\% \leq X \leq 100\%$ of product meaning. The actual proportion contributed by each is subject to a variety of factors (e.g., advertising budget, word-of-mouth activity, personal interest, etc.).

Culture Production Systems and Product Innovations

Application to Planned Social Change

The flow of product meaning outlined above depicts the social movement of the product through four subsystems, each of which increments and/or alters its meaning. The process described is somewhat like that of a pearl which begins as a grain of sand and is transferred through subsequent oysters, each of which coats it with attributes, perhaps disrupting underlying layers in the process. This conceptualization depicts the meaning acquisition path followed by a novel product from its inception through its mass dissemination among consumers. Within the diffusion paradigm such a product would be termed an innovation (Robertson 1971). There are two sources of change inherent in a product: (1) its tangible attributes, and (2) its intangible attributes.

It is proposed that by creating a product that is completely novel in both its tangible and intangible structure, the culture production system brings forth a radical innovation. By altering the tangible or intangible structure⁵ of an existing product, the culture production system can create a lesser (continuous) innovation. For example, annual model changes in the Mercedes Benz 450 may alter its tangible structure somewhat, but leave largely intact its intangible attributes (e.g., prestige, high quality). Conversely, the chemical structure of Arm & Hammer baking soda was left intact, but its intangible meaning was altered in the campaign to reposition it as a deodorizing compound. Both the new model Mercedes Benz and the newly-positioned Arm & Hammer baking soda are examples of continuous innovations (Robertson 1971). However, their innovativeness was brought about using distinctly different mechanisms.

We may also use this framework to isolate and identify the various cultural subsystems responsible for creating novel products. To create a radical innovation, for example, the integrated efforts of the creative, managerial, and communications subsystems are required. The creative subsystem originates the novel, tangible prototype of the product; the managerial and communication subsystems are responsible for disseminating additional controllable and uncontrollable product attributes to consumers who, of course, may supply attributes of their own.

To create a continuous innovation that is novel in its tangible form (e.g., the new model Mercedes), cooperative efforts between only the creative and managerial subsystems are required. Conversely, to create a continuous innovation that is novel in its intangible form (e.g., deodorizing Arm & Hammer baking soda), cooperative efforts between only the managerial and communications subsystems are required.

Application to Informal Social Change

The foregoing discussion of innovation creation refers to planned social change--that is, changes in product meaning that are undertaken by formal (institutional) channels in the culture production system. A less explored phenomenon is informal social change--that is, changes in product meaning resulting from non-institutional sources. Consumers, themselves, are among the foremost progenitors of this sort of social change (Hirschman 1982).

Consumers can control a substantial amount of the symbolic meaning attributed to a product. If through interpersonal communication, consumers define a novel social meaning for an existing product, they can in effect, originate innovations by themselves. This phenomenon has occurred several times in recent years and is especially common among sects or subcultures. For example, during the 1960's jeans and t-shirts were socially redefined as "hippie" apparel. More recently, adherents to the "punk rock" subculture have symbolically redefined razor blades and safety pins as jewelry (Hirschman 1982).

In the past, little research has been conducted on instances of consumer-generated symbolic innovation, likely because of a perceptual bias by researchers that products come into society only through formal, institutional channels. However, with the shifting emphasis in consumer research from marketer-dominated to consumer-dominated phenomena (Belk 1984) it is likely that more interest will be directed toward this type of symbolic innovation.

Such activity by consumers constitutes an example of use innovativeness, although not in the sense that this term has traditionally been applied (Hirschman 1980). Use innovativeness refers to consumers' modifications of or extensions to a product's managerially intended function, for example, use of a plastic credit card to jimmy open a door lock, use of mayonnaise as a hair conditioner, use

⁵Or by altering both to a relatively minor degree.

of coat hangers as television antennae, and so forth. However, in the present context of creating product meaning, use innovativeness by consumers could also be applied to the consumer-originated redefinition of a product's social meaning by assigning new symbolic attributes to it.

As noted earlier, such cases of symbolic redefinition are perhaps most common in sects and subcultures. Such sects are often centered around an ideological core (e.g., hippies ----> anti-materialism, personal freedom, communalism; punk rockers ----> nihilism, anarchism) that they may desire to communicate to others and also which may serve to set them apart from the values present in society at large.

The redefinition of existing products as symbols may help sects to attain both these goals. For example, hippies wore patched jeans, t-shirts, and sandals to identify themselves and communicate to others their subcultural value of antimaterialism; similarly, punk rockers wear razor blades, metal spikes and engage in self-mutilation to identify themselves and communicate their values of anarchism and self-destruction to the surrounding society. Ideological subcultures and sects may, in effect, operate as mini-culture production systems -- self-contained sources of symbol creation, management, and communication. Consumer researchers, especially those who desire to implement the humanistic research methodologies of ethnography and participant-observation, would likely find the subcultural generation of product symbolism a rewarding avenue for research.

Summary

A novel theoretical perspective has been presented concerning product symbolism and symbolic communication. This perspective argues that the flow of products from producers to consumers may be characterized as a culture production system. A culture production system is responsible for the creation, management, and dissemination of cultural products. Acting through three successive and interactive subsystems, the culture production system makes available to consumers various sets of tangible and intangible attributes, which are termed products. The meaning of these products is controlled by various sources -- the managerial subsystem, the communications subsystem and consumers. Product meaning may be decomposed into a series of dichotomies, depending upon its source and content: tangible/intangible, formal/informal, and controlled/uncontrolled. Each of these dichotomies carries implicit assumptions regarding the interpretation, evaluation, and diffusion of the product.

It was proposed that consumers are active contributors to product meaning, utilizing both idiosyncratic interpretation and interpersonal communication to supplement the meaning provided by the culture production system. Because of their contributions to product meaning, consumers should not be viewed merely as recipients of products, but as producers of product symbolism in conjunction with the marketing system.

It was also proposed that innovations be recast as novel assemblages of tangible and intangible attributes. While most radical innovations are brought forth via formal institutions in the culture production system, it was also noted that some continuous innovations of a symbolic nature may be generated by consumers. This phenomenon is a frequent occurrence among sects and other consumer subcultures who create symbols to differentiate themselves from society and may operate as self-contained culture production systems.

FIGURE ONE

CENTRAL COMPONENTS OF THE CULTURE PRODUCTION SYSTEM

CREATIVE SUBSYSTEM

Functions to originate product concepts.
Examples include song writers, playwrights, food chemists, automotive designers.



MANAGERIAL SUBSYSTEM

Functions to mass produce and distribute selected products.
Examples include automotive companies, record companies, motion picture companies.



COMMUNICATION SUBSYSTEM

Functions to provide information about products to consumers.
Examples include advertising agencies, product rating services.

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HOW CONSUMER SUB-CULTURES CODE REALITY: A LOOK
AT SOME CODE TYPES

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Abstract

Writers in the area of symbolic consumption refer to how manufacturers and advertisers en-code--and consumers de-code--product designs, advertisements, pack designs, and even company logos. They implicitly suggest that some autonomous "code" exists yet few have tried to describe code systems and suggest implications of different codes for marketers. This article describes the code concept and provides examples of two types of codes, restricted codes and elaborated codes (based on the research of Bernstein 1973). Implications of these codes are provided for advertisers and product designers.

Background

Research on symbolic consumption has flourished over the last several years (ex. Hirschman and Holbrook 1982; Belk, et al. 1982; Levy 1981; Holbrook et al. 1984). Briefly, this research focuses less on consumer perceptions of the functional meanings of products and more on their perceptions of secondary (Eco 1980) or symbolic meanings. The focus is not on what the product does but rather what it means. All of the articles in this stream (note especially Solomon 1983; Csikszentmihalyi and Rochberg-Halton 1981) implicitly involve a symbolic interactionist perspective. This perspective is based on three premises: (1.) humans act toward things on the basis of the meanings that the things have for them (ex.: heavy breathing means two different things on a telephone verses in a gym), (2.) the meaning of things arises largely out of social interaction (we have to be taught what heavy breathing means on the phone), and (3.) meanings are not fixed; rather they are selected, transformed, suspended, and modified as part of an internal conversation that the individual has with himself (Is the heavy breathing a prank? For real? Who is it? etc.) (Blumer 1969). The focus of this article is on the second premise, viz., that meanings evolve from social interaction. Nearly all of the articles on symbolic consumption recognize this. Levy (1980) writes of socially shared "symbol systems". Hirschman (1980) refers to culturally and sub-culturally shared product attributes. Belk, Bahn and Mayer (1982) examine the process by which children are socialized into consumption symbolism patterns. And Wallendorf (1980) describes how aesthetic standards are created, diffused and moderated through social processes.

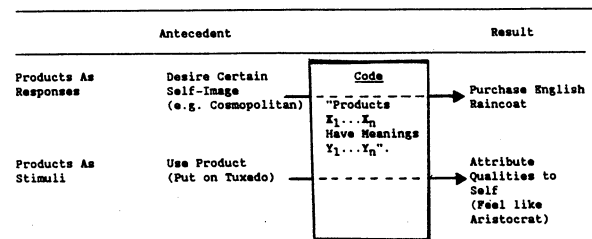
Similarly, Solomon (1983) and Kotler (1983) describe consumer action in terms of "de-coding" and "encoding" processes. The viewer of an advertisement de-codes the ad; he interprets the content of the ad based on some socially shared agreement of what the objects in it stand for (ex: big home = "wealth"). The content of this ad was originally encoded by a creative in an ad agency.

At the same time, products can act as stimuli to cause a particular self-image for a given individual (Solomon 1983). A young man climbs on a motorcycle, de-codes its meaning (tough, dangerous) and assigns that meaning to himself, i.e., he feels what the motorcycle represents.

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In short, the literature notes the existence of socially shared symbol systems or "codes" and describes the role they play in marketing and consumption processes. Usually, this role is one of an intervening variable between some stimulus (such as a new Mercedes model)--and a response (assignment of high status and desire to own it). Hillier (in Clark 1973, p. 409) reiterates this mediating role in the following quote: "an individual's relationship to the environment is mediated by an organization of representations into systems whose structure constitutes the means by which experience is made intelligible." In schematic form, the intervening role of a code system between consumers' needs and product selection--and between product usage and self-attribution--is shown in Figure 1. This figure shows the bi-directional relationship between products and consumers (from Solomon 1983) but adds to it (in heavy black lines) the mediating function of the code system.

FIGURE 1
BI-DIRECTIONAL RELATIONSHIP BETWEEN PRODUCTS AND CONSUMERS
INCLUDING MEDIATING ROLE OF CODE SYSTEM
(Adapted from Solomon 1983)



So far, there has been little examination of codes per se, in other words, the "what" of what is learned by new inductees into a given culture about consumption symbolism. Little has been done toward understanding types of rule systems or codes. The purpose of this article, therefore, is to describe the code concept and what it offers in terms of understanding consumers, and then provide examples of two code types. Implications of these types of codes for marketers are also included. We assume that if marketers know target market code systems, they will be able to develop advertising and product designs that facilitate de-coding efforts by these target markets. The first task, however, is to clarify the "code" concept.

Codes

Berger (1984) lists three types of codes: social codes, aesthetic codes, and logical codes. Social codes (ex. etiquette) specify correct vs. incorrect behavior; aesthetic codes (ex. Shaw's Major Barbara) specify good vs. bad art and literature; and logical codes (ex. Morse code, sign language, chemistry terms) specify meanings attached to certain sign objects which are used to characterize and understand the world. All of these satisfy Lachman et al.'s (1979, p. 68) definition of a "code": "a set of specific rules or transformations whereby messages, signals, or states of the world are converted from one representation to another, one medium of energy to another, one physical state to another." Codes, in short, specify how information is to be converted from one form to another.

As indicated earlier, codes represent socially shared

sources of product meaning. This is not to say, however, that product meaning does not spring from other sources. Hirschman (1980), for example, notes how meaning springs not only from the tangible attributes of the product (Jello Pudding means "creaminess" because it is, in fact creamy) but also idiosyncratic sources. Idiosyncratic sources, which Hirschman found to determine most of the product meaning for several product categories might include not only past experiences with the product but also the user's physiological make-up. Pabst beer might mean "sickness" to a person because he once got a bad can of Pabst--or because his individual neurological make-up doesn't jibe well with Pabst's chemical properties--or both.

The idiosyncratic or individual, cognitive analogue to the code concept is the schema. Schemas, according to Fiske and Linville (1980) are mental frameworks that individuals internalize and carry with them which help them organize new information, retrieve learned information, and guide situational behavior. Abelson's (1976) notion of the "script", for example, is a type of schema. As an example, an individual carries with him a cognitive script which programs for him a sequence of activities in a MacDonald's restaurant: look up at the menu, give the order, get it, sit down, etc. Any new learning about eating at MacDonalds will be organized and retained via that script or schema. In fact, MacDonald's restaurants everywhere are purposely laid out and organized in a way which satisfies consumers' expectations regarding "eating out" behaviors, that is, the sequence of ordering, paying, eating, etc. (Rapoport 1982).

The difference between the code concept and the schema concept concerns their levels of generality. A schema refers to a specific area of behavior. In the restaurant example above, it refers to a cognitive ordering of steps involved in eating in a restaurant. In contrast, codes refer to common tendencies of members of a given culture to cognitively organize every area of their lives. One term, for example, used by code theorists and symbolic anthropologists is "boundary" (Leach 1976). This refers to how strongly people demarcate separate spheres in life, i.e., work vs. leisure, sacred time (church service) vs. secular time, entree vs. desert, and living room vs. dining room. In some code systems, boundaries are very weak. The writer knows of student subcultures, for example, that maintain weak boundaries between library behavior, fraternity behavior, football game behavior, and classroom behavior. In other cultures, i.e., certain upper-class English cultures (Clark 1973), boundaries are firm and constant; life spheres such as living rooms vs. dining rooms and parties vs. football games are rigidly separate entities. Presumably, a highly enculturated member of the latter group might be somewhat befuddled in a fast food restaurant, where separate food courses -- salads, entrees, deserts, coffee -- are all purchased at once.

But first, what does the code concept buy us? The goal is to understand the set of rules that a group of people share and use to organize and make sense out of their environment. We contend that knowing a group's code provides a marketer with information that is not available from any other conceptual framework. To take an extreme example, suppose that an international marketer wanted to market a product to a nonindustrialized third world country. To do so, it planned to advertise that its product out-scored 3 competitors in product tests. A fact that Dorothy Lee (1977) has noted in certain third world cultures is their tendency to code everything in non-linear terms. For example, where our lineal culture includes such things as ordered career "paths", causal theories of history, and maps based on road lines, Trobriand Islanders perceive everything in non-linear terms. They see their careers and history as aggregates of unconnected, personal and social anecdotes, and structure their maps in terms of specific locations (i.e. not routes going in specific directions). Whereas our lineal culture has "lines" of

authority, many tribal cultures (Lomax 1970) consist of one, weakly designated leader and 100 to 200 semi-independent followers. In these same cultures, rather than have one singer sing to an audience (as in western culture), all singing is group singing. Since these people organize objects, time, and interpersonal relations in non-linear terms, marketing communications which rank order the performance of one's product versus competitor products would require special decoding efforts by these people. As Bernstein (1968) says, a two-step decoding effort would be required; step one: translate the message into one's own coding system, step two: decipher what the translated message means.

In short, the unique attribute of the code concept is its comprehensiveness. A code is a unitary concept which describes how members of a given culture subjectively structure interpersonal relations, geographic space, time, art forms, religion, language, architecture (Bunt, et al. 1980), and even home furniture arrangements (Douglas 1970). In contrast, the concept of "values" is the next most general concept. Values, however, refer to "desired states of affairs" for a given sphere of behavior--for example, "that all people have equal opportunity for economic advancement." The code concept is throughgoing; it represents a system of rules for the cognitive structuring of nearly all life areas. Also, as used in the writing of most sociologists, the terms "values," "norms," and "mores" imply that a group of people are familiar with nonconforming cases, e.g., not having equal opportunity, not serving in the army, not abstaining from cocaine. In a sense, they have a choice between different types of behavior. In contrast, the code concept indicates how people selectively perceive and organize reality. According to a given code, "equality" might be a nonexistent concept, in fact, there may be no word for it in the language!

One learns a culture's code mainly through its language. Language structures reality much the same as the underlying code does (Whorf 1956). A highly articulated language reflects a highly articulated structuring of reality. Also, words in the language specify which elements of the world will be attended to. Curiously, marketing researchers think they can learn the "languages" -- and underlying code systems -- of consumer subcultures in a few hours in focus groups. Cultural anthropologists claim it takes up to ten years to truly learn how a culture experiences and defines its external world!

Understanding Codes

Codes are like languages. They consist of primary elements (words, phonemes) and rules or an algorithm (or "grammar") for interrelating these elements (Eco 1980). Interestingly, several investigators (see Stiny and March 1981) have already written sets of rules (or codes) for conceptualizing product designs. Koning and Eizenberg (1981), for example, de-composed 11 house designs from Frank Lloyd Wright's "prairie design" period into essential elements (fireplace, rooms, porches, etc.), and devised a set of rules for designing Frank Lloyd Wright-style houses. One of the rules is that, "room additions to main living room should not exceed two-thirds size of main living room." They also built these rules into a computer program which generates house designs that many experts believe were designed by Frank Lloyd Wright. (See Appendix for example). Automobile designers who want to maintain a family similarity between all of the automobiles in their lineup might develop similar algorithms and programs for designing automobiles.

Research on a culture's code system begins by taking some functional area of the culture, for example, eating habits, language, or dress codes and then identifying components of this area as well as the underlying rules which determine how these components are interrelated. The researcher then studies other areas, looking for similar rules or algorithms. The goal is a single

algorithm which describes the total code system.

There are probably dozens of different ways to describe codes and code types. However, since this is only a first step at understanding codes and their implications for marketing actions, we focus on only two of the types of codes that researchers have studied so far, restricted codes and elaborated codes. These codes are described below along with implications for advertisers and product designers.

Restricted Codes

Bernstein's (1973) research on social relationships and linguistic patterns among middle and working-class London school children revealed two code types, restricted codes and elaborated codes. Restricted codes are dominant among working class cultures while elaborated codes are dominant among middle and upper-middle class cultures.

Restricted codes represent a high degree of sensitivity to the content of objects as opposed to the relationships objects share with each other, and a greater focus on description as opposed to analysis. A comment about Sears, for example, might be, "Sears treats you good; they're 'real' people"--as opposed to, "Sears has a more efficient home financial management center than Key Bank and City Bank although the interest on their insurance policies does not accumulate as fast as the industry average." Also, restricted codes call for less differentiation of objects, and meaning is largely dependent on context, that is, it tends to be implicit meaning. As Clarke (1973, p. 409), says, "Only those possessing a shared, unspoken, implicit understanding of certain features of the context can have access to its meanings." In a teenage gang, for example, an individual's identity, including his nickname, personality, etc. is largely dependent on the peer group. In the same gang, there are strong incentives to conform and few incentives to wear different clothes, have different interests or different behavior patterns from group norms.

In restricted codes, verbal communication relies heavily on non-verbal communication to communicate feelings. A woman in a fast food outlet asks "Where's the beef" and she looks mad. Since meaning is a function of shared, implicit experience, there are limited tendencies to create unique, individual or personal language forms.

Also, there are comparatively few adjectives or adverbs. Instead, words are strung together "like beads on a frame," (Clarke, p. 411) using simple conjunctions. Sentences are short, and rely on concrete, descriptive symbolism, e.g. "This product slices and dices and mashes and ..." As Clarke (1973, p. 409) describes the poetry of working class children, "it places an importance on the spatial ordering of lines, which allows symbols to reverberate against each other and points to the implicit and symbolic nature of space and the importance of condensed symbols."

The focus on individual objects (in place of a matrix of relationships) has implications for how these people code personal relationships, time, and personal feelings. More stress is placed on attributes of the individual ("he's a 'real person'") than formal role patterns ("he's supervisor to 30 middle managers"). Conceptions of time and one's own feelings are also relatively undifferentiated. The key time element, for example, is here and now, not different points in the past or future which might be causally linked (e.g. "if I start saving next year, I'll have a comfortable retirement"). Regarding feelings, one might say "I feel lousy" as opposed to "I feel anxious but mainly confident I can do the job." Since meanings are dependent on context, these people code spaces in terms of other spaces, e.g. "the front room", "the corner store".

Elaborated Codes

Elaborated codes, dominant among middle-class English people, represent a high sensitivity to differentiation between objects and how these objects are interrelated and hierarchically organized. The middle class child is born into a world that is carefully structured for him (or her), and soon learns to appreciate this structure. Their world, for example, contains a lot of qualifiers and causal connections: "If I buy bubble gum, my parents might be angry because the sugar is bad for my teeth." Meanings here are explicit. In contrast, the meaning of gum to a working class child is implicit: "Mom won't let me buy anything from the candy counter." This code is closely tied to these peoples' language patterns and determines how they cognitively organize social relationships, time, physical environment and personal feelings.

To the middle class person, language is seen as a set of theoretical possibilities for the transmission of unique experiences. The vocabulary is larger, and a premium is placed on verbalization of personal feelings which, in turn, are much more differentiated than in restricted code systems. Social interactions focus more on formal, relational components, and stress the instrumental qualities of these relationships, "if I do x for him, he is expected to do y." Time is also conceptualized in instrumental terms: "Save now for a better tomorrow." Physical spaces are organized based on formal, functional properties: "dining room", "financial district."

Elaborated codes and restricted codes are summarized in Figure 2.

FIGURE 2
THE IMPACT OF RESTRICTED CODES VS. ELABORATED CODES ON LANGUAGE,
SOCIAL RELATIONSHIPS, TIME, PHYSICAL ENVIRONMENT AND PERSONAL FEELINGS

	Restricted Codes	Elaborated Codes
General Characteristics	<ul style="list-style-type: none"> emphasize description and contents of objects low differentiation of objects meanings are implicit (context dependent) 	<ul style="list-style-type: none"> emphasize analysis and interrelationships between objects: hierarchical organization and instrumental connections high differentiation between objects meanings are explicit
Language	<ul style="list-style-type: none"> few qualifiers, few adjectives or adverbs verbal communications rely on non-verbal qualifiers to communicate personal feelings short sentences concrete, descriptive, tangible symbolism small vocabulary 	<ul style="list-style-type: none"> language rich in personal, individual qualifiers stress on verbalization of feelings language seen as a set of theoretical possibilities for communicating unique experiences large vocabulary, complex conceptual hierarchy
Social Relationships	<ul style="list-style-type: none"> stress attributes of individuals over formal roles 	<ul style="list-style-type: none"> stress formal role structure, instrumental relationships
Time	<ul style="list-style-type: none"> focus on present; have only general notion of future 	<ul style="list-style-type: none"> focus on instrumental relationship between present activities and future rewards highly differentiated view of future
Physical Space	<ul style="list-style-type: none"> rooms, spaces located in context of other rooms and places: e.g. "front room", "corner store" 	<ul style="list-style-type: none"> rooms, spaces identified in terms of usage; formal ordering of spaces; e.g., "dining room", "financial district"
Personal Feelings	<ul style="list-style-type: none"> low differentiation of feelings 	<ul style="list-style-type: none"> high differentiation of feelings

Implications for Consumer Behavior and Advertisers

Bernstein's findings are based on English subjects. English middle and lower classes are different from

American ones (see Young and Willmott 1965) so the English codes do not describe American ones. Nevertheless, before designing a large scale American code study, it is interesting to note that American consumers in middle and working class sub-cultures share certain similarities with their English counterparts in terms of cognitively organizing their worlds and more importantly, their buying behavior.

Lower class codes in both countries are characterized by a higher focus on object content and a lower focus on differences from other objects. Thus, lower class American consumers have been found to be more oriented to the inherent qualities of a product than differences from other products. Appliances, furniture, and clothing are bought with an eye toward sturdiness and comfort, not style or fashion vs. other brands (Rich and Jain 1968; Levy 1966). In contrast, middle and upper class consumers are more attuned to differences of design and style, and are more willing to experiment with modern furniture and colored appliances (Roscoe et al. 1977). As Levy notes, middle and upper class people are skeptical of television and television advertising yet are "strongly appealed to by sheer difference, by approaches that seem somewhat individual in tone." (in Kassarjian and Robertson 1981, p. 455).

The stronger tendency of American middle and upper-class consumers to perceive products in terms of instrumental benefits is well documented. The VALS program at Stanford Research Institute (Hawkins, et al. 1983), for example, notes the upper-class emphasis on setting long term goals, and their higher spending on education, investment services and "investment clothing." Lower class consumers, in contrast, buy with an eye towards satisfying immediate needs.

Lower class consumers perceive products based on their implied meanings. They rely on context as a judge to evaluate products. Lower class consumers are poorly informed about relative merits of different products (Assael 1981) and rely instead on price as an implied indicator of product quality. Also, as Rainwater et al. (1959, p. 210) note, advertisers to lower class people should show how a product fits into a total life context, or should "convey an image of a gratifying world in which products fit functionally into the drive for a stable and secure life."

Also well documented is the fact that lower class consumers are more attracted to advertising which uses language that is more literal and concrete whereas middle and upper class consumers are attracted to language that is more symbolic, more abstract (Robertson et al. 1984).

However, additional issues in advertising to lower and middle/upper class consumers concern their perceptions of products in general. Take beer, for example. Since lower class consumers are less oriented to differences in general, this might make it that much more difficult to advertise to this group, that is, to single out one's product from competitors. Advertising here should stress the inherent contents or quality of one's product. Budweiser advertising, for example, stresses its "beechwood aging." Budweiser's success might also be due to the spokesperson, Ed McMahon. Levy (in Kassarjian and Robertson 1981), for example, notes how lower class consumers prefer stores with friendly, "real-type" sales people. Ed McMahon might satisfy this preference very effectively for Budweiser. Another tactic is to stress the implied benefits of beer drinking, that is, beer in a given context. (ex: "Natural Light: The Beer with a taste for food").

In contrast, advertising to middle and upper class consumers should stress differences, analysis, and instrumental ties to distant benefits. Beer advertising here, for example, emphasizes attributes such as foreignness, refinement ("the beer chosen by experts"), and weight loss (Lite Beer).

A summary of the implications of restricted codes vs. elaborated codes for advertisers is provided in Figure 3.

FIGURE 3
IMPLICATIONS OF RESTRICTED CODES AND ELABORATED CODES FOR ADVERTISERS

Restricted Codes	Elaborated Codes
• stress inherent product quality, contents (or trustworthiness, goodness of "real-type" spokesperson)	• stress diff., advantages vis-a-vis other products in terms of some autonomous evaluation criteria
• stress implicit fit of product with total lifestyle	• stress product's instrumental ties to distant benefits
• use simple adjectives, descriptors	• use complex adjectives, descriptors

Conclusion and Recommendations Regarding Next Steps

This article examines the code concept and how it explains consumer behavior. The code concept is described, and examples are provided from Bernstein's (1973) work on restricted vs. elaborated code systems among English lower and middle classes.

Briefly, a code is a socially shared set of rules for organizing and making sense out of one's environment. The idea of the existence of an autonomous set of rules for making life intelligible could be a springboard for many further studies. Rosenblum (1978) defines "style" as a set of "particular mannerisms or conventions that are frequently associated together." This suggests that a possible direction for research on consumers' "life styles" might focus on rules or code systems that cut across all life decisions: what clothes to wear, preferred architecture, car designs, career paths, etc. As Levy (1978) notes, each individual is an artist who creates his own lifestyle as a mosaic of separate elements. Just as researchers are now able to identify the codes that architects and artists use to design paintings and buildings, researchers should be able to identify the rule systems or codes that are implicit in all lifestyle choices. Are bright colors preferred in clothes, cars, furniture, and all items in a given culture? Are angular lines preferred in car designs, home designs, and appliance designs?

Research to date on code systems has mainly been descriptive. Not enough is known yet about code systems to develop a set of variables for classifying them, or, in other words, a system for coding codes. Researchers such as Bernstein (1968) look for ways that codes -- mainly, linguistic codes -- differ from each other. To do this, they study one or two languages in depth, and develop highly articulated descriptions of those languages, e.g.:

"Characteristics of a public (lower class) language are:
short, grammatically simple, often unfinished, sentences with a poor syntactical construction; simple and repetitive use of conjunctions (so, then, and), thus modifications, qualifications and logical stress will tend to be indicated by non-verbal means; frequent use of short commands and questions; rigid and limited use of adjectives and adverbs; infrequent use of the impersonal pronoun (it, one) as subject of a conditional sentence." (Bernstein 1968, p. 228).

This only refers to language. In Leach's (1976, p. 10) opinion, all non-verbal dimensions in a culture -- clothing styles, village layout, architecture, music, food, etc. -- "communicate," so a true code for a culture cannot be developed until many other aspects of the culture have been similarly described. In Levy's (1978, p. 143) words, what's needed is not empirical tests but more "spade work," that is, deeper knowledge of "how consumers process their physical, social and cultural circumstances through their psyches in deciding how to allocate resources of time, energy, attention, reasoning, emotion, desire -- and finally money -- to develop,

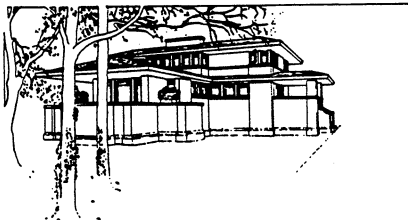
sustain, modify and elaborate the meanings that matter to them." Thus, further work might proceed on several fronts, all of which are essentially ethnographic and provide descriptive "building blocks" toward a conceptual framework for describing all code systems. Since much code research begins with language, psycholinguistics is a promising starting point. Research might focus on how a culture's language codifies or represents reality and then move on to other areas -- eating habits, non-verbal behavior, architecture -- to determine whether they "communicate" or represent reality in the same way. Another starting point might use structuralist methods from anthropology. Where Levy (1981) applied structuralist methods to understand dining habits, similar methods could be applied toward understanding all components of a culture (see Leach 1976). Finally, if current interest in cultural influences (e.g., ethnic influences) on consumer behavior continues to grow, findings from these studies could provide grist for new theories about codes and their effects.

APPENDIX

Frank Lloyd Wright houses in Chicago area:



Frank Lloyd Wright - style house designed by Koning and Eizenberg (1981) computer



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A FRAMEWORK OF PSYCHOLOGICAL MEANING OF PRODUCTS

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Abstract

The psychological meaning that products elicit in the consumer's mind is shown to be a function of the bundle of attributes found in the product, the consumer's perceptual mode, and the context in which the perceptual process takes place. As such, the psychological meaning of product stimuli is argued as being an area of consumer research that warrants attention. In developing this idea, a Framework of Psychological Meaning of Products is proposed, and directions for research into this framework are suggested.

Introduction

The major purpose of this paper is to highlight the importance and need of focusing on the development of the meaning that consumers derive from, and ascribe onto product stimulus. As argued below, the concept of psychological meaning (PM) of products is believed to be an important component in the analysis of consumer behavior. For the discussion which follows, (PM) will be defined as a person's subjective perception and affective reaction to stimuli.

Theoretical Foundation

Perception in Consumer Behavior Paradigms

In recent years, numerous articles have been written on the information processing perspective of consumer behavior (e.g. Bettman 1979). An important and complementary alternative to information processing is experiential consumption. Experiential consumption views consumption as being a subjective state of consciousness heavily dependent upon symbolic meanings, hedonic responses and esthetic criteria (Hirschman & Holbrook, 1982).

Two manifestations of experiential consumption are symbolic consumption (Hirschman 1981) and esthetic consumption (Holbrook 1981). The underlying notion of symbolic consumption is that products may be evaluated, purchased and consumed based upon their symbolic content (Zaltman & Wallendorf 1979). The central notion of esthetic consumption is that consumers may attend to, perceive and appreciate a product for itself, without regard to the utilitarian functions of benefits it may provide the consumer (Holbrook 1981).

One can regard consumer behavior as a continuum ranging from information processing to esthetic consumption. On the one extreme we can see a logical, methodical information-processor using choice heuristics. At the other extreme we see the consumer esthetically consuming based upon such feeling as fun, elation, and hedonic pleasure.

An important element commonly shared by all paradigms along this continuum is that of perception.

Role of Meaning in Perception Research

One of the earliest conceptualizations of perception can be found in Locke's (1690) proposed paradigm for the study of epistemology, the philosophy and science of knowledge. As discussed by McConville (1978), Locke's seminal idea was that knowledge enters the mind by first passing through the person's senses. Once inside the mind, these "sensations" are organized, compared and compounded into "complex ideas." Accordingly, Locke sees knowledge building as a two-stage process in-

volving primary sensory experiences and secondary cognitive elaborations.

Locke's influence can be seen in the work of Wilhelm Wundt (considered by some to be the main architect of the school of perceptual research and the theory known as Structuralism). Wundt postulated that a perceptual experience is comprised of unitary sensations. These sensations constitute raw material from which complex ideas and images develop. Wundt then postulated a second stage where "meaning building" from these raw sensations takes place. This is through the synthesizing of elementary sensations to form complex aggregates, or structures (thus the name of Structuralism).

Contemporary perceptual psychology can (for the most part) be labeled as Neo-Structuralism. While many researchers believe there are shortcomings in the two-stage theory, few have challenged its underlying assumptions (McConville 1978). An example is the work of Forgas (1966) who presents a model with four basic stages: input, sensory transduction, intervening brain activity and output.

There are, however, exceptions to the Neo-Structuralist approach. Gibson (1966), for example, holds that perceptual meaning is not deduced or inferred through non-perceptual secondary operations; rather perceptual meaning is directly caused by the combined effect of the totality of stimuli patterns an individual perceives.

Perhaps the most salient role of meaning within the perception process can be found in Existential-Phenomenological psychology (Valle and King 1978). This paradigm does not view individuals as objects in nature. Rather, there is a total, indissoluble unit or interrelationship between the individual and his environment in which the individual and his environment co-constitute one another. This notion of co-constitutedness is directly related to our interest in perceptual meaning. According to the Existential-Phenomenological psychological viewpoint, "it is via the world that the very meaning of the person's existence emerges both for himself and for others. The converse is equally true". (Valle & King 1978, p. 8, emphasis added).

The implications of Existential-Phenomenological psychology are that the meaning of a product can not be thought of without the existence and active participation of the individual (perceiver). Thus, phenomenology takes meaning as the starting point of the perceptual experience (McConville 1978), as opposed to traditional psychology which, for the most part, has treated meaning as a by-product of the perceptual process.

Meaning and its Categorizations

In this section, our focus is at the stage where perceptual stimuli have been perceived, organized, and interpreted and are now undergoing the process of being ascribed a particular meaning.

Researchers in different fields (for example, Szalay and Deese (1978) in sociology and Hirschman (1979) in consumer behavior) advocate classifying meaning into three types: lexical meaning, philosophical, and psychological. Lexical meaning addresses the relation between words and referents, in which the base for its

determination is a generally accepted code of labeling (Bloomfield 1933). Philosophical meaning focuses on the concept-referent relationship; here meaning becomes synonymous with rational knowledge (Katz 1972). Psychological meaning focuses upon "a person's subjective perception and affective reactions" to stimuli; "PM characterizes those things that are most salient in an individual's reaction while describing the degree and direction of its affectivity" (Szalay and Deese 1978).

Our interests lie with the psychological meaning of products. The reason is that the nature of buying behavior is not fully conventional or rational.

The major underlying problem in identifying and describing the composition or structure of PM is that the study of PM has been chiefly empirical. According to Szalay and Deese (1978), what little theory there is can be exemplified by the work of Osgood (1952).

Osgood's basic conceptualization of meaning was explained as being "that process or state in the behavior of a sign using organism which is assumed to be necessary consequence of reception of sign-stimuli and a necessary antecedent for the production of sign responses" (Osgood, Succi & Tannenbaum 1957). Osgood's work, then, presents the notion of a cognitive state with both representational and mediating roles.

A major contribution that Osgood's work provides in explaining meaning is his idea of meaning being a "bundle of components."

Components of Psychological Meaning

The conceptualization of PM as a "bundle of components" allows us to visualize these components as the basic structural elements of the construct. Building upon Osgood's work, the components of PM may be seen as representing a person's: understanding and evaluation of the concept/ stimulus; his direct and/or vicarious experiences, images, feelings and associated behavioral responses that have been accumulated over time.

Osgood's idea of meaning reflecting the individual's stimulus-associated feelings is also compatible with Szalay & Deese's notion of the "affective reaction" characteristic of PM. Within the perceptual process, it is a well accepted notion that individuals engage in a series of cognitive mechanisms such as selective exposure and affective distortion. If one looks at the affective distortion element of perceptual processes (Holbrook and Huber 1979), one can see that it indeed is a simple manifestation of the affective reactions contained in PM. Within consumer behavior research one can find evidence that affective distortion, both in its common and idiosyncratic forms, has been addressed with the goal of separating it from the perceptual processes and thus obtaining clearer measures (Holbrook & Huber, 1979). Nevertheless, Hirschman (1979) points out that while this may be a valuable goal in areas such as employee performance evaluations, this research purpose should not be pursued indiscriminately in consumer research. If we were to eliminate affective distortion from the consumer's perception of a product, how do we know that we are not eliminating a crucial component of the perceptual process, whose absence or presence, could drastically change the particular meaning of that product in the consumer's mind?

One can then see a structure of PM. This structure may be explained in terms of components of meaning derived from a subjective elaboration within the individual's perceptual process. This elaboration is conceptualized as being suffused with affectivity (or affective distortion).

Characteristics of the Components of PM

The components of PM described above exhibit certain

generalizable characteristics. These characteristics can be described as salience, commonality, tangibility and context, and are discussed below.

Salience is a measure of the relative importance of components in explaining individuals' reactions to stimuli. In an analysis of cross-cultural, sociological differences, Szalay and Deese (1978) agree that in the control of goal-oriented human behavior by subjective meaning, certain components, such as those involving anticipated behavioral consequences, will be of particular importance. Certain components of PM also play a heavier role than ignoring this idea of component salience, PM overcomes the primary weakness of lexical and philosophical meaning-type analyses (Hirschman 1979).

Commonality and tangibility are also important characteristics of meaning. It is a widely accepted notion in consumer behavior that culture is the primary determinant of consumer wants and needs. An extension of this notion is that our socialization, learning, attitudes and evaluative criteria will also be culturally bound. The individual is indeed operating in a society which can be described as homogeneous only in that it may represent a particular mix of heterogeneous subcultures which may be integrate/blend if one takes a molar perspective. Hirschman (1979) defines the relationship between culture and the individual as a "layer of meaning" paradigm. The underlying concept of the paradigm is that the meaning of a product stimulus consists of associated layers that vary in both their commonality and tangibility among members of society. The paradigm thus provides a framework for classifying the associations of product meaning within the minds of consumers. In the PM of products commonality and tangibility exist as continua that range from idiosyncratic meaning to commonly held cultural meaning and from intangible to tangible.

Context is a characteristic derived from the work of Peter and Olson (1983), who propose that the concept of meaning must always be considered as meaning in a given context. The assertion of meaning being always meaning in a given context is not incompatible with the representation of the components of PM as provided above. If the meaning associated with a particular stimulus is explained to consist in part of the person's evaluation the stimulus, it is then necessarily arrived at within the context and characteristics of the evaluation. Therefore, the evaluation is partially a determinant of the context, while at the same time the context (or the situation) can affect the evaluation, and thus PM. It is felt it would be unrealistic to think of a one way causal relation between context and PM.

A Framework of Psychological Meaning of Product Stimuli

The preceding sections highlight the interactive approach to perception as an issue that needs to be addressed in developing this framework. The two major units of perception are the perceived and the perceiver, or as McConville (1978) points out, what psychologists have traditionally referred to as distal and proximal stimuli. Briefly, distal stimuli refer to the objective, real physical world surroundings, reflecting energy (e.g. light) towards the perceiver. Proximal stimuli refer to the effects, processes, and outcomes resulting from the impingement of this energy upon the perceiver's sense organs.

Even though there has been some research on the perceived (Gibson 1966) and slightly more on the perceiver (Hochberg 1964), the bulk of the research on perception focuses on the interaction between the perceiver and the perceived. Clearly, (though perhaps at a somewhat abstract level of discourse) a product not being perceived has no "meaning." The notion of co-constitutionality (explained in the previous section within the contributions of experiential-phenomenolo-

gical psychology) specifically addresses this. Given a consumer behavior perspective, it is imperative to focus on the interaction between the perceiver and the product stimulus if the meaning of that stimulus to the consumer is to be understood.

Addressing this interaction between the perceiver and product stimulus, this section of the paper develops a framework intended to describe the process through which consumers tend to derive, and ascribe meaning to products. The development of this framework of psychological meaning of products (FPMP) builds upon prior perceptual research and has as its main elements the product stimulus attribute bundle characteristics, the consumer's perceptual modes, and a trichotomy of variables (i.e. individual, social and situational) representing the contexts within which consumers operate. These elements and their relationship are described below.

Tangibility and Product Attributes

The first element of the FPMP addresses the nature of the bundle of attributes that characterizes the product stimulus being perceived. Marketing literature has often defined a product as a bundle of need-satisfying components, a bundle of expectations, or a bundle of attributes. Using the 'bundle of attributes' notion in our proposed framework allows us to fully develop the idea of tangibility. To do this we must first digress to the concept of cognitive structures since developments in cognitive psychology support the relevance of the tangibility issue.

We agree with Olson's (1983) assertion that the most generally accepted conceptualization of a cognitive structure is that of an associative network where each mental representation or cognition represents a node in a network, with all the nodes being linked through associations or arcs. Recent work in this area has addressed such issues as: (1) the development of hierarchical models of cognitive structure (e.g. Olson & Reynolds, 1983) and (2) the use of cognitive structure as the basis for the consumer's heuristics in retrieving and processing information stimuli from cognitive "schemas" (Graesser & Nakamura 1982). It is suggested that PM is a necessary but not sufficient condition for the development of cognitive structures and schemas. We believe that without the individual's perceptual meaning responses, several (if not all) of the cognitive structural nodes would be "meaningless."

Observing many current consumer behavior models of cognitive structures, one can see labels for components of a product such as: product attributes physical and pseudophysical characteristics and concrete attributes and abstract attributes (Olson & Reynolds 1983). In spite of differences in semantics, we will look at attributes as the product's unit of analysis (as opposed to need-satisfying components or expectations). The categorization of product attributes in terms of tangibility has also been discussed by Hirschman (1979, 1981), Garner (1978), and Holbrook (1978).

Based on the previous arguments, we define tangible product attributes as objective, verifiable features of the product stimulus. Intangible product attributes are defined to be subjective impressions of the product under consideration, ascribed by the consumer onto the product stimulus.

Perceptual Modes

The second element of the FPMP addresses the perceptual modes--ways people tend to perceive--that consumers exhibit. Hirschman (1979, p. 10) states that: "After years of empirical investigation, there is substantial evidence which suggests that the recognition and identification of a stimulus by an individual are both 'data driven' and 'concept driven' to use the terminology of Norman (1976)." "Data driven" refers to features of the

perceptual stimulus that are acquired through the individuals' senses from the outside, physical environment (i.e., the product) and "concept driven" refers to the cognitive data that are the result of the individual's processing of the information received through the senses, and then ascribed onto the stimulus.

In developing the psychological meaning of a particular product stimulus, the consumer gathers the product's tangible attributes through his/her five senses. Here, data driven perception is at work, given the objective, verifiable elements of the product under consideration. In the same manner, the consumer's cognitive associations or abstractions bring about intangible attributes that are ascribed onto the product in question. At this stage, we have concept-driven perceptual modes bringing about the subjective impressions associated with the product stimulus.

Meaning in Context

The last element said to be influential on the process whereby individuals derive the psychological meaning of products, was said to be a trichotomy of context variables. The basis for this contention is the work of Peter and Olson (1983) who state that when considering meaning, one should always think of meaning in a given context. In order to formalize then, the idea of the meaning of a product having always to be considered as meaning in context, we can turn to models of consumer behavior.

Models of consumer behavior (e.g. Nicosia (1966), Howard Sheth (1969), Engel, Blackwell & Kollat (1978)) as well as the general developments in marketing and consumer behavior theory (e.g., Lutz 1981) of the last twenty years, allow us to identify three major categories of intervening or determining variables that are proposed to have an influence in the development of the consumer's PM. These categories of variable are: individual characteristics, social characteristics, and situational characteristics.

Individual characteristics manifest themselves primarily within the individual. Variables that reflect the social reality of the consumer's immediate environment may be labeled social characteristics. Situational characteristics refer to the general situations that the consumer is confronted by and interacts within.

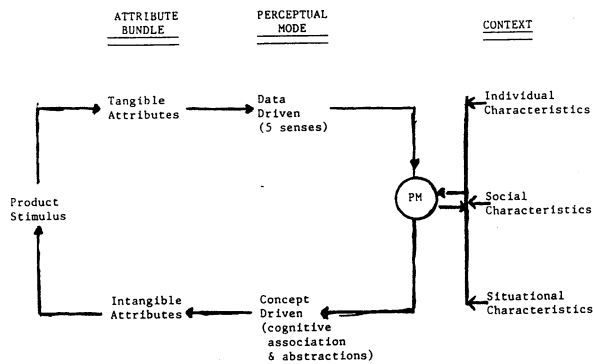
These purposefully widely labeled categories are each clearly representative of a vast array of issues/variables/constructs currently accepted as related to consumer behavior. The proposed FPMP does not attempt to list all the variables in the above categories. The framework, however, does highlight the typology of variables seen as formalizing the notion of meaning in a given context.

The proposed framework is graphically represented in Figure 1, and is intended to reflect how the psychological meaning of products comes about. The psychological meaning that consumers hold about product stimuli is dynamic in nature. This dynamism can be observed in Figure 1. The consumer gathers information about the product's tangible attributes through data-driven perception. At this stage, the consumer's senses are at work. The consumer can also operate in a concept driven mode. In such mode, cognitive associations and abstractions bring about intangible attributes which the consumer ascribes onto the product. At the same time, the context within which the perceptual process is taking place affects the consumer's derivation of psychological meaning. The consumer's individual, social and situational characteristics as the relevant elements at this stage.

The end result of the process depicted above, is that bundle of components derived earlier on this paper, which is said to represent a person's subjective perception and affective reaction to a product stimulus--the psychological meaning of products.

FIGURE 1

FRAMEWORK OF PSYCHOLOGICAL MEANING OF PRODUCTS



Research Questions

The FPMP is thought to highlight the typology of variables affecting the process of how the psychological meaning of a product stimulus is derived by the consumer.

Close examination of the major labels presented in the framework permit us to visualize a number of possible general research questions. Several of these research questions are now presented to illustrate the variety of issues the FPMP is believed to be applicable to, as well as serving as a foundation from which to develop specific, testable hypotheses.

R.Q.1. IS THE STRUCTURE OF P.M. SUCH THAT WE CAN OBSERVE GROUP DIFFERENCES IN THE COMPONENTS OF MEANING AND THEIR SALIENCE?

This first research question addresses the very core of PM. It does so by tapping into Osgood's (1952) conceptualization of meaning as a bundle of components as well as the salience of the components of meaning previously discussed.

The next three research questions are closely related:

R.Q.2. WILL MANIPULATIONS OF THE CONSUMER'S COGNITIVE ASSOCIATIONS/ABSTRACTIONS HAVE A SIGNIFICANT IMPACT IN THEIR PM OF PRODUCT STIMULI?

R.Q.3. WILL MANIPULATIONS OF THE LEVEL OF TANGIBILITY OF A PRODUCT STIMULUS HAVE A SIGNIFICANT IMPACT IN TERMS OF CONSUMERS' PM?

R.Q.4. HOW WILL THE INTERACTIVE EFFECT OF MANIPULATING COGNITIVE ASSOCIATIONS AND ABSTRACTIONS TOGETHER WITH THE LEVEL OF TANGIBILITY OF A PRODUCTS STIMULUS AFFECT PM?

Questions 2 through 4 address the interaction between the product's attribute bundles and the individual's perceptual modes. Given that intangible attributes are the result of cognitive associations and/or abstractions, one could assume that if we were to appropriately manipulate the latter, the relationship and thus impact on PM should be observable. That is what R.Q.2 asks. Addressing the other half of the interactive process between the individual and the product stimulus, R.Q.3 proposes the manipulation of the tangible attributes. These are the attributes captured through the consumer's data driven perceptual mode. R.Q.4 is a logical corollary, questioning the effect that joint manipulations could have on PM.

R.Q.5. WILL MANIPULATIONS OF CONTEXT VARIABLES HAVE A SIGNIFICANT IMPACT IN CONSUMER'S PM OF A GIVEN PRODUCT STIMULUS?

This question addresses the postulate and arguments that meaning is always derived in a given context. A natural inquiry, therefore, would be to observe the effects that manipulating the context variables would have on PM. This is a particularly rich area of research due to: a) the vast array of potentially relevant context variables within each of the categories presented in the FPMP and b) the possible interactions among the variables.

R.Q.6. WILL SIMILAR PRODUCTS AT DIFFERENT STAGES OF THEIR PRODUCT LIFE CYCLE SHOW SIGNIFICANT DIFFERENCES IN TERMS OF THE CONSUMER'S PM?

From a managerial perspective, this question addresses one example out of a variety of marketing concepts that may be researched in terms of their potential impact on the PM of product stimuli.

R.Q.7. CAN THE FRAMEWORK BE USED THROUGHOUT OLSON'S (1983) CONTINUUM OF CONSUMER MEANING VARIABLES?

If the above framework is theoretically sound, then the consumer's continuum of meaning described earlier (corporation, product, brand, product attribute) could be addressed without major adjustments in our conceptualization (for instance, focusing on a specific brand name as the stimulus cue versus the product stimulus currently being proposed).

Conclusion

Arguing that the psychological meaning of products demands more attention than consumer behavior researchers have given it up to now, a Framework of Psychological Meaning of Products was derived borrowing from several research fields. The theoretical foundations of the FPMP were also addressed by research questions provided to suggest the perceived opportunities for scholarly investigation in this topic.

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METHODOLOGICAL LIMITATIONS OF THE HEDONIC CONSUMPTION
PARADIGM AND A POSSIBLE ALTERNATIVE: A SUBJECTIVIST APPROACH

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Abstract

The concept of hedonic consumption has not been as useful as could be or progressed as rapidly as possible. This paper seeks to examine the inconsistency of the hedonic consumption paradigm with the ontological and epistemological assumptions of the objectivist perspective. Because the paradigm is more consistent with the subjectivist perspective, suggestions are made regarding the type of research methods to utilize.

Introduction

There has been considerable frustration and dissatisfaction expressed with the research done in the area of hedonic consumption (Hirschman and Holbrook, 1982). The purpose of this paper is not to review the literature in the related fields of culture production systems (Becker 1973), motivation research (Dichter 1960), product symbolism (Levy 1959), and hedonic response in consumption (Hirschman and Holbrook 1981) but to suggest that the long-term contribution of these areas may be limited by researchers' choice of epistemological assumptions and research techniques. These perspectives all emphasize the subjective sensations that are evoked within the consumer by the product (Hirschman and Holbrook 1982, Hirschman 1983). Since these sensations vary a great deal across consumers, objective research methods designed to control extraneous variables across a population may not be appropriate. Certainly a novel, painting, or album remains constant in an objective sense, however, its interpretation by the consumer is probably unique. Each consumer will experience a different emotional and intellectual response to the art work (Hirschman 1983). The research questions that are being addressed must be a guide to the type of methodologies employed.

The purpose of this paper is first to compare for consistency the theoretical assumptions and questions of the hedonic response paradigm with the assumptions of the research methodologies used in this paradigm. A central theme of the paper is that there is an inconsistency. Based on the theoretical framework, the hedonic response in consumption can only be understood within the frame of reference of the participant, as opposed to the frame of reference of the observer of the action. Assuming that the variance of response is great, focusing on the central tendency will lose the richness, uniqueness and totality of the data. Therefore an objectivist approach is inappropriate and will limit the development of the research tradition. A subjectivist approach is more consistent in addressing the questions raised by the hedonic consumption paradigm. Lastly this paper will introduce subjective research approaches which are more consistent with the theoretical assumptions of this paradigm.

The Hedonic Consumption Paradigm

The hedonic consumption paradigm is concerned with those aspects of consumption that relate to the multisensory images, fantasy, and emotive aspects of product usage (Hirschman and Holbrook 1982). By multisensory, Hirschman and Holbrook (1982) mean the receipt of experience in "multisensory modalities including tastes, sounds, scents, tactile impressions and visual images." Multisensory images might involve subjectively recalling an actual event, or the imaginary construction of a unique sequence of events. Emotional arousal is proposed to be a significant motivation for the consumption of certain products. The perspective's content for analysis, therefore, is the subjective feelings and fantasies which arise from the consumption experience.

There is a growing body of empirical research suggesting that sensory-emotive stimulation seeking and cognitive information seeking are two independent dimensions (Hirschman and Holbrook 1982) and that emotional desires may override utilitarian motives at times (Ahtola 1984, Hirschman and Holbrook 1982). This means that traditional perspectives in consumer behavior do not take into account the full scope of buying behavior and product usage. If consumers imbue a product with subjective meaning and if emotional desires influence utilitarian motives, then traditional consumer research ignores important aspects of the consumption process. Hirschman and Holbrook (1982) argue that the hedonic viewpoint represents an important extension of traditional consumer research and offers a complementary perspective for conceptualizing many otherwise neglected consumption phenomena. The hedonic approach, providing it can deal with methodological problems, may take us further toward comprehending the complexities of consumption. Let us now examine the objective versus subjective positions while reviewing the concerns of the hedonic consumption research stream.

Subjective Versus Objective Approach

Different ontologies and epistemologies are likely to incline the social scientist toward different methodological techniques. The range of choice is so large that what is regarded as "science" by the traditional "natural scientist" covers but a small range of options (Burrell and Morgan 1979). Different philosophical assumptions cluster together to form different approaches to social science. The objectivist and subjectivist approaches will be examined in this section.

What will lead us to the decision of which methodology to use? This depends on the questions being asked and how the method fits with the assumptions the researcher is making. It also involves a question of what your social group accepts. The latter is a question that cannot be ignored as evidenced by the adherence to the positivist (objective) perspective often in spite of deficits and inconsistencies with theories. Many of the problems with the positivist perspective have been delineated elsewhere (Peter and Olson 1983, Anderson 1983) so will not be delved into here. Anderson (1985) and others (Olson 1981) also point out that there seems to be more acceptance of questioning the adherence to positivism. However, here we will focus on the former aspect in looking at the ontology and epistemology of the subjective and objective perspectives.

One of the problems of dealing in this philosophical area is the plethora of definitions. In this paper, at the extreme, we will characterize objectivity as "aiming to establish law-like associations between brute data" (Rubinstein 1981) and the expression of positivism which includes an emphasis on precise operationalization and quantification with the objective of scientific knowledge being prediction. Subjectivity, on the other hand, does not view the discovery of causal laws (nomothetic) as its goal, but rather examines the meaning of human action with the goal of attaining understanding. Thus, behavior then cannot be reduced to brute data, but must be interpreted (Rubenstein 1981). This research process is largely descriptive and tends to be holistic in its approach. Parenthetically, it is important to point out that the authors feel that there is no dualism, but objectivism and subjectivism lie on a continuum. However, our behavioral research traditions have tended to portray a dualism with objectivism being more emphasized than the subjectivism end of the continuum.

In actuality, there is no completely objective research. Researchers are constantly faced with the need to interpret and make judgments which range from deciding which questions to include on a survey, to how they are worded, to which variable to place first in a regression equation. A continuum would seem to better characterize research techniques and processes.

Fundamental Debates Over the Nature of Social Science

In order to understand the alternative points of view, it is important that a researcher be aware of the assumptions underlying the perspectives. As mentioned, different assumptions are likely to incline that social scientist toward different methodological techniques and provide philosophic guidelines for further development of the conceptual area (Anderson 1982). Two sets of assumptions will be further examined in this section which outline the extremes of the subjectivist-objectivist continuum. The assumptions are presented below as two philosophical debates: the ontological and epistemological.

The Ontological Debate

Ontological assumptions are concerned with the very essence of human nature and the "reality" to be investigated. These assumptions define the entities which are encompassed within this theoretical perspective. The social scientist's view of the external world and of an individual's relationship with this world will have definite implications regarding the kind of research program the scientist accepts as valid. Four assumptions will be defined in the context of the subjectivist-objectivist continuum. These assumptions are as follows: realism, nominalism, determinism, and voluntarism.

In the extreme, the objectivist approach assumes a realist and deterministic orientation to the external world and man's relationship with it. A realist believes that the social world is made up of hard, tangible, and relatively immutable structures which exist independent of the mind of the individual and operate whether or not the individual is aware of them (Pfuhl 1980). These elements have inherent meanings regardless of the individual. Concepts such as "mind," "self," and "social structure" may not exist in a concrete sense, but can be operationalized and measured empirically (Rubinstein 1981). Both cognitive (Fishbein and Ajzen 1975) and behavioral (Nord and Peter 1980) programs in consumer behavior accept the realist assumption. A "determinist" simply regards humans and their activities as being completely caused by the situation or elements in the environment in which they are located (Burrell and Morgan 1979). The behaviorist program for instance states that the individual experiences consequences which in turn determine future behavioral responses. If the external world is "real" in an empirical sense, and imposes itself on individual consciousness from without, then behavior, at least in part, is determined by the environment.

In the other extreme, the subjectivist approach assumes a "nominalist" and "voluntaristic" position to the external world and man's relationship with it. A "nominalist" orientation assumes that the individual uses names and labels to structure and make sense of the external world. Things do not have inherent meaning, but human concepts are imposed on objects (Pfuhl 1980) in order to structure reality. Words do not represent empirical entities, they are purely conceptual and exist only in the minds of the participant. It is therefore diametrically opposed to the realist position. From this perspective, the external world exists only in the subjective consciousness of the humans who have been socialized to that world. The external world, therefore, is names and words whose utility is based upon their convenience "as tools for describing, making sense of and negotiating the external world" (Burrell and Morgan 1979, p. 4). From this perspective, the words "mind," "self," and "social structure" are symbols which will have a

variety of meanings depending on the person who is thinking about them.

A "voluntarist" assumption views an individual as an active agent who interacts with his environment rather than is controlled by it. Humans from this perspective are symbol-producing, meaning-seeking creatures who have a certain amount of control over their lives (Pfuhl 1980, Schroyer 1970). The cognitive program, for instance, accepts a voluntaristic concept of human nature, stating that humans develop beliefs, attitudes and intentions which cause behavior.

Insofar as consumer behavior is concerned with human activities, at a basic level, consumer behavior theorists must implicitly or explicitly adopt a stance along these points of view and be aware of these assumptions. The definitions of the different assumptions outlined above represent extremes, there are, of course, intermediate standpoints which allow for the influence of both situational and voluntary factors.

The Epistemological Debate

Epistemological assumptions are concerned with how we obtain our knowledge of the world. These assumptions entail ideas about what is to be regarded as true and what is to be regarded as false (Burrell and Morgan 1979). As stated in the introduction, a central theme of this paper is that hedonic response in consumption might be better understood within the frame of reference of the participant, as opposed to the observer of action. This is an epistemological issue since it relates to how knowledge about the external world and human's relationship with it is acquired. This debate also includes four basic assumptions which need to be defined in the context of the subjectivist-objectivist continuum. These assumptions are as follows: positivism, anti-positivism, nomothetic and idiographic.

In the extreme, the objectivist approach assumes that credible knowledge can only be generated by making positivist and nomothetic assumptions. A "positivist" orientation assumes the existence in nature of an inherent order that can be discovered by the rational capacities of the researchers (Schroyer 1970). Once regularities and causal relationships of the "inherent order" are discovered, this knowledge can be used to explain and predict (Burrell and Morgan 1979). Positivism is based on the fundamental assumption that propositions are meaningful only if they can be empirically verified (Anderson 1983). Both the logical empiricists and the falsificationists would accept the notion that the growth of knowledge is essentially a cumulative process in which new insights are added to the existing stock of knowledge and false hypotheses eliminated (Anderson 1983, Burrell and Morgan 1979).

A "nomothetic" approach to social science emphasizes the importance of basing your research on systematic protocol and technique. A science which is "formal" in the sense of being a logical system would be nomothetic. The aim of this approach is to discover general laws (Rubinstein 1981). Examples of methodological techniques which would be consistent with both the positivistic and nomothetic assumptions are surveys, experimentation, standardized instruments and personality tests.

From the subjectivist perspective, credible knowledge can only be generated by making anti-positivist and idiographic assumptions. The "anti-positivist" would reject the notion that science can generate objective knowledge of any kind (Burrell and Morgan 1979). This assumption considers the social world to be essentially perceptual and can only be understood from the point of view of the individuals who are directly involved in the activities which are to be studied (Burrell and Morgan 1979). The world can only be understood by allowing the subject to unfold its nature and characteristics in order to obtain an understanding of his motives, meanings and other aspects of his subjective experience (Rubinstein 1981).

The "idiographic" assumption stresses the importance of particular decisive events rather than aiming to discover general laws (Rubinstein 1981). The idiographic mode of explanation will incorporate many different factors, including "accidental" or "exceptional" occurrences in order to increase the plausibility of the research (Smelser 1976). The nomothetic mode of explanation increases sample size until the central limit theorem makes it logical to exclude extraneous causes. This establishes the strength of the supposed causal relation. The ideographic mode of explanation will decrease sample size until the extraneous and unique become conspicuous and, therefore, significant. Examples of methodological techniques which would be consistent with both the anti-positivistic and idiographic assumptions are content analysis, participant observations, ethnographies, case studies, and certain types of comparative-historical analysis.

The Model

The model in Figure 1 diagrams the subjective/objective continuum. The extremes begin with ontological and epistemological assumptions and end with methodological techniques which are consistent with the assumptions made. Adjacent to this model is a continuum of products representing products which tend to be subjectively experienced on the left and products which tend to be objectively experienced on the right. The continuum is a qualitative figure meant to give some indication of the kinds of assumptions and, therefore, methods which would tend to be appropriate for different kinds of products. Its purpose here is primarily for conceptual clarity since the two diagrams together illustrate the theme of the paper regarding the choice of methodology.

Hedonic Consumption and the Objectivist Approach

According to Hirschman and Holbrook (1982), one objective of hedonic consumption research is to monitor and, if possible, to predict emotional reactions and fantasy imagery during product usage. They suggest a combination of two approaches to accomplish this research objective, traditional scaling techniques and physiological indices of arousal.

In terms of the first, there are two primary sources from which to draw Zuckerman's (1979) "sensation seeking scale" and Hilgard (1970) and Swanson's (1978) "absorbing experiences scale."

Both the sensation seeking and absorbing experiences scales are readily administered in survey research designs and are, therefore, potentially usable in the large sample studies favored by marketing researchers (Hirschman and Holbrook 1982, p. 98).

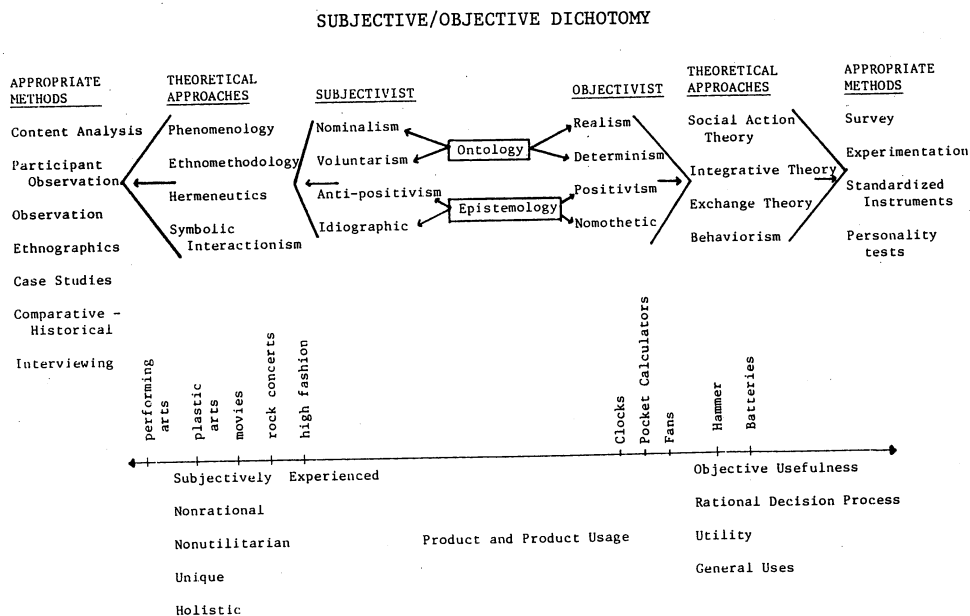
The second suggested approach involves measures of physiological changes which are stimulated by emotional arousal. This approach will measure chemical fluctuations in blood serum and cortical areas of the brain (Kroeber-Riel 1979); and alterations in vital signs which might indicate arousal and excitement (Schachter and Singer 1962).

The hedonic consumption perspective to date has assumed that an objectivist approach should be used simply because this approach is favored by marketing researchers. However, Hirschman and Holbrook (1982) openly acknowledge the inadequacies of this approach, stating that it is static in nature and, therefore, poorly suited to trace the "dynamic changes in the consumer's general degree of hedonic effort and capacity," that there is not the capacity to measure emotional arousal and multisensory imagery, that the product varies across time thereby decreasing the reliability of measures. Assuming that the defining element of science is that of "societal consensus" (Anderson 1983), the appropriateness of a subjectivist method becomes secondary to the more important issue of: "what methodologies will convince the marketing community of the validity of a particular theory" (Anderson 1983). Since interest in alternative approaches seems to be increasing, the place to begin is with an examination of how the questions asked in the hedonic consumption perspective might be better addressed by the subjectivist approach. Again, by stating that one cluster of assumptions may prove more fruitful for hedonic consumption than another, a relativist stance is being taken. This is not meant to advocate that one set of assumptions is legitimate and the other isn't; it depends on the research questions the researcher is asking.

Hedonic Consumption and the Subjectivist Approach

The subjectivist approach seems to be more consistent with the hedonic consumption perspective. The definitional aspects of hedonic consumption used by Hirschman and Holbrook (1982) are inconsistent with the objectivist approach: "esthetic, intangible and subjective aspects of

FIGURE 1



consumption," "multisensory, fantasy and emotive aspects of one's experience with the product," "products are viewed not as objective entities, but rather as subjective symbols," "the consumer's internal construction of reality may not be congruent with the external, objectively verifiable world," "then it is likely that such products may also be experienced at gestalts." (Emphasis added). Additionally, as Rubinstein (1981) points out, objectivists tend to either delete the concept of mind or operationalize the concept in the form of "brute data." But the concept of the mind is the very basis of the hedonic consumption conceptualization.

Two other concerns regarding the objectivist approach make the subjectivist approach more appealing. First is the riskiness of the choices the researcher has to make with regard to what variables are important and consequently what questions should be asked in the instrument or what specific behaviors observed. Although these are "objectivist" techniques, it is clear that these judgments (subjective) are risky in that they may be biased and also may miss important elements by not allowing the subject to unfold his or her experience. The second concern is the lack of a holistic approach. The tendency toward reductionism of variables in the objectivist approach deters the researcher from an understanding of the "whole picture," the gestalt, the context, which is fundamental to a subjective experience.

Hedonic Consumption Studies

As mentioned, the positivistic approach has tended to be the most accepted in marketing and consumer research. This is reflected in the research that has been done in the hedonic consumption area and even in the framing of the questions to be addressed. Questions regarding the amount of emotional arousal and degree of tendency toward absorbing experiences are quantifiable, but certainly miss the rich foundation of the conceptualization.

There has not been a lot of research done in the hedonic consumption area, probably due, in part, to its lack of consistency with the accepted objectivist perspective. As mentioned this objectivist perspective has however still been applied to research in this area. For example, Holbrook, Chestnut, Olivia and Greenleaf (1984) examined the relationship between a personality variable, type of product, observable behavioral performance and emotion (as measured by a multi-item scale). The consumptive experience dealt with was play. Andreasen and Belk (1980) looked at predictors of attendance at the performing arts. They utilized surveys to obtain information about lifestyles, attitudes and behavior toward specific performing arts and socioeconomic characteristics. The questions were derived from other research studies, from introspection and from focus-group interviews. The focus-group interviews would be consistent with the subjectivist perspective. Hirschman (1982) examined ethnic variation in hedonic consumption. The variables examined with regard to ethnic variation were projective behavior, imagery, favorite physical activities, enthusiasm, and motives. All were measured by either multi-item scales or lits.

A study which was based on the subjectivist perspective was that of Levy (1981). He used depth interviews involving story telling to give him a holistic, symbolic understanding of food consumption.

The Subjectivist Alternative

Well aware of the risks of trying to reduce the concepts to a short introduction, the authors will nevertheless attempt to very briefly present three categories of subjective assumptions and several of the methodologies associated with them that could be utilized in the study of hedonic consumption.

Interpretive Methodological Techniques

We have emphasized that products such as art, novels, movies, or music seem to inherently inspire a high level of subjective response. These products need to be "interpreted," not merely consumed sensorially.

There is a great array of interpretive research methods that could be applied to the study of hedonic consumption. Basically these methods fall into three categories: interviews, observation, and examining residues. The first category might include in-depth interviewing, focus groups, or informant interviewing (c.f. Lofland and Lofland 1984). The second involves observing the phenomenon. This entails the participant-observer method which might range from complete participant to complete observer (c.f. McCall-Simmons 1969, Schatzman and Strauss 1973). The third category is that of examining residues. This includes document analysis, historical records, archives, photographs, official statistics, content analysis, erosion and accretion measures (c.f. Webb, Campbell, Schwartz, Sechrest, Grove 1981, and Van Maanen, Dobbs and Faulkner 1982). These methods are consistent with the interpretive approach and therefore can be applied very productively to the study of hedonic consumption.

The Interpretive Approach

The history of the interpretive approach has led to the construction of a great many theoretical perspectives. Three general categories are phenomenology, ethnomethodology and hermeneutics.

Edmund Husserl (1859-1938) is widely regarded as the founder and leading proponent of phenomenology. For this perspective, the study of society becomes the study of individual mental states and experiences the consciousness of individual social actors. It emphasizes an interpretive understanding of common-sense thought, the taken-for-granted (Rubinstein, 1981). According to Natanson (1966), the objective of phenomenology is for the researcher to transcend these "natural attitudes of daily life" in order to study them. Methodologically, phenomenology involves taking as little for granted as possible. Methods aim at suspending or "bracketing" investigators' presuppositions. There is a reliance on experience-oriented methodology. Thus, after they have tried to suspend all of their own common sense judgments, phenomenologists place themselves in everyday life situations and then examine their own experiences and meanings (Rogers, 1983). "A cardinal feature of interactionist research is the casting of the researcher's self into the position of those he is studying" (Douglas, 1970).

The participant-observer technique, positioned at the participant end is the most obvious method consistent with the approach. Research situations where the investigator actually becomes part of the situation ("experiences" the situation) and then records his/her stream of thought would exemplify the method. With regard to hedonic consumption, these situations might include the investigator experiencing the theatre, an art exhibit, a concert, the interior design of a room, or perhaps even law school as a student.

The research question in ethnomethodology is HOW some outcome is routinely achieved in practice. It is assumed that in each situation, individuals will find meaning in social interaction in light of their own presuppositions and interests (Campbell, 1981). The social reality is constructed by the participants themselves, not reconstructed by the researcher. Emphasis is placed upon the researcher's unmediated interaction with the subjects of inquiry, and description of the behavioral systems in the subjects own terms (i.e. classification system, nature typologies, accounts). Again, an attempt is made to eliminate any distortion the researcher may make due to his or her own ethnocentric categories. At a minimum, a researcher's account is submitted to the native community for verification and for explanation. Further attempts are made to avoid researcher bias by collecting

as much information as possible in the terminology used by the subjects. This is important because the words and their meaning serve as a native principle to organize and categorize behavior within a community and culture. It is often easiest to tape record all interview material. Additionally, translation and summarization are to be avoided. Often summarization is used to produce public records but eliminates a large portion of the actual situation (Knorr-Cetina, 1983). An example might be a surgeon's written summarization of a surgical procedure versus a verbatim account or a marketing textbook discussion of consumer decision making versus the verbatim account of two consumers during their decision making. Appropriate techniques might include participant-observation (more at the observer end), interviewing, document analysis, etc. Thus, during intermission, a researcher might locate themselves in a convenient place and record comments made regarding a theatre performance or make a continuous record via photography of facial expressions and physical positioning of a row of people during a wrestling match. Ethnomethodology is meant to describe the "native way" of performing tasks of living.

In hermeneutics, the researcher is viewed as an interpreter. Individuals externalize internal processes through the creation of external artefacts such as works of art, language, laws, rituals, institutions, literature, etc. Understanding of these productions of the human mind which characterize the social and cultural world can be obtained through interpretation of these artefact symbols (Bauman, 1978). There is a message or meaning being communicated from the producer of the symbol to the interpreter. In recent years Gadamer has emphasized language as it is viewed as the mediator of experience, social order and social life (Giddens 1976).

Methodological techniques might include document analysis, content analysis, use of photography, analysis of historical records, analysis of creative works, etc. An investigator of hedonic consumption might make the technology of film-making accessible to individuals attending a football game and ask them to produce a film exemplifying the experience of attending a football game.

Conclusion

This paper assumes the position that an interpretive approach should be taken as we investigate more deeply the subjective responses consumers have to the products they encounter. Since subjective response can only be understood within the frame of reference of the participant, an objectivist approach is inconsistent with the goals of the paradigm. Inconsistency between the assumptions of the conceptual paradigm and the research methods used will hinder the discovery and growth process.

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THE MICAWBER CONNECTION: SUBJECTIVE DISCRETIONARY INCOME

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Abstract

This paper presents a tentative operational definition of Subjective Discretionary Income. It demonstrates the construct's predictive power, and shows some ways this construct can contribute to our understanding of consumer behavior.

Subjective Discretionary Income

Some people with high incomes cannot pay for everything they think they need, and some people with low incomes seem to get along very well with what they have. In David Copperfield, Mr. Micawber said it best: "Annual income twenty pounds, annual expenditure nineteen six, result happiness. Annual income twenty pounds, annual expenditures twenty pounds ought and six, result misery." (Dickens 1849-1850).

Economists have captured the causal part of this relationship in the term "discretionary income" i.e., "personal income less what is spent on necessities." And, following Mr. Micawber, they have found that discretionary income is better than unmodified income when it comes to gauging "family well-being" (Morgan and Duncan 1980).

One problem with "discretionary income" is that its definition contains the term "necessities." Specification of "amount spent on necessities" requires arbitrary decisions as to what is necessary and what is not, and complex adjustments for household size, area of residence and other demographic characteristics (Katona 1975; Linden, Green and Coder 1982). These decisions and adjustments are inevitably difficult, and they may require information which has not been or cannot be collected.

Another way to define discretionary income is to take the subjective route, as in "true" or "false" responses to the following statements:

- 1) We have more to spend on extras than most of our neighbors do.
- 2) Our family income is high enough to satisfy nearly all our important desires.
- 3) No matter how fast our income goes up, we never seem to get ahead.

A person who answers "true" to statements 1) and 2), and "false" to 3) is arguably higher in subjective discretionary income than is a person who answers in the opposite direction. The result of 1)+, 2)+, 3)- may not always be happiness, but the result of 1)-, 2)-, 3)+ seems pretty likely to be misery.

In addition to predicting family well-being, this definition of Subjective Discretionary Income helps explain certain kinds of purchasing behavior. As economists have always known, people who have high incomes buy more of almost everything than do people who have low incomes. But there is more to the story.

The Literature

The related literature comes from economics, home economics and sociology. "Discretionary income" comes from traditional economics. While the concept is familiar and widely used, it is extremely difficult to operationalize, especially in research on buyer

behavior. Who is to say what should, and what should not, be counted as "necessities"? And who is to say how much of the money spent on food, for instance, is "necessary," and how much is luxurious?

"Life Satisfaction" is another related research area. Here, the intent is to determine what variables contribute most to an overall sense of well-being. One of the most consistent findings within this body of research is that assurance of a good income is a very important predictor (Bhardwaj and Wilkening 1977; Cantrill 1965; Dickens 1849-1850).

Most directly relevant is the literature on "perceived economic well being." Although this literature is not entirely consistent, a few generalizations can be made. First, although real income is correlated with perceived economic well-being, the two are far from synonymous (Williams 1983). Other major predictors are indebtedness, perceived expertise as a money manager, retirement concerns and a general sense of perceived security (Dunsing 1983).

So, from classical economics we have borrowed the concept of discretionary income: that which remains when one has purchased what is "necessary." From Sociology we have borrowed the concept of "life satisfaction." From home economics we have borrowed "perceived economic well being." And we owe a primary debt to Charles Dickens.

The Study

Data for this study came from the 1984 Needham Harper Lifestyle survey. Each year approximately 3500 U.S. adults fill out an extensive questionnaire. The instrument is administered via the mail to a national quota sample drawn from Market Facts' Consumer Mail Panel. A small gift is offered to encourage response. In 1984 response rates were 74.7% for men and 86.4% for women.

The instrument measures a wide array of attitudes, interests and opinions, personal and household purchases, product ownership, purchase intentions and media exposure patterns, as well as standard demographics. Both the instrument and the sampling procedure have undergone refinement every year since the study's inception in 1974 in an attempt to achieve reliable, valid and generalizable findings.

Three items consistent with the Subjective Discretionary Income concept are scattered among the 221 attitude and opinion measures in the Needham Lifestyle instrument. The three items are:

- 1) We have more to spend on extras than most of our neighbors do.
- 2) Our family income is high enough to satisfy nearly all our important desires
- 3) No matter how fast our income goes up we never seem to get ahead.

The statements are answered on a six point scale, with definitely disagree (1), and definitely agree (6) as anchor points. When the responses for the three items are summed, with the last item reverse coded, the result is a score with a range of three to eighteen. Respondents who score high on this scale are indicating that they have enough money to buy what they think they need, and then some. Respondents who score low are saying that they have a tough time simply making ends meet.

This study answered three questions: (1) Was Mr. Micawber right about misery and happiness? (2) Does Subjective Discretionary Income add predictive power to a basic demographic model? And, (3) How can we best characterize individuals with disparate levels of Total Family Income (TFI) and Subjective Discretionary Income (SDI)?

The Micawber question was answered with simple correlations reported in the Findings section of this paper. Questions (2) and (3) required methods which need some explanation.

SDI as a Predictor

To determine whether SDI adds predictive power to demographic variables, we constructed a simple demographic model. The model includes: total family income, household size, and lifecycle. The first two variables are self defining. The third includes chronological age, the presence or absence of children, and the children's stage of development. The lifecycle variable was defined as follows:

- 1= no children, respondent is less than 35 years old.
- 2= respondent has children; youngest child is less than six years old.
- 3= respondent has children; youngest child is 6-12 years
- 4= respondent has children; youngest child is 13-17 years
- 5= no children at home; respondent is at least 35 years old.

Total Family Income, Household Size and Lifecycle formed a demographic model against which we tested SDI's power as an additional predictor of buyer behavior. The first variable, TFI, indicates how much total money was brought into the home in calendar 1984. The second variable, Household Size, indicates how many individuals were in the respondent's household in that year. This variable is particularly important since it indicates among how many individuals Total Family Income must be divided. The third variable, Lifecycle, combines the effects of chronological age and the changing consumer needs and wants brought about by growing children.

Since this three-variable model should be very predictive in and of itself, it provides a tough test of SDI's ability to tell us something that we did not already know.

The three demographic measures were simultaneously entered into a regression equation. A test was then performed to see whether SDI would contribute significant additional explanation of the dependent measures. Since the dependent measures were either binary (owned; did not own) or ordinal (high, medium, low consumption) we used a logistic regression (Harell 1983; Press and Wilson 1978). The criterion for SDI's entry into the equation was a change in the adjusted chi square Q statistic (see Bartolucci and Fraser 1977) significant at the .05 level or beyond.

We explored a wide array of dependent variables, including consumer durables such as automobiles, personal care products such as toothpaste and deodorants, household goods and services such as food items, and use of media such as cable television.

Consumer Typologies

The third research question was: How can we best characterize individuals with disparate levels of Total Family Income (TFI) and Subjective Discretionary Income (SDI)? We addressed this question by dividing respondents into four groups. First, both TFI and SDI were split at their medians: \$25,000 per year for TFI; a score of 10 out of a possible 18 for SDI. These splits provided four groups: (Low TFI, Low SDI); (Low TFI, High SDI); (High TFI, Low SDI); and (High TFI; High SDI).

We developed "profiles" of each group by identifying the items which best typified the group. The "most typical" items were defined as items on which at least one group percentage was at least eight points higher or lower than all other group percentages. This arbitrary definition has the advantage of not being quite as cumbersome as a true multiple comparison test. Since the sample was large, the definition is statistically very conservative.

Findings

First, about Mr. Micawber

The Needham Lifestyle questionnaire contains another relevant statement: "I am very satisfied with the way things are going in my life." The correlation between Total Family Income and reported satisfaction was positive and significant ($r_s = .154$; $p \leq .0001$). But, as Dickens would have predicted, the correlation between Subjective Discretionary Income and reported satisfaction was much higher ($r = .363$; $p \leq .0001$). Mr. Micawber was right.

SDI and TFI

Subjective Discretionary Income (SDI) and Total Family Income (TFI) are related. The correlation was positive and statistically significant ($r_s = .292$; $p \leq .0001$), but far from perfect. Within every Total Family Income level, some respondents have high SDI, and some have low SDI (Table 1). We are comparing two related, but distinctly different constructs.

TABLE 1

SUBJECTIVE DISCRETIONARY INCOME BY TOTAL FAMILY INCOME

		TFI			
		<\$15,000	\$15,000- \$29,999	\$30,000- \$39,000	>\$40,000
LOW SDI		585 (18.2%)	768 (23.9%)	259 (8.0%)	156 (4.8%)
HIGH SDI		211 (6.6%)	526 (16.3%)	308 (9.6%)	407 (12.6%)

$$x^2 = 309.084$$

$$df = 3$$

$$p \leq .0001$$

SDI and the Demographic Model:

Income, family size and stage in life cycle are traditional, "hard" demographic variables; Subjective Discretionary Income is a "softer," psychological variable. Which is better at explaining consumer behavior? The answer turns out to be both interesting and complex.

The results of the logistic regressions, summarized in Table 2, will be discussed in five Outcome Categories.

Outcome Category 1 consists of goods and services for which Total Family Income (TFI) is essentially all that counts. Even though SDI meets the entry criterion, it plays at most a minor role relative to TFI. In six of the seven cases, TFI was a positive predictor of use: a microwave oven, a portable work table, an automatic electric drip coffee maker, a video cassette recorder, a plastic outdoor garbage can and plastic microwave cookware. In the seventh case, common household baking flour, TFI was negative -- i.e., low income predicted high consumption. The items for which TFI positively predicted ownership are for the most part expensive,

non-basic consumer durables. Flour, the item for which TFI predicted negatively, is basic and cheap.

TABLE 2

ADJUSTED BETA WEIGHTS FOR LOGISTIC REGRESSIONS*

Outcome Category	Good or Service	(b)	(b)
		TFI	SDI
1	Microwave Oven	7.72	3.80
	Portable Work Table	10.53	3.23
	Automatic Electric Drip Coffee Maker	9.24	2.54
	Video Cassette Recorder	8.61	2.47
	Plastic Microwave Cookware	12.36	6.06
	Plastic Outdoor Garbage Can	14.23	4.33
	Household Baking Flour	-6.96	1.94
2	Food Processor	n.s.	9.71
	Cream Cheese	n.s.	2.89
	Fresh Oranges	n.s.	2.49
	Non-Stick Cooking Spray	n.s.	2.40
	Candy Bars	n.s.	-2.47
3	Freezer	8.20	6.05
	Diet Bottled Salad Dressing	2.62	2.17
	Paper Towels	1.75	2.31
	Plastic Food Wrap	2.64	2.29
	Green Salad	3.47	4.89
	Hotel Visit (Pleasure)	8.73	6.50
	Cigarettes	-3.04	-2.58
4	Motorcycle	4.08	-2.81
	Multi-Symptom Cold Remedy	4.39	-5.14
	Potato Chips	4.05	-4.81
	Butter-Margarine Blend	1.49	-1.72
	Personal Loan Prom Commercial Bank	5.00	-5.95
	Burger King	6.66	-4.92
	Convenience Stores	3.64	-3.91
	Loan at Savings and Loan Company	2.93	-2.27
5	Cottage Cheese	-2.54	3.07
	Hi-Fiber Bran Cereal	-2.52	2.44
	Jams, Jellies and Preserves	-3.60	2.66

*Because the standard error estimates are asymptotic, the adjusted betas are not strictly comparable. They are, however, pretty close.

In Outcome Category 2, SDI carried most of the explanatory weight. It was a positive predictor of ownership or use in four cases, and a negative one in two. The positive items were food processors, cream cheese, fresh oranges, and non-stick cooking sprays. The negative items were candy bars and frozen TV dinners.

Oranges and cream cheese are natural, relatively unprocessed and simple foods. There is a wholesome quality about them. Non-stick cooking spray allows one to prepare food without adding saturated fats. In contrast, candy bars and TV dinners are highly processed convenience foods, and are generally perceived as less nutritious. The food processor's positive sign is consistent with these findings. Those who buy this generally expensive item are often concerned with nutrition, and are interested in preparing their own fresh foods rather than buying what someone else has processed, packaged and sold. Thus, the items in this outcome category reflect a health conscious group of consumers. When SDI is very important and TFI is insignificant, one observes consumption of food items which are wholesome, "natural" and nutritious.

In Outcome Category 3, TFI and SDI work together: both enter the equation in the same direction, and to a comparable and significant degree. In six of these cases both SDI and TFI were positive. In one case SDI and TFI were both negative. The positive items were: a freezer, diet bottled salad dressing, paper towels, plastic food wrap, green salad, and non-business related hotel visits. Heavy users of these items have high incomes and feel that they have extra money to spend. They are able and willing to buy what many would consider a luxury item (freezer), convenience products (paper towels, plastic food wrap), to travel for pleasure (hotel visits), and stay thin by eating green salads with diet bottled salad dressings. The single negative item was cigarettes. Users of this product have low incomes and feel pinched. It is not at all surprising that cigarettes are negatively related to the rest of the product cluster.

In Outcome Category 4, SDI was negative when TFI was positive: the higher the total family income, the more likely the purchase; but, at any level of TFI, people with low SDI are more apt to buy. The items in this category are: a motorcycle, a multi-symptom cold remedy, potato chips, a butter-margarine blend, a personal loan from a commercial bank, frequent patronage of Burger King, frequent patronage of convenience stores, and loans at both a savings and loan and a consumer finance company. The items in this group suggest a consumer who makes a good wage, but spends it on products and services with blue-collar associations.

Many of these items are purchased by consumers who live beyond their means in order to enjoy the lifestyle trappings of "the good life".

The fifth and last condition is one in which SDI and TFI are again at odds as predictors. This time, however, TFI is negative, and SDI is positive. Only three products comprise this category: cottage cheese, high fibre bran cereals, and jams, jellies and preserves. This product cluster suggests a preference for wholesome, relatively unprocessed and inexpensive foods.

So the answer to research question (2) is "yes". SDI does contribute to the prediction of consumer purchases, even when the effects of major demographic variables are partialled out. Furthermore, SDI's role in such predictions, both as to relative weight and as to sign, forms some interesting, non-obvious and intuitively appealing patterns.

Quadrant Analysis

The third research question addressed the task of profiling individuals with varying levels of TFI and SDI. By cutting TFI and SDI at their respective medians, respondents were divided into four groups: high on both Total Family Income and Subjective Discretionary Income, low on both, and two off-diagonal segments who are high on one but low on the other. When their activities, interests and opinions are contrasted, these groups present distinct lifestyle patterns. These lifestyle patterns are similar for both men and women. For the sake of brevity, we will look exclusively at the male typologies.

The descriptions below reflect each group's lifestyles relative to the other groups.

TABLE 3
CONSUMER TYPOLOGIES

MALES

A) (High TFI, High SDI): This man is the most "well off," economically and subjectively. He's more likely than other men to invest in money market funds, mutual funds, common stocks and certificates of deposit. He's less likely to adopt the philosophy

of spending for today and letting tomorrow take care of itself. He's an economic optimist. He is the least likely to believe that it's difficult to find a good job. He's more apt to believe that he will make more money next year, and less likely to believe that inflation will take a big bite out of his increasing income. He is, however, price conscious to the point of paying attention to food prices.

He lives the "good life." He eats out frequently and enjoys giving and attending dinner parties. He is a relatively heavy user of gin, cordials, liquors and after dinner drinks. He's also the most likely to visit an art gallery, and to want to live in or near a big city.

Since he has a well paying managerial occupation, he does a fair amount of traveling, occasionally outside the U.S. While much of his traveling is for business purposes, he also takes airplane trips and stays at hotels when vacationing.

He feels less pressure than most. He doesn't dread the future, wish for the "good old days", or feel that things are changing too fast today.

He's well educated (often post-graduate) and believes in making detailed plans. He is the most likely to read the Wall Street Journal, the Business section of his local newspaper, and the least likely to enjoy Country and Western music.

He's a little calorie conscious and is the most likely to consume diet sodas.

He is most likely to live in a two person household, make long distance calls, and own relatively expensive and non-essential items such as a high-priced 35mm. camera and microwave cookware.

B) (High TFI; Low SDI): This man's dilemma is that he makes a good salary, but he still has to struggle to get by. He's simply spending his money faster than he earns it. He admits that he has a difficult time saving money, and he is a heavy user of bank charge cards and credit unions. The fact that he is the father of teenagers may have something to do with this pattern. Although he invests, his investments most typically require smaller amounts of liquid capital: I.R.A.'s, retirement accounts and common stock. Still, he is interested in business matters. He is more likely to read the Wall Street Journal than are members of the two lower income groups.

He's not a very happy individual. He openly admits the desire to leave his present life behind. He feels more pressure than most, and does not believe that his neighbors perceive him as a leader. In the Walter Mitty tradition, he still believes that his greatest achievements are ahead of him.

If happiness were simply possession, this man would indeed be happy. He is likely to own relatively expensive and non-essential items such as power tools, home electronic video games, an expensive 35mm. camera, and plastic microwave cookware.

Two purely psychographic measures are worth mentioning. This individual is the least likely to describe himself as a "day person", and is the least likely to admire "a successful businessman."

C) (Low TFI; High SDI): More than a third of the individuals in this group are over the age of 65. This man, who is likely to be retired, is more inclined than other men to believe his greatest accomplishments in life are behind him.

But the picture is not entirely bleak. While his income from wages is relatively low, he has built up a comfortable nest egg which lets him enjoy life more fully (hence, his high SDI). His apparent fondness for saving his pennies is evident in his belief that one shouldn't spend for today and not worry about tomorrow, and in his greater use of savings stamps.

He is conservative, and some of his views seem old fashioned when compared to his younger counterparts. He thinks there is too much emphasis

on sex in general, and specifically on television. He is much less likely than others to care for science fiction movies; he believes the police should use as much force as necessary to preserve law and order; he believes that men should be clean shaven everyday, and that a women's place is in the home. Personal computers are new-fangled gizmos for which he has little use. And, not surprisingly, the chances of his frequenting a video arcade or playing video games at home are slim.

Being older, he tends to watch what he eats. He prefers natural foods to those that have additives. He tries to avoid caffeinated beverages and fried foods, to get fibre into his diet, and he is not inclined to eat at fast food restaurants.

He likes to read advertising supplements, Readers Digest, and watch the Today Show and Real People.

He is the least likely to describe himself as a "swinger", and the least likely to feel that he would do better than average in a fist fight.

D) (Low TFI; Low SDI): This man may well be the least fortunate of the four typologies we have met. He's not well off and doesn't feel well off either. He's an economic pessimist. He's no good at saving money, and shopping is simply no fun anymore.

His outlook on life is negative. He feels under pressure. He doesn't feel influential even in his own neighborhood. Of the four groups, he is the least satisfied with his current situation; he dreads the future and wishes for the good old days. He doesn't like to make detailed plans.

Compared to men in the other three groups, he appears to have few interests. He is less likely to have recently read a book, given or attended a dinner party, gone out to eat, gone to a club meeting, gone to the library, visited an art gallery, done volunteer work, or read the news section of his local news paper. However, he does have diversions, watching The A-Team and Knight Rider.

Money market funds, common stock, certificates of deposit or even IRA's are not part of his investment portfolio (if, indeed, he has one). He is not particularly concerned about stylish clothes, and he is the most likely of all the groups to purchase sportswear at K-Mart.

Conclusion

This paper has presented Subjective Discretionary Income, a psychological concept that adds a useful new dimension to our understanding of buyer behavior. It has also presented a three-item operational definition of the construct, and some interesting relationships among Subjective Discretionary Income, Total Family Income, and the way various purchases relate to other aspects of the purchaser's life.

We hope that the present scale will merit improvement. The three items that form the scale were all put into the survey for other purposes. A longer scale, deliberately constructed, would probably be more reliable and more valid.

We also hope that other researchers will find Subjective Discretionary Income interesting. The scale that measures it can be added to almost any questionnaire at little marginal cost, and may well be worth additional exploration. As Jack Bunsby said to Captain Cuttle et. al. in another work by Dickens (1848): "The bearings of this observation lays in the application of it."

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INFORMATION UTILIZATION:
A VALIDATION STUDY

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Abstract

Historically, most consumer information processing research has focussed upon the use of persuasive information in brand choice tasks. Of potentially increasing importance, however, is a second class of information which might be labelled objective, or non-persuasive, in nature. Much less is known about consumer use of this information.

In an earlier paper, we presented a reduced model of the process of utilization of objective information in consumer judgment tasks. The model has been developed and tested extensively in a series of controlled laboratory experiments. In the current paper, we present partial validation results from a field study of information use among a sample of potential adopters of a new technology. The results are strongly supportive of the proposed model and laboratory findings.

Introduction

In a series of recent articles, the process of utilization of objective (non-persuasive) information in judgment tasks has attracted the attention of consumer researchers (Deshpande and Zaltman 1982, 1984; John and Martin 1984; Wilton and Myers 1984, 1985, Sternthal and Craig 1982). As used in this paper, objective information refers to stimuli whose primary purpose is to inform, rather than persuade, consumers. Models of the utilization process have been offered for both managerial and (traditional) consumer contexts. While the unit of analysis (individuals in institutions vs individuals in households) may introduce certain context-specific model constructs, there also exist many theoretic commonalities across the two contexts. In this paper, we focus upon some of these commonalities, and report partial results of a field study designed to validate selected information utilization constructs developed and tested in a series of earlier laboratory experiments.

A Model of Information Utilization

Since this paper focusses largely on validation of a model of the utilization of objective information in judgment tasks developed in a laboratory setting (Wilton & Myers 1984, 1985), discussion of model development will here be kept relatively brief. In the section which follows, therefore, we provide only a summary description of the model, and its associated hypotheses. More elaborate discussion of utilization theory can be found in the articles referenced above, as well as Bettman (1979), Berg et alia (1978), Weiss (1979), Sabatier (1978), Gerstenfeld and Berger (1980) and, for persuasive information, Cacioppo and Petty (1983) and Mitchell (1983).

Previous studies of the utilization of objective information have generally suffered from one or more of the following limitations. First, there appears to be a paucity of empirical data amenable to controlled hypothesis testing, particularly among (but not limited to) studies reported outside the marketing discipline. Second, among causal studies supported empirically, there remains considerable ambiguity over both the definition and measu-

rement of key information utilization constructs. Many of these frustrations have been carefully reported by Deshpande and Zaltman (1982, 1984). In response to both these problems, a parsimonious model of the utilization of objective information has been proposed and tested in a laboratory setting by Wilton and Myers (1984, 1985).

This model, shown in Figure 1, attempts to refine the information utility construct, as well as enhance understanding of the process by which utility judgments are formed and modified. According to this model, when asked to choose from among a set of information items, consumers will first develop a set of expectations of the utility of each item. These utility expectations are hypothesized to be a function of the level of uncertainty associated with the judgment task, and the expected "performance" (part-worth) of the information along a set of attributes. In this paper, these attributes are parsimoniously described as the relevance, novelty, credibility and comprehensive ease of the information. The performance expectations are also based upon the individual's store of existing knowledge about the judgment task, and the set of cues (words, phrases, headings) available to summarize some block of more detailed information on an object. The individual is presumed to be a utility maximizer, and will if allowed, exhibit information choice and cognitive elaboration patterns consistent with his/her utility expectations.

The model also proposes a process of (dis)confirmation of utility expectations to describe the modification of utility judgments as a result of exposure to information. In the consumer satisfaction literature (Oliver 1977, 1979; Churchill and Suprenant 1982; Wilton and Tse 1983), expectancy disconfirmation has been offered as an important paradigm for explaining the consumer's response to a product following usage. According to this paradigm, a consumer's expectations of product performance may be confirmed (results consistent with expectations) or disconfirmed (results discrepant with expectations) during the consumption experience. If expectations are disconfirmed, the results may be either positive or negative. Negative disconfirmation (and hence dissatisfaction) will occur whenever the product is seen to perform worse than expected, while positive disconfirmation (and hence satisfaction) will occur whenever the product performs better than expected. In this paper, we extend the expectancy disconfirmation paradigm to the consumption of information products and services by explicitly modelling the formation of utility expectations and by manipulating the disconfirmation experience.

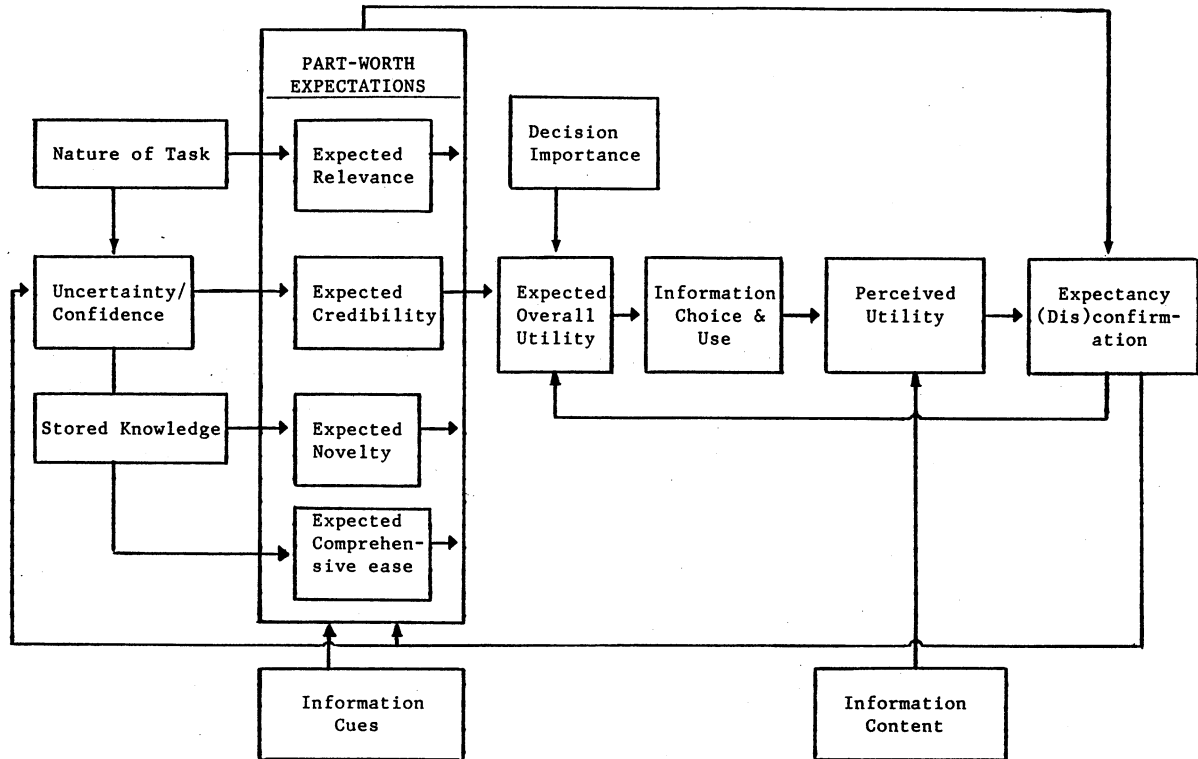
Although necessarily incomplete, the proposed utilization model does include factors found to be important in other contexts, some of which (e.g., information characteristics) are associated with significant measurement problems, and also introduces other factors (e.g., task situation and expectancy disconfirmation) which have not yet been examined empirically. The weakening of external validity implied by this simplified model, however, is considered a necessary trade-off against improved construct and process measurement, given the significant problems associated with prior utilization studies.

The testable hypotheses which can be derived from this model of information utilization can be summarized as follows:

H₁: Individuals facing higher task uncertainty will perceive greater utility for, and show greater use of, information than individuals facing relatively

1. Work on this project has been sponsored by a grant from the National Science Foundation, #PRA 81-10052, with the author and John G. Myers as principal investigators. The views expressed in this paper are those of the author and do not necessarily reflect the position of the Foundation.

FIGURE 1
SIMPLIFIED MODEL OF INFORMATION UTILIZATION



lower task uncertainty.

H₂: Utility for information can be represented as a multiattribute function of its characteristics. In particular, utility for information is positively and uniquely related to the:

- H₂₁: relevance
- H₂₂: credibility
- H₂₃: novelty
- H₂₄: comprehensive ease

of arguments expected/perceived to be contained in the item.

H₃: Modification of utility judgments can be represented as a process of expectancy disconfirmation during, or following, information exposure. In particular:

- H₃₁: the higher the expected utility for information, the more likely expectations will be negatively disconfirmed during utilization, and
- H₃₂: the lower the expected utility for information, the more likely expectations will be positively disconfirmed during utilization.

Extended discussion of the theoretical support for these hypotheses is contained in Wilton and Myers (1985). It should be recognized here, however, that hypotheses H₁, H₂₂ and H₂₃ are by no means obvious. Our hypotheses concerning the relationship between uncertainty and information utility, and the effects of novelty on utilization of information are in direct contrast to those proposed by Deshpande and Zaltman, who argue that (in organizational contexts) new information and/or high uncertainty will lead to lower, rather than higher, utilization. Similarly, evidence concerning the effects of credibility of arguments on utilization is also equivocal. Sternthal et alia (1978) and Kehret-Ward (1984), for example, in studies of source credibility, have found that moderately credible sources may actually induce higher cognitive elaboration among subjects than sources which are highly credible. Thus, both constructs warrant further study in information utilization research.

Model Operationalization

The model has been tested in a controlled laboratory experiment reported by Wilton and Myers (1985), and subsequently validated in a field setting, the results of which are the focus of the current paper. In these experiments, subjects were asked to study a data-base of objective information about a new technology (prepared by a non-partisan organization) with a view towards evaluating the technology. Manipulated variables in these experiments were task uncertainty (2 levels) and expectancy disconfirmation (3 levels).

(i) Task Uncertainty

Under the high uncertainty task condition, subjects were asked simply to examine as much or as little of the data-base as they felt they needed in order to identify all the important issues associated with the technology, to be used in preparing a background briefing to their superior. Since no explicit decision was required and the task parameters are essentially unbounded, this condition is referred to (after Berg et alia 1978) as a conceptual task orientation. Under the low uncertainty condition, subjects were asked to complete a hierarchical budget- or manpower-allocation problem, allocating a fixed set of resources across a pre-identified set of policy/investment options. Since this task is decision-related, it is referred to as an instrumental task orientation. For both conditions, arguments contained in the data-base bore a direct relation to the task assignment.

(ii) Expected Utility Disconfirmation

Expectancy disconfirmation can be manipulated by controlling the utility level of the information to which the subject is first exposed. In general, negative disconfirmation of expectations is more likely to occur among individuals who already hold high expectations for the information, while positive disconfirmation is more likely to occur among individuals holding low expectations for the information. If expectations are low, then either the information will in fact be seen (during processing) as low utility, in which case expectations will be

confirmed; or the information will be seen as higher in utility than anticipated, in which case expectations will be disconfirmed positively. Analogously, if expectations are high, then high utility information during use will be confirming, while low utility information will be negatively disconfirming.

In the current experiments, subjects first provided measures of the expected utility of information contained in various chapters/sections of the available data-base (both overall and by attribute). For any given subject, these scores were then used to identify which information was relatively higher, lower or indifferent in expected utility. Using a quota procedure, subjects were then assigned to one of three forced-exposure conditions. In the high utility condition, a subject was given information from the set of items which he had rated as having high expected utility. In the low utility condition, the subject was given information from the set of items scored low in expected utility. Subjects who rated the expected utility of all information items equally were assigned to the indifferent utility condition and given an information item chosen from this set at random. This manipulation thus served to operationalize the expectancy disconfirmation process described above.

Following this forced-exposure treatment, subjects were allowed free access to all remaining information contained in the data-base, subject to a time constraint of approximately one-and-a-half hours. Data-collection and information-exposure sequences of the research employed a computer-interactive system called STARSIS, or Strategic Technology Assessment Research and Information System. This environment also precluded any possibility for group interaction among subjects. Total time for completion of all experimental tasks averaged two-and-one-half hours, for which subjects (in the laboratory experiment) received twenty dollars.

Laboratory Results

Subjects for the laboratory experiment were 57 female and 94 male volunteer graduate students at a large Western University, evenly divided among Masters and Doctoral degree programs in a wide variety of disciplines, including seventy-two percent from outside the School of Business Administration. The data-base for the laboratory experiment comprised a 65-page National Science Foundation report discussing the nature and consequences of life-extending technologies in the U.S.. Results from this experiment, discussed in detail in our earlier paper, can be summarized as strongly supporting the overall model and each individual hypothesis.

Information was shown to have higher utility in tasks which were not tied to a choice dilemma; subjects in the instrumental task condition not only expected lower utility, but also reported lower utility after information was made available. Utility scores estimated as a linear combination of ratings of the information along its attributes provided high correlations with alternative, self-reported, overall measures of expected/perceived utility. Consistent with hypotheses H₂₁ to H₂₄, each individual attribute was shown to have a positive association with overall utility. A positive relationship for the novelty attribute is important since it suggests that not only can new arguments be tolerated during utilization, but that anticipation of new information is a strong inducement towards initial utilization.

Utility judgments were also significantly affected by the expectancy disconfirmation manipulation. For subjects in a high expected utility condition, expectations of both the relevance and novelty of arguments were strongly negatively disconfirmed during exposure, with resulting declines in overall utility ratings. Conversely, low initial expectations on these attributes tended to produce positive disconfirmation with corresponding increases in overall utility ratings.

Thus, in a controlled laboratory environment, our results

indicate that the influence of task uncertainty and information characteristics on the process of formation and modification of utility judgments can be validly measured. In the remainder of this paper, we focus our attention on validating the proposed model in more complex (externally valid) task environments.

Field Validation

Subjects for the field validation experiment were sixty landscape specialists and maintenance engineers in a large, Western, state-funded transportation organization. This sample represented the entire population of advisors and potential adopters for a new technology (integrated pest management) for controlling scale infestations along the state highway system. Information about this technology was contained in a 40-page document prepared by a team of researchers at a large, prestigious Western university. Data from the report were made available via the STARSIS computer-interactive data-collection system described earlier, in individual sessions lasting from one-and-a-half to three hours, administered in the subject's usual place of work activity.

Pre-Exposure Manipulation Validation

Table 1 gives the mean scores, and associated F-statistics on a variety of individual cognitive measures for each treatment condition, prior to exposure to objective information. The scores verify the effectiveness of the

TABLE 1
GROUP DIFFERENCES, PRE-EXPOSURE
Mean Scores, F-values

MEASURE	TREATMENT GROUP		EXPECTED UTILITY				F
	Instrum.	Concept.	F	Low	Indiff.	High	
Knowledge(1)	2.9	3.1	N.S.	3.0	2.6	3.2	N.S.
Overall exp. utility(1)	2.9	4.4	15.23*	4.2	3.7	3.3	N.S.
PECS(2)	22.1	22.7	N.S.	7.2	20.5	34.6	76.9*
Future Use of technology(3)	26.8	16.3	N.S.	15.6	16.3	29.8	N.S.

- 1 Self-report, 6-point, bi-polar scales
- 2 PECS: Pre-exposure constant sum (100 points total) expected utility for information assigned during forced-exposure; given five information items, if all were expected to be equally useful, each would be assigned 20 points.
- 3 Future Use: percentage of all landscape problems on which new technology is likely to be used in next 18 months.

All items positively scaled, higher values denoting greater utility

* p < .0001

experimental manipulations. Subjects in the conceptual task condition, for example, show significantly higher expected utility for available information in completing the assigned task than do subjects in the low uncertainty, instrumental condition (means 4.4 and 2.9 respectively).

Similarly, consistent with the treatment design, expected utility scores for information assigned during the forced-exposure treatment are significantly lower for subjects in the low-expected-utility condition than for either subjects in an indifferent- or high-expected-utility condition (mean PECS scores, 7.2, 20.5 and 34.6 respectively). Thus, subjects appeared to enter the usage experience with variations in expectations consistent with the experimental manipulations or group assignments. On all other pre-exposure measures of the value of information or the innovation, the differences between experimental groups are not significant.

Information Attributes and Initial Utility Expectations

According to the utilization model proposed, the expected utility score for information can be expressed as a function of ratings of that information along its attributes. This hypothesis is tested in Table 2 which shows the mean expected performance rating of information assigned during forced-exposure, on each information attribute, for each of the three expected utility groups.

If overall utility scores are related to the individual attribute scores, then these three groups should differ in their ratings of information attributes, and group membership should be predictable by some linear combination of the attribute scores.

TABLE 2
 EXPECTED UTILITY FOR INFORMATION
 AS A FUNCTION OF INFORMATION ATTRIBUTES
 - DISCRIMINANT ANALYSIS -
 Mean Scores, F-ratios¹

EXPECTED-UTILITY GROUP	N	INFORMATION ATTRIBUTE			Comprehensive Ease
		Relevance	Novelty	Credibility	
Low	18	.15 (.05)	.16 (.05)	.18 (.05)	.20 (.04)
Indif.	17	.19 (.04)	.21 (.02)	.20 (.02)	.20 (.02)
High	25	.25 (.06)	.20 (.04)	.23 (.04)	.20 (.03)
Univariate F		23.3*	4.82*	10.74*	.09
Wilk's Lambda		.55			
Chi-Square		38.13 (p < .000)			

1. Attribute scores normalized within subject across all information items: higher scores denote more favorable expectations. Given five information items, scores above .20 denote above-average performance, while scores below .20 denote below-average performance.

* Standard deviation in parentheses.
 p < .01

The results are strongly supportive of the hypothesized relationship between overall utility expectations and individual attributes. On all but one attribute (expected comprehensive ease), subjects in the low-expected-utility condition expect assigned information to perform significantly worse than do subjects in either the indifferent- or high-expected-utility conditions. Consistent with hypotheses H₂₁ to H₂₃, the effect of each attribute on overall utility is positive; individual attribute ratings increase with overall expected utility. As can be seen from the expected novelty ratings, an absence of new arguments leads to low overall utility expectations.

The attribute ratings also provide a strong linear predictor of initial expectation condition. The Wilk's lambda obtained from a multiple discriminant analysis using expectations on all four attributes as predictors is .55, significant at p < .000; while overall percent correct group classification is 68.3. Thus, the results from our field study appear highly consistent with results obtained in our laboratory studies and provide further encouraging support for the proposed multiattribute information utility construct.

Expectancy Disconfirmation and Information Utility

Our utilization model also suggests that, in addition to information characteristics, initial expectations will influence the direction of the effect of exposure to information on subsequent perceived utility ratings. According to hypotheses H₃₁ and H₃₂, subjects in a low-expected-utility condition will experience positive disconfirmation of expectations and hence revise utility ratings upwards following information use, while subjects in a high-expected-utility condition will experience negative disconfirmation and hence revise utility ratings downwards.

Examination of the mean shifts in overall utility ratings for forced-exposure information, pre- and post-exposure, support the disconfirmation hypothesis. For subjects in the low-expected-utility condition, the difference between expected- and post-exposure, perceived utility ratings (using a 100-point constant-sum scale in which an "average" information item would be allocated 20 points) averaged 6.01, compared to -0.32 for subjects in an indifferent-expected-utility condition, and -5.2 for subjects in a high-expected-utility condition (F_{4,56} = 11.03,

p < .01).

An explanation of these shifts in overall utility is provided by the pattern of disconfirmation on individual attributes. On the relevance attribute, for example, the mean shift for subjects in the low-expected-utility condition was .89 (using a self-report, 6-point bi-polar scale), compared to -.36 for subjects in the high-expected-utility condition (F_{4,56} = 5.4, p < .01). Thus, on average, subjects holding low initial expectations of the relevance of the information find those expectations are positively disconfirmed during the usage experience. Since group shifts on the remaining information attributes are not statistically different, this would imply that, for the current stimulus, the relevance attribute plays the determinant role in expectancy disconfirmation.

Utilization and Technology Evaluation

An important issue in utilization research is the impact of information on evaluation of the target product or technology. While it is often easy to demonstrate shifts in evaluation of the technology following information exposure, it is usually more difficult to explain why such shifts are occurring. In this section, we attempt to relate individual cognitive processes to characteristics of the information to which the individual has been exposed. Table 3 gives the standardized beta coefficients for each information attribute obtained by regressing the average post-exposure (perceived) attribute ratings against each of three cognitive measures, attitude towards the technology, confidence in performing the assigned task, and overall evaluation of the report. The attribute ratings are the within-subject averages across all information items examined only (i.e., items not examined have been excluded).

The coefficients are intuitively meaningful and add insight to the cognitive processes associated with information utilization. First, evaluations of the technology are positively influenced by high perceived relevance and credibility, but low novelty, ratings. This result is interesting since it implies that new arguments are not a necessary condition to favorable evaluation of the technology, and may, if encountered, have a negative effect on those evaluations.

Second, post-utilization task confidence judgments are not affected by judgments of the information's relevance or credibility. Comprehensive ease and familiarity with the arguments encountered, however, both contribute significantly to higher confidence levels. Thus, information would appear to be being used as a confirmatory test against existing expertise.

Third, evaluations of the overall usefulness of the report in the judgment task can be attributed to the more "affectively-weighted" attributes of information relevance and credibility. These attributes are "affectively-weighted" in the sense that they denote higher-level processing of an argument once it has been read and understood. Technical ease and the number of new arguments, on the other hand, can be considered more "cognitively-weighted" (i.e., ask the respondent to report only whether the argument was known and could be understood, and not whether the premise should be accepted or rejected in the judgment task). While understanding of the argument would seem to be a pre-condition to higher level processing, it does not (at least for the current experiment), appear to significantly influence judgments of the utility of the overall data-base.

Of course, other factors will also affect these judgments. Among constructs included in our model, the nature of the task assignment will directly affect the confidence level associated with task completion. Our laboratory results suggest that conceptual tasks (i.e., those associated with broader judgment parameters), for example, will show greater improvement in confidence levels as a result of exposure to information, than will structured choice dilemmas such as that associated with the instru-

mental task in the current study. Our field results generally support this finding. Subjects in the conceptual task condition report a mean improvement in confidence level of 1.27 (on a 6-point, bi-polar scale), compared to .51 for subjects in an instrumental condition. This difference is significant at $p < .05$.

TABLE 3
COGNITIVE RESPONSE AND INFORMATION UTILIZATION
POST-UTILIZATION

OLS Regressions¹

DEPENDENT CONSTRUCT	BETA COEFFICIENT				r ²	F
	Ease of Underst.	Novelty	Relev.	Credibility		
Technology Attitude	.17	-.34*	.34*	.46*	.47	12.41*
Task Confidence	.49*	-.22+	.07	.21	.38	8.28*
Overall Report Usefulness	.13	-.06	.32@	.29@	.41	9.68*

1 All items measured using self-report, 6-point, bi-polar scales with higher values denoting more favorable response.
* $p < .01$
@ $p < .05$
+ $p < .10$

Discussion

In this paper, we have reported partial results from a field study of the utilization of objective information in judgment tasks. The purpose of the study has been to validate among a sample of potential adopters of a new technology, results obtained in a controlled laboratory experiment of information utilization.

The study lends strong support to the laboratory findings, and hence the proposed model. Both task and information characteristics significantly affect the formation of expected utility judgments. Consistent with our laboratory findings, objective information is expected to have lower utility in judgment tasks tied to a choice dilemma than in tasks requiring initial understanding of the choice parameters. In our earlier paper, we discuss the types of consumer judgments which might represent these two task conditions. Without repeating this discussion, our results suggest that the focus of consumer researchers on the role of information in the brand choice problem may overlook an important class of judgments in which consumers will be more receptive to information.

The field results also support the multi-attribute information utility construct proposed and tested in the laboratory environment. This result is important since it indicates that problems in measuring the effect of information characteristics on utility judgments, reported in earlier utilization studies in field settings (Deshpande and Zaltman 1982, 1984), can indeed be overcome.

A unique contribution of the current model is the testing of the expectancy disconfirmation paradigm as a model of the process of modification of utility judgments, following use of information. Again, our hypotheses concerning the effect of initial expectation on utility judgments are supported by the field results. This also is an important finding, since it implies that rejection of information following exposure is more likely to occur among audiences initially highly receptive to the stimulus. Since subjects holding low expectations are generally positively surprised by the stimulus, our data suggest that utilization of information may actually be enhanced by attempting to lower, rather than raise, initial expectations.

The study also demonstrates the separability of information characteristics to explain inherently different cognitive and affective judgments. For the current sample, "knowledge-related" attributes of technical ease and

familiarity with arguments are being used to assess the confidence which should be assigned to the task judgments, while "affectively-related" attributes of relevance and credibility provide input to evaluations of the overall utility of the arguments. For evaluations of the target technology, both sets of factors combine.

As objective (non-persuasive) information data-bases become increasingly available to consumers through innovations in communications technology, the importance of this class of information in consumer judgments is likely to increase. Such changes are likely to present marketing managers with new, and often particularly complex, communications challenges. In this paper, we take the position that increased understanding of the use of objective information products and services will provide marketing managers with insight not only into how to more effectively respond to these challenges, but also into the role of information generally in consumer judgments. We advocate increased efforts by consumer researchers in this area and present a reduced paradigm and set of findings to suggest how this effort might begin to be implemented.

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PARENTAL DIFFUSION ROLES AND EFFECTS OF NUTRITION EDUCATION ON PARENTS AND CHILDREN

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Abstract

Effects of children's nutrition education depends on adoption of new consumption concepts and practices by parents and their children. This study employs a diffusion role typology and socialization perspective to examine the relations between parental influence and parents' and children's responses to nutrition education.

Most arguments about the causes of children's nutritional problems call attention to the importance of parental influence (e.g., those dealing with changing family lifestyles or children's exposure to television food advertising (Grossbart and Crosby 1984)). Research indicates mothers' knowledge has a significant impact on children's diets but many mothers have little understanding of a balanced meal, healthful eating habits or available nutrition information (Caliendo and Sanjur 1978; Richmond 1977; Jacoby, Chestnut and Silberman 1977; White 1976; Bauman 1973; Eppright et al. 1970). Consequently, considerable attention has been focused on developing and marketing nutrition education programs in schools (Fleming and Brown 1981; Fine 1980; Ward 1978; Baird and Shutz 1976; Kotler and Zaltman 1971).

Mothers may also play a pivotal role in this regard. In their various socialization roles (Wackman 1979) they can influence school curriculums, help create a home environment which emphasizes nutrition concepts and provide children with opportunities to eat a balanced diet, try new foods, aid in food buying decisions, etc. This suggests nutrition education results are apt to depend on family interactions and parental behavior (Fox and Kotler 1980). This study explores these matters from a diffusion of innovations and socialization perspective. Its purpose was to examine parental reinforcement of nutrition education and related psychological and behavioral effects on parents and children.

Nutrition, Innovation And Socialization

Nutritional concepts possess a considerable degree of perceived newness for parents unfamiliar with dietary principles for children's growth and development (Fox and Kotler 1980). Sheth (1979) suggests reception of a new idea or practice depends on the extent of risk associated with its use and the strength of consumers' prior habits. Innovations encountering ingrained habits and high risk perceptions face the greatest resistance. Sheth terms these "dual resistance innovations" and notes that social ideas (e.g., children's nutrition) and social programs (e.g., nutrition education) tend to fall in this category. Relatively strong habits are apt to govern frequently performed food buying and eating behaviors (Deutsch 1976; Eppright et al. 1970). These habits have often been passed down through generations or have roots in entrenched family lifestyles and values (e.g., those stressing a fast pace of life outside the family, immediate gratification, etc.).

The perceived risk which strengthens resistance stems from consumer confusion, uncertainty and suspicion of aversive consequences. Certainly, the apparent complexity of dietary requirements must seem great to parents who have been exposed to conflicting governmental suggestions on nutrition (Fox and Kotler 1980) or perplexing scientific terminology and quantification. Parents' documented lack of familiarity with nutrition ideas and practices may also increase their uncertainty about new eating regimens and lead to concerns about performance, social, and economic outcomes. Performance concerns stem from taste apprehension and a tendency to

associate nutritious foods with bad taste. Among mothers, this is accompanied by the social and economic risk of serving foods family members will not like. Children may also perceive social risk if nutritious foods lack peer approval. Finally, the tendency to equate nutritious foods with expensive health foods may increase the perceived economic risk. For many parents these concerns are not offset by the developmental and health benefits of a nutritious diet because they are not immediately observable. Moreover, chances to observe others preparing and consuming healthful foods are infrequent since these behaviors are most often performed within the home. In combination, these factors diminish the perceived relative advantage of nutrition education and nutrition-oriented behavior.

In this context, interpersonal family influences are important since adoption of nutrition education involves "collective" innovation decisions (Rogers 1983) in which both parents and children are the decision making unit. In these circumstances parents are in a position to play legitimizing roles as informal educators and motivators of consumption (Wackman 1979). By (not) sanctioning nutrition education concepts they can (decrease) increase the magnitude of program impact. Parents with the previously outlined concerns about nutrition concepts or education may not be inclined to communicate approval to children.

Insights into these dynamics are provided by Midgley's (1976) explanation of interpersonal diffusion roles in innovation-decision situations. His typology includes 1) active adoptors, who communicate favorable innovation experience, 2) passives, who do not provide indications of their evaluations to others and 3) active rejectors, who relate unfavorable experiences to others. His premise is that adoption is determined by communicated, i.e. verbalized, experiences which are disseminated through the social system. This study uses a previously employed adaptation of Midgley's typology (Grossbart, Crosby and Robb 1982). The relevant social system is defined as the family. A three-fold categorization of parental influence is used, i.e., actives who accept and reinforce the concepts in the nutrition education program, passives who accept but fail to reinforce the concepts and rejectors, who do not accept the concepts or provide reinforcement to their children.

Parents who play these different roles are apt to evidence additional differences in psychological and behavioral responses. First, they are likely to differ in the increased significance they place on nutrition related attributes of foods. Parents who accept and try to stress the aforementioned concepts to their children are more likely to devote increased attention to matters of food and nutrition. This should be reflected in more cognitive emphasis on the nutrition content of food products purchased and consumed by the family. Second, parents should vary in the extent of interaction with their child in grocery shopping and decisions about food purchases and eating choices. Variance in changed interaction levels is a likely consequence of both variable desires to more actively socialize the child in terms of food consumption and responses to child initiated requests and questions which are outcomes of more active parental influence attempts. Certainly, increased interaction is not probable in most cases, since active consumer socialization attempts by parent are not widespread (Wackman 1979; Ward 1974). However, it should occur in families with active parents. Finally, changes in parental buying behavior should occur. For the reasons stated above, active parents are most likely to alter their buying behavior, e.g., by

departing from past purchase patterns and buying a greater variety of products, employing nutrition content as a more determinant factor in item selection, etc.

- H1: Active parents will evidence more change in a) cognitive emphasis on nutrition, b) interaction levels with children and c) nutrition-oriented behavior than passives or rejectors.

Prior research (Grossbart, Crosby and Robb 1982) has examined parents' reports on children's responses to nutrition education. This study employs reports from children themselves. This permits a more direct test of the thesis that parental attitudes and behaviors should influence children's adoption of nutrition concepts. This is consistent with suggestions in the consumer socialization literature that verbal and nonverbal communications about consumption between parent and child are related to the child's development of consumption orientations (Moschis 1981). Without parental acceptance (i.e., among rejectors) nutrition education should have the least positive impact on children's nutrition attitudes or food preferences. In contrast, parental acceptance alone (i.e., by passives) should establish a sufficient basis for children developing somewhat more positive nutrition attitudes and a wider range of food preferences. Even if parents do not provide verbal reinforcements, lack of overt criticism and observation of their nonverbal behavior by children may convey positive nutrition cognitions and behaviors (Moschis, Moore and Smith 1983) and thereby foster positive orientations. Without verbal reinforcement, however, less legitimization may occur and only moderate effects on attitudes and preferences may result. Active parental reinforcement should lead to more pronounced changes in a child's nutrition orientation because it will signify the sanctioning of newly learned concepts and is likely to occur in the most relevant behavior contexts, e.g. when the parent responds to a child's food choices, requests, questions, etc. (Crosby and Grossbart 1984).

- H2: (a) Children of active parents will evidence enhanced nutrition attitudes and increased food preferences.
(b) Their responses will be greater than those of children of passives and rejectors.
- H3: (a) Children of passive parents will evidence enhanced nutrition attitudes and increased food preferences.
(b) Their responses will be greater than those of children of rejectors.
- H4: Children of rejector parents will not evidence enhanced nutrition attitudes or increased food preferences.

Relationships between the diffusion role a child's mother assumes and demographics are uncertain. If reaction depends on fears about cognitive defenselessness of younger children (Crosby and Grossbart 1984) and overt parent-child communication declines with age (Moschis and Churchill 1978), greater parental acceptance and reinforcement may occur when children are in lower grades. Since nutritional knowledge and attitudes and extent of purposive parental training of children have been found to vary directly with socioeconomic status (Eppright et. al. 1970; Ward and Wackman 1973), it might be anticipated that families with more educated parents and father's in white collar occupations would be more supportive. Families with agricultural ties could also be expected to place greater value on matters of food and nutrition. Conversely, prior pro-nutrition efforts might limit the perceived need for parental action. Finally, support from working mothers could stem from their openness to new experiences for their children and a desire for external help in socializing them as consumers. Similarly, those with larger families might respond positively to external help. However, these same parents may lack the time to engage in an active role.

Method

Analysis is based on data from surveys of mothers and elementary school children (grades 1-6) in thirteen schools participating in a federally funded experimental nutrition education project. Schools were randomly assigned to treatment and control groups and represented a cross section of communities from rural, suburban and urban areas. The program employed a set of psychometrically developed modules designed to impact children's nutrition orientations. During the school year children took part in classroom discussions and food tasting experiences and received information on possible food preparation and consumption activities for the family. The 5 control schools did not receive the program. With minor exception, all classrooms in the selected schools were involved in the study. Survey measures were taken on children (at school) both before and after program completion. Self-administered questionnaires were distributed to parents upon completion of the program. Returned parent questionnaires were evenly distributed across grade levels and represented a fifty percent response rate. A comparison of treatment (n = 379) and control (n = 223) parents showed the two groups had similar demographics and attitudes (on issues not directly related to the program, e.g. child rearing). A separate check confirmed that treatment group parents were aware of their children's participation in a new nutrition education program.

Parents in the treatment group were classified as rejectors, passives or actives based on the extent to which they agreed with concepts presented in the program and provided reinforcement by reminding their children about them. This was accomplished by dividing four-point (not at all - a lot) agreement and reinforcement scales at their mid-point and cross-classifying responses. Rejectors were those with low scores on both scales, passives were high on agreement but low on reinforcement and actives had high scores on both measures.

Hypothesized effects were measured by indices reported in Table 1. Using four-point (not at all - a lot) scales, parents estimated effects on themselves by reporting how ideas their child brought home from school increased their own 1) cognitive emphasis, i.e., concern about food and nutritional content of purchased and consumed food items, 2) interaction levels with the child, e.g., including him/her in purchase and food planning decisions and co-shopping and 3) nutrition-oriented behavior, e.g., likelihood of basing purchases on nutrition content and buying a greater variety of food products. Demographic information (grade in school, number of children and parents' education and occupation status) was gathered to profile parents who displayed different roles in the nutrition education program. Children's Nutrition Attitude employed three-point (disagree - agree) scales and included such items as "Food in nice packages always tastes good," "Too much sugar or candy can be bad for you," "It's o.k. to eat whatever you want as long as you eat enough" and "T.V. ads show the best foods to buy." Food Preference provided indications of children's fruit and vegetable preferences (which the program was designed to influence). Three-point (not like me - like me) scales were used. Higher scores on both scales indicate a more positive nutrition orientation.

Differences in parental response and demographics were tested by multiple and univariate analysis of variance, Scheffe contrasts and Chi-square. Differences in children's responses were analyzed by analysis of covariance with premeasures serving as covariates. Appropriate adjustments were made for group sizes and error terms were adjusted for variation in covariate scores. Following overall assessments of significance, adjusted means of treatment groups were compared. If no differences were present, a treatment versus control contrast was conducted. Otherwise, all planned comparisons were made. These procedures follow those suggested by Keppel (1982).

Results

Over ninety-eight percent of treatment group cases were categorized as either actives (n = 169), passives (n = 150) or rejectors (n = 60). These results indicate a high level of program acceptance among parents, but substantial reinforcement attempts in less than half of the cases. Information on reliabilities and mean index magnitudes is presented in Table 1. Alpha and beta coefficients reflect the internal consistency and unidimensionality of indices of response for parents and children (Revelle 1979).

TABLE 1
MEASURES ON CHILDREN AND PARENTS FOR CONTROL AND TREATMENT GROUPS

Measure	Number of Items	Coefficient		Means (Standard Deviations)			
		Alpha	Beta	Control	Rejector	Passive	Active
Measures on Parents							
Cognitive Emphasis	3	.84	.84	5.86 (2.57)	4.85 (2.00)	5.71 (2.17)	7.04 (2.46)
Interaction Level	4	.84	.82	8.52 (2.96)	7.52 (2.46)	7.90 (2.62)	9.97 (2.90)
Behavior	5	.95	.91	12.11 (5.10)	10.31 (4.91)	11.22 (4.48)	13.85 (4.39)
Measures on Children							
Nutrition Attitude premeasure	25	.63	.62	64.69 (6.18)	64.59 (5.30)	66.64 (4.88)	65.29 (5.15)
Nutrition Attitude postmeasure adjusted mean	25	.69	.69	65.34 (6.47) 65.66	65.15 (5.80) 65.62	(68.29) (4.68) 67.53	67.55 (5.18) 67.58
Food Preference premeasure	18	.69	.57	42.90 (5.88)	42.84 (6.17)	43.38 (5.33)	42.78 (5.29)
Food Preference postmeasure adjusted mean	18	.74	.62	43.58 (6.32) 43.64	43.94 (6.38) 44.05	45.05 (5.75) 44.75	44.52 (5.27) 44.66

Findings with respect to parent responses and demographics are included in Table 2. Examination of these results provides evidence of marked differences between actives and passives on all three measures of parental response but a lack of distinction between passives and the two other groups. As expected, actives exhibited significantly higher scores on cognitive emphasis on nutrition, consumption related interaction with their children, and altered food buying behavior patterns than any of the other groups. Responses for rejectors were significantly below control group responses on cognitive emphasis and behavior.

TABLE 2
ANOVA AND CONTRASTS ON PARENT MEASURES AND PROFILE CHARACTERISTICS

Measure	MS	MS error	F	Scheffe Test
Cognitive Emphasis	92.27	5.73	16.12 ^a	A > P ^c , A > R ^c , A > C ^b , C > R ^b
Interaction Level	153.60	7.91	19.43 ^a	A > P ^b , A > R ^b , A > C ^b
Behavior	270.98	22.43	12.08 ^a	A > P ^b , A > R ^b , A > C ^b , C > R ^c
Child's Grade	26.54	2.92	9.10 ^a	A < P ^c , A < R ^b , A < C ^b , P < R ^c
Number of Children	0.68	1.49	0.46	
Mother's Education	4.71	1.83	2.58 ^b	P > R ^c
Father's Education	9.15	2.39	3.84 ^a	A > C ^c

Note: ^adenotes p < .01, ^bdenotes p < .05 and ^cdenotes p < .10;

C = Control, R = Rejectors, P = Passives and A = Actives

Few demographic differences were revealed. Passive mothers tended to be more educated than rejectors while actives had more educated spouses than the control group. 'Actives' children were in lower grades than the other groups and passives' children were in lower grades than rejectors. While not inconsistent with the conceptual framework for this study, this finding

suggested the need for further analysis. Consequently, analysis of covariance was conducted on the two children's and three parental response measures. In each case child's grade was added as a potential covariate. The results did not differ from those reported above. Chi-square tests indicated no significant differences in mothers' occupational status or fathers being engaged in farm versus nonfarm jobs. However, rejectors had a higher than expected proportion of spouses in blue collar employment and passives had a higher than anticipated percentage in white collar positions. Among actives and the control group these proportions were nearly equal (Chi-square = 6.50, p < .10).

TABLE 3
ANCOVA RESULTS ON CHILDREN'S MEASURES

Measure/Hypothesized Comparison	MS	MS(MS') error	F
Nutrition Attitude	87.84	17.24	5.10 ^a
Active * Passive * Rejector	145.24	19.14	7.59 ^a
Active > Passive	0.15	18.02	<.01
Active > Rejector	241.89	17.41	13.89 ^a
Active > Control	175.37	18.79	9.33 ^a
Passive > Rejector	216.26	18.96	11.41 ^a
Passive > Control	135.33	18.79	8.80 ^a
Rejector * Control	3.42	17.24	0.20
Food Preference	50.28	17.22	2.92 ^b
Active * Passive * Rejector	17.39	17.39	1.02
Treatment > Control	63.24	17.22	3.67 ^c

Note: ^adenotes p < .01, ^bdenotes p < .05 and ^cdenotes p < .10

ANCOVA results on children's responses are presented in Table 3. For Nutrition Attitudes, findings of overall significance (F = 5.10, p < .01) and differences among treatment groups (p < .01) made it possible to examine between group comparisons. Results support the expectation that children of active and passive mothers have more positive nutrition attitudes than do children of rejectors or those in the control group (see adjusted means in Table 1). However, there was no significant difference on nutrition attitudes between actives and passives. In addition, attitudes of children of rejectors did not differ from those of the control group. Overall significance was also present for children's food preferences (F = 2.92, p < .05). While adjusted means for actives and passives were greater than the mean for the rejector group, these differences were not significant. Still, as a whole, children in the treatment group evidenced a significantly greater change in food preference than those in the control group (p < .10).

Discussion

It appears worthwhile to investigate children's nutrition education from a diffusion role/socialization perspective. Research is needed to validate findings in other states and measure effects over time. It would be useful to track actual trends in family consumption and check for possible sleeper or decay effects in cognitive, affective or behavioral responses. Attempts should also be made to employ more complex experimental designs which allow premeasures on parents and determination of possible test effects on children. This would allow further examination of effects of general familiarity with nutrition education and views on the program in question as an innovation. In addition, efforts should be made to investigate father's role in the adoption of nutrition concepts and practices.

Meanwhile, these findings provide support for focusing more attention on parents' responses to children's nutrition education. While the program in this study was primarily geared to directly influence children, important unintended effects were also observed among

active parents. They reported changes in concern about nutrition content, food socialization interaction with their child and buying tendencies which were significantly greater than those of passives, rejectors or the control group. These effects have important social and managerial marketing implications.

In social terms, they suggest the importance of targeting actives and perhaps developing strategies to increase the number of active parents. The present results provide useful, but limited, profile distinctions between parents with alternative diffusion roles. They suggest the possibility of considering different tactics for parents of younger versus older children and segmentation strategies reflecting the fact that, in comparison to passives, rejectors are likely to be less educated and have spouses in blue collar occupations. However, targeting efforts will be enhanced by a fuller understanding of the socio-psychological antecedents of parents nutrition orientations and response to nutrition education. In managerial terms, the results make it clear that nutrition education efforts should be monitored by food marketers. If these programs, in a direct or indirect manner, engender shifts in the importance of nutrition as an evaluative criterion for product selection, variety of products purchased and extent of child involvement in shopping and product choice, as was found among actives, their effects may be of great competitive significance. It appears that children's nutrition education may be capable, in the case of actives, of exercising a socializing influence on parents themselves. If so, there may be a need for evaluating current promotional positioning and product line development and management policies in light of subtle shifts in parental orientation and behavior.

Interesting issues are also raised by observed effects on children's nutrition orientations. The existence of differences in nutrition attitudes but not food preferences across diffusion roles may reflect the closer link between food preferences and actual consumption behavior. While positive attitudes may prove to be related to consumption of a wider variety of foods, such behavior is apt to be more immediately, i.e., directly, related to preferences. These results indicate that nutrition education impacts children's food preferences. In contrast, more positive attitudinal effects for children of actives and passives versus rejector and control groups support the argument that results of education hinge on parental socialization influence. However, these findings, in combination with the lack of differences between actives and passives, suggest that verbalization *per se* is not a requisite for impact on attitudes. The diffusion role perspective presented here emphasizes verbal influence, while the socialization perspective allows for the transmission of norms and consumption orientations by modeling (nonverbal) and overt behavior (verbal reinforcement). These findings are consistent with the thesis that there are multiple communication mechanisms involved in nutrition socialization and adoption of positive nutrition attitudes by children. These issues clearly merit further investigation.

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FAMILY COMMUNICATION INFLUENCES ON THE DEVELOPMENT
OF CONSUMER BEHAVIOR: SOME ADDITIONAL FINDINGS

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Abstract

The importance of family in consumer socialization has been shown in a large number of studies. This paper deals with the influences of family communications on the development of consumption-related behavior patterns. It presents additional data that suggest family communication patterns may be important in shaping the consumer behavior of young people.

Introduction

Understanding adolescent consumer behavior and its development may help us to understand adult consumer behavior. In fact, most patterns of adult purchasing behavior are acquired early in life (Olshavsky and Granbois 1979). Moreover, adolescence is believed to be a crucial time for socialization and a period during which much consumer learning seems to be taking place (Ward 1974; Moore and Stephens 1975; Moschis 1976). Consequently, recent consumer research has focused on consumer socialization, especially the effects of interpersonal and mass communication on the development of consumer behavior. Previous consumer socialization studies have examined, for example, the influence of family, television, and peers on the development of patterns of consumer decision-making such as information seeking, buying motives, and product evaluation (Moschis 1976; Moore and Stephens 1975; Churchill and Moschis 1979; Ward, Wackman, and Wartella 1977).

Although the family is considered an important agent in consumer socialization, and parents are preferred about twice as much as any other source of consumer information (Moschis and Moore 1979a), most of the research has treated family influence as a variable mediating media effects, especially with respect to television (Robertson 1979), with little attention being directed toward establishing the role of family communication processes in adolescent consumer behavior. In addition, research concerning family communication has focused primarily on the frequency of interaction rather than on the pattern or quality of the interaction.

Conceptualization

The typology of parent-child communication structures and patterns as developed by McLeod and Chaffee (1972) provides a useful vehicle for analyzing the quality of family interaction and its effects on consumer learning. The family communication patterns typology utilizes Newcomb's (1953) co-orientation model. Family communication structures refer to the two relatively uncorrelated dimensions which have been found repeatedly. The socio-oriented dimension is characterized by stressing A-B relationships and seems to produce deference and to foster harmonious and pleasant social relationships. On the other hand, the concept-oriented structure stresses A-X relationships and emphasizes helping the child to develop his/her own individual views of the world by imposing positive constraints.

Together, the two dimensions of family communication structure yield a four-fold typology of family communication patterns: *laissez-faire*, protective, pluralistic, and consensual (McLeod and Chaffee 1972) [Figure 1]. *Laissez-faire* families emphasize neither of the two dimensions and there is little communication between parents and children. *Protective* families emphasize the socio-orientation dimension, stressing obedience and

social harmony, and are not concerned with conceptual matters. Conversely, *pluralistic* families tend to stress the concept-orientation dimension, with an emphasis being placed on mutuality of respects and interest. Children are encouraged to explore new ideas and to express them openly without fear of reprisal. Finally, *consensual* families stress both the socio- and concept-orientation dimensions, and children are encouraged to explore the world about them but to do so without disrupting the family's established internal social harmony.

One of the most important factors in a child's development of consumer skills, knowledge, and attitudes is held to be intrafamily communication about consumption (Churchill and Moschis 1979; Moschis 1976; Ward, Wackman, and Wartella 1977). Effective consumer learning has also been found to be closely tied to the patterns of communication taking place within the home environment (Moschis and Moore 1978 and 1979b). Moschis, Moore, and Smith (1983) investigated the effects of both family communication patterns and family communication about consumption affairs, knowledge, consumer activities, and consumer role perceptions and found that the family communication pattern typology was significantly better than communication frequency measures in explaining consumer activity (defined as the ability to buy and use products and services in a rational and efficient manner).

Although various studies have examined consumer learning and particular stages of the decision-making process, none have looked specifically at the effects of family communication patterns on the development of adolescent purchasing behavior. The purpose of this paper is to extend existing consumer socialization research by investigating the effects of different family communication patterns on the pre-purchase, purchase, and post-purchase stages of the purchase process. The general hypothesis made in this study is that the adolescent's purchasing behavior is conditioned by the structure of parent-child communication roles in the home environment. Specifically, the family communication pattern (FCP), as a generalized socializing influence (see McLeod et al. 1982; McLeod and O'Keefe 1972; Chaffee et al. 1971; Sheinkopf 1973), would hypothetically lead to (a) different attitudes about brands and the marketplace in general, (b) different levels of adolescent shopping independence, (c) different perceptions of sex-roles, (d) different forms of conflict resolution, and (e) different levels of consumer discontent (post-purchase).

Hypotheses

A recent review of the role of family communication in consumer socialization suggests relationships between family communication patterns and various aspects of the youth's consumer behavior (Moschis 1985). One general proposition is that the pluralistic FCP pattern fosters the development of consumer competencies. Among these families, parental encouragement and the child's freedom to explore controversial issues and make up his/her own mind is likely to result in greater satisfaction with his/her choices in the marketplace and to foster skepticism about the marketplace at an earlier age than children from other types of backgrounds. In addition, political socialization research suggests that pluralistic children are more likely to develop party "loyalties" earlier than other children (McLeod and Chaffee 1972). Finally, the family's emphasis on

mutuality of respects and interests is likely to encourage not only more independence in purchasing decisions but also an egalitarian family decision-making pattern and a conflict resolution style that incorporates the children's input. The preceding discussion suggests the following hypotheses.

H1: Pluralistic children are more likely than their counterparts to (a) be satisfied with the products they buy/use--i.e. experience less discontent; (b) have more negative attitudes toward the market place; (c) have preferences for brands; (d) experience family independence in purchasing products; (e) have egalitarian sex-role perceptions; and (f) have a syncretic family-role structure.

Another general proposition is that the protective FCP pattern contributes to the person's susceptibility to outside-the-home influences, both commercial and non-commercial (Moschis 1985). In these families, the child has few opportunities to participate in family decisions due to the hierarchy of power structure accepted by, or imposed upon, its members, and he/she is constrained from developing his/her own views. Specifically, his/her consumer field of choices is rather limited, has fewer opportunities to explore controversial issues, which may result in less satisfaction with his/her choices on the marketplace, and has less family independence. Moreover s/he functions in a highly authoritative family with fewer opportunities for participation in family/decisions. Thus, one would expect the protective child to be the opposite of the pluralistic child.

H2: Protective children are less likely than their counterparts to (a) be satisfied with the products they buy/use; (b) have more positive attitudes toward the marketplace; (c) have preferences for brands; (d) experience family independence in purchasing products; (e) have egalitarian sex-role perceptions; and (f) have a husband dominant family-role structure.

Children from laissez-faire families spend little time communicating with their parents. While there is no evidence to suggest that a lack of communication is better or worse than the socio-oriented communication structure, one would expect little or no communication about family decisions among laissez-faire family members.

H3: Children from laissez-faire families are less likely than children from other family backgrounds to report a syncretic family-role structure.

Consensual families stressing both types of orientations often present conflicting views and alternatives to the child. They encourage the child to take an interest in the world of ideas and develop his/her own views/opinions, and also to respect the hierarchy of family power structure and parental views. Because the views the child develops on his/her own are not always in line with those of his/her parents, there is a tendency among consensual children to use outside-the-family referents as a means of determining "reality," and to seek escape from this conflicting situation by adopting the norms and values of outside sources of information, including commercials (McLeod and Chaffee 1972). This is likely to make them not only more susceptible to such influences but also less satisfied with the products they buy/use because of their greater reliance upon commercial stimuli in the marketplace.

H4: Consensual children are more likely than children from other family backgrounds to (a) have positive attitudes toward the marketplace; and (b) experience greater dissatisfaction with products they buy/use.

Method

Data for the study were gathered from 734 adolescents

who completed self-administered questionnaires during regular classroom hours in one middle and one high school in each of six counties of a Southern state. The selected schools were determined to be representative of the urban, suburban, rural, and semi-rural regions of the state on the basis of personal interviews conducted with school administrators. The resultant sample, though not randomly selected, proved to be demographically representative of the area with respect to sex (49% male; 51% female), age (53% middle school; 47% high school), race (11% black; 88% white), and socio-economic status as measured on Duncan's (1961) (scale mean = 45.3).

Criterion Variables

Employing the commonly-used consumer decision-making framework, six dependent variables were developed to coincide with the three primary stages of the purchasing process: pre-purchase disposition/attitude, purchase, and post-purchase evaluation. Measurement of these variables was achieved by summing the appropriate items and using the coefficient alpha to assess the resultant reliability of the scales. The range of the reliability coefficients was above the .50 minimum recommended by Nunnally (1967).

Brand preference is operationally defined to mean the extent to which an adolescent has a favorite brand for various products and was measured in line with previous research (e.g., Ward et al. 1977; Moschis and Moore 1979a). Respondents were asked to indicate their favorite brand for 12 randomly selected consumer products, evenly distributed between 1) those products used by a child vs. those not used by a child and 2) products heavily vs. lightly advertised. If respondents indicated a brand preference, a score of 1 was assigned, and if none was indicated, a score of 0 was assigned. A 0- to 12-point index was developed to indicate a measurement of the respondent's brand preference.

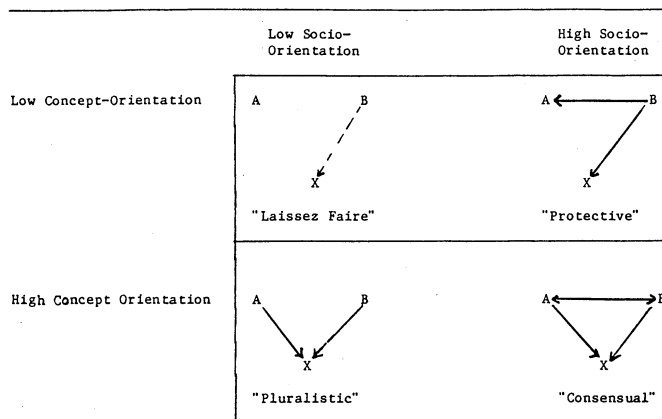
Attitude towards the marketplace means the cognitive and affective orientation of the respondent toward (1) various marketing stimuli such as advertising, stores, prices, and salespeople, and (2) general attitudes toward businesses. Respondents were asked to indicate their level of agreement or disagreement, using 5-point scales ranging from "strongly agree" to "strongly disagree," with statements such as, "The more famous the store, the better the product it sells," and "Today's consumers are being taken advantage of by companies."

Variables considered relevant at the purchase stage included shopping independence, egalitarian sex-role perceptions, and conflict resolution process.

Shopping independence indicates the degree of the adolescent's purchasing independence by determining his/her social environment during the actual purchase. Respondents were asked to indicate the circumstances under which they would purchase eight products: wrist watch, hair dryer, flash cubes, sunglasses, pocket calculator, wallet, pair of dress shoes, and household batteries. The purchasing situation choices given the respondent were alone, with friends, with family member(s), or ask someone in the family to purchase the item. By combining responses to the first two categories (alone or with friends), a 0- to 8-point index was developed which represented the adolescent's independence in purchase.

Egalitarian sex-role perceptions is operationally defined to mean the adolescent's perception of the relative influence of husband and wife in family decision making. Respondents were presented with 12 different decisions representing various degrees of husband-wife specialization with four response alternatives: "husband should have the most say," "wife should have the most say," "husband and wife should have equal say," and "I don't know." Respondents were asked who, "in a

FIGURE 1
FAMILY COMMUNICATION PATTERN TYPOLOGY INTERPRETED
BY RELATIONS FROM NEWCOMB'S ABX



Key: A = the child, B = the parent; X = the topic
Arrows indicate relations stressed in particular family type

Source: McLeod and O'Keefe (1972)

TABLE I
ADOLESCENT CONSUMER BEHAVIOR
BY
FAMILY COMMUNICATION PATTERN

Adolescent Purchasing Behavior	Laissez-Faire	Pluralistic	Protective	Consensual	Mean Raw Score Overall
Brand Preferences	-.19**	+.12*(E)	-.05(E)	+.09	18.46 (3.14)
Attitudes Toward the Marketplace	-.07	+.16**(E)	-.05(O)	+.24**(E)	15.48 (3.76)
Consumer Discontent	-.11	-.09 (E)	.00	+.18**(E)	25.44 (3.18)
Purchasing Independence	.00	+.12*(E)	-.08(E)	-.06	2.69 (1.80)
Egalitarian Sex-Role Perceptions	-.07	+.21**(E)	-.07(E)	-.08	6.31 (2.19)
Conflict Resolution Process					
° Father Decides	-.09	-.12*	+.15*(E)	+.08	3.07 (1.23)
° Mother Decides	-.13*	.00	.00	+.12	3.15 (1.06)
° Child Decides	-.08	+.08	-.10	+.06	2.20 (1.00)
° Family Vote	-.15*(E)	+.13*(E)	-.14	+.11*	2.68 (1.45)
(N)	(181)	(199)	(144)	(210)	(734)

Entries are standard scores based on weighted means, setting the overall mean at zero and the standard deviation at unity within each row. The overall raw mean score and standard deviation (in parenthesis) measure is shown in the table at the far right.

* $p < .05$

** $p < .01$

E — indicates nature of relationship was in expected direction hypothesized.

O — indicates nature of relationship was in opposite direction hypothesized.

family with small children...should have the most say in..." six different categories, two decisions in each. The extent of egalitarian sex-roles in family decision making was measured by summing the "equal say" response to form a 0- to 12-point index.

Conflict resolution is a measure of the relative influence of various family members in purchasing situations where there is disagreement among family members. Respondents used a 5-point scale (1 = never, 2 = rarely, 3 = sometimes, 4 = most of the time, and 5 = almost always) to indicate which of the following was the primary decision-maker in conflict situations: father, mother, children, or all members (syncratic).

Consumer discontent was the one main variable considered relevant to the post-purchase stage of the purchase process. This variable concerns cognitive, affective, and behavioral tendencies toward products and product performance following purchase. Respondents were asked to indicate the level of agreement or disagreement, using a 5-point scale ranging from "strongly agree" (1) to "strongly disagree" (5), with statements such as "Some things I buy do not work as well as they are supposed to."

Independent Variables

Six items were used to measure each communication dimension. (All the scale items with instructions used are shown in the Appendix). Items designed to measure the socio-orientation dimension included:

[Your parents] say that they know what is best for you and you shouldn't question them.

[Your parents] want to know what you do with your money.

Examples of items used to measure the concept-orientation dimension were:

[Your parents] say you should decide yourself how to spend your money.

[Your parents] ask your advice about buying things.

Responses to these and similar items were measured on a 5-point scale ranging from "very often" to "never." Responses were then summed across the six items used to measure each dimension.

Internal consistency (coefficient alpha) for the items was established in previous consumer socialization research (Moschis and Moore 1978). Internal validity was confirmed through the application of factor analysis. Two factors representing each dimension of family communication structure were extracted using principal components analysis (varimax rotation). Further, for the present study, all items intended to measure each concept were loaded on their respective hypothesized family communication structure. Responses were not significantly affected by the respondent's demographic characteristics (Moschis et al. 1983).

Results

Table 1 shows the results of analysis of variance used to test the hypotheses. Generally, the results support Hypothesis 1. Specifically, pluralistic adolescents are more likely than adolescents from other family backgrounds to have more negative attitudes toward the marketplace ($p < .01$) (Hypothesis 1b), have preferences for brands ($p < .05$) (Hypothesis 1c), have greater purchasing independence ($p < .05$) (Hypothesis 1d), and they are more likely to hold egalitarian sex-role perceptions ($p < .01$) (Hypothesis 1e) and have syncratic family-role structures ($p < .05$) (Hypothesis 1f). The data did not support the hypothesis that pluralistics are less dissatisfied with the products they buy or use,

although the nature of the relationship was in the expected direction.

The data did not provide adequate support for Hypothesis 2, regarding relationships between protective FCP and consumer behavior. Although the nature of the relationships was in the expected direction, protectives were not more likely than their counterparts to score lower on measures of purchasing independence, brand preferences, attitudes toward the marketplace, and consumer discontent, nor were they more likely to hold traditional sex-role perceptions. The data, however, supported Hypothesis 2f, showing that protective families are characterized by a husband-dominant family role structure ($p < .05$). Perhaps the pluralistic child's susceptibility to outside-the-home influences may only apply to informal social rather than to commercial influences in the marketplace (Moore and Moschis 1978).

With respect to the hypothesis concerning laissez-faire families support was provided for the notion that there is little interaction about consumption among its members when conflict occurs (Hypothesis 3). Finally, the data provided adequate support for Hypotheses 4a and 4b concerning consensual children. Specifically, consensuals were more likely than adolescents in other groups to have positive attitudes toward the marketplace ($p < .01$) and to express greater dissatisfaction with products they buy or use ($p < .01$).

In addition, the data in Table 1 show other significant relationships that were not hypothesized. Specifically, laissez-faire adolescents are less likely to have preferences for brands than adolescents in any other group ($p < .01$). When it comes to resolving conflict in the family, the father is less likely to decide what the family should do among pluralistics, and the mother is less likely among consensuals ($p < .05$). Consensuals are less likely to adopt a syncratic family role structure ($p < .05$).

Discussion

While not all hypotheses were supported, the results of this study suggest that family communication patterns may have a significant influence on young people. The results appear to be in line with those reported in earlier studies using different sets of dependent measures of consumer behavior (Moore and Moschis 1978 and 1981; Moschis and Moore 1978 and 1979b; Moschis et al. 1983). Generally, the results across this limited number of studies suggest that pluralistics seem to be the most competent consumers at this particular age. This may be due to better training or earlier learning that can take place among these families. Protectives seem to develop patterns that are influenced by interpersonal relations (c.f. Moschis 1985), but such influences may only be confined to informal types. Consensuals appear to have patterns characterized by positive reaction toward marketing stimuli, while laissez-faires appear to be the least competent consumers.

Our study addressed general parent-child communication patterns, with little emphasis upon the specific parent (father, mother) and child (male, female) interaction. Future research should examine family communication patterns in such specific contexts). Further studies should also investigate different skills, attitudes, and behaviors, and they should replicate previous studies. Replication and accumulation of research findings in this area should help us better understand the important role of the family in the consumer socialization of young people.

Appendix

Family Communication Measures

The question designed to measure family communication patterns was the following:

Following is a list of things parents often say or do to their children. Read each statement carefully and check whether your own parents (or whomever you live with most of the time) say or do it very often, often, sometimes, rarely, or never.

Items used to measure socio-orientation were:

Your Parents ...

Tell you what things you should or shouldn't buy.
Want to know what you do with your money.
Complain when they don't like something you bought for yourself.
Say that they know what is best for you and you shouldn't question them.
Say you shouldn't ask questions about things that teenagers like you don't normally buy.
Say you may not buy certain things.

Items used to measure concept-orientation were:

Your Parents ...

Ask you to help them buy things for the family.
Ask you what you think about things they buy for themselves.
Ask you for advice about buying things.
Say you should decide what things you should or shouldn't buy.
Say that buying things you like is important even if others do not like them.
Say you should decide yourself how to spend your money.

Note: The sample was divided into "high" and "low" groups on each dimension by splitting each of the two summated scales at median, yielding the four-fold typology of FCP.

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FAMILY DECISION MAKING IN LEISURE-TIME ACTIVITIES: AN EXPLORATORY INVESTIGATION
OF THE IMPACT OF LOCUS OF CONTROL, CHILD AGE INFLUENCE FACTOR AND PARENTAL TYPE
ON PERCEIVED CHILD INFLUENCE

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Abstract

This paper examines the impact of parental locus of control, child age influence factor and parental type (single or dual parents) on perceptions of child influence in three specific leisure-time activities. The results lend support to previous research in terms of child influence and its dependence on product or activity specificity. In addition, locus of control, child age influence factor and parental type are found to have differing impacts on the various stages of the decision-making process.

Introduction

Family decision-making studies have focused on the roles of the husband-wife dyad and have ignored the roles of children. Several reviewers (Burns & Granbois 1980; Dunsing & Hafstrom 1975; Ferber 1975; Granbois 1979) have expressed concern about the inherent dangers of the over emphasis on the dyad and the failure to take into account the total family composition, even when the products in question have been consumed by the total family.

Besides the limitations inherent in ignoring the influence of children in family decision-making, the trend toward more single parent families has not been adequately considered in family decision-making research. Not only may such neglect produce misleading results, but they may have far reaching effects on managerial decisions pertaining to consumption behavior.

The purpose of this study is to investigate parental perception of child influence concerning three leisure-time activities. These activities are movie-attendance (family-type movie), family outing (a picnic) and participant sports (e.g., the family going to bowl or skate together). The three leisure-time activities were selected because they represent three different types of discretionary activities (Holbrook & Lehmann 1980). The questions of interest are whether differences will be seen to exist in perceptions of child influence among external and internal locus of control parents, among single and dual-parent families, and whether this perceived influence varies at different stages in the decision-making process.

It is worth noting that most of the relevant research has focused on the decision-making process as it pertains to large, resource-binding and infrequent purchase experiences (Burns & Granbois 1980). Besides the limitations inherent in the types of products featured in the studies, the influence of children in family decision-making and the trend towards more single parent families have too often been ignored. Hence, the investigation of three leisure-time activities, and the impact of parental locus of control and parental type on perceived child influence may provide new insights in family decision-making.

Locus of Control

As a moderating personality characteristic, locus of control is concerned with the degree to which individuals perceive themselves as being in control of their lives and events that influence their lives, or the degree of control individuals perceive themselves to possess in regard to the consequences of their behavior (Rotter 1966). Individuals having an external locus of control tend to attribute the influences on their lives to such things as luck, fate, chance or strong forces they cannot overcome. People having an internal locus of control tend to attribute the influences on their lives to forces such as their own skills that are within their control. Externalists attribute causality to environmental forces while internalists

assign such attribution to personal forces.

Internal locus of control and external locus of control individuals differ not only as to their attentiveness to information immediately present in the environment, but also in terms of their actively seeking additional relevant information (Seeman 1963; Seeman & Evans 1962). Consequently, parental locus of control may have varied impacts on the search element within the decision-making process. In addition, persons with an external locus of control may be more likely generally to let others influence them, than may those with an internal locus of control.

Extrapolating from the foregoing ideas, we hypothesize that:

H₁: Different degrees of child influence will be perceived by internal versus external locus of control parents, with external locus of control parents assigning greater influence to their children.

It has been suggested that more consideration be given to the inclusion of personality variables in future studies as to family decision-making (Dunsing & Hafstrom 1975). Thus, the introduction of parental locus of control may provide additional insight into our understanding of child influence in family decision-making.

Type of Parenting (Single vs Dual Parents)

This paper also investigates single and dual parents' perceptions of the influence of children in various subdecision areas. Demographic data clearly indicates a trend toward more single parent families; the increase in one parent families is among the most dramatic social developments of the last decade. The number of one parent families in the U.S.A. increased 79% from 1970 to 1979. In 1970 about 11% of the families with children still living at home were maintained by one parent, but by 1980 this percentage had increased to 20%. That is one of every five families with children in the home (U.S. Bureau Press Release, CB 80-154; and interview with James Weed, Head, Marriage and Family, U.S. Census Bureau).

Such a recognized increase supports the argument of a changing family structure. Changes in family structure may lead to changes in decision-making patterns and coalitions within the family. The absence of a parent will lead to changes in decision-making patterns among the single parent and the children. This absence of a parent not only changes the family structure and composition, but it is expected that the decision-making patterns resulting from the influence of the child or children is likely to change as well.

Extrapolating from the aforementioned ideas, it is hypothesized that:

H₂: Different degrees of child influence will be perceived by single- versus dual-parent families, with single parents assigning more influence to the children than do dual-parent families.

It would be of interest to both practitioners and academicians, therefore, to understand the impact of the above changes on certain aspects of family decision-making and to identify differences between dual-parent and single-parent families.

Children

Previous studies suggest that the children's ages is one of the factors which affect the likelihood of influence upon a parental decision (McNeal 1969; Mehrotra & Torges

1976; Ward & Wackman 1972). Jenkins (1979), for example, found that older children, especially teenagers, were perceived to have more influence, and that both spouses perceived children to be highly influential in deciding on what activities the family will participate in jointly, especially regarding vacation decisions.

A purchase decision is composed of a sequence of decisions and different individuals within the family may play different roles at different stages (Davis 1970; Jenkins 1979). One should expect the perceived influence of children, therefore, to vary across the different stages of the decision-making process.

In keeping with the foregoing, for this study an age distribution index was computed by assigning the numbers 1, 2 and 3 to the different age groups 0 to 5, 6 to 12, and 13 to 17 respectively. This subdivision of the age groups of children is a modified version of the categorization proposed by Erik H. Erikson, a noted psychoanalyst (Thompson 1981, p. 51). The sum of the products of the assigned number and the number of children in the various categories was divided by the total number of children in each family. The age distribution index thus was used to determine high or low child age influence factor. The child age influence factor was classified as high for families whose indices were greater than 1.5 to 3. Low child influence factor reflected those indices from zero to 1.5.

Based on this discussion, we hypothesize that:

H3: Child age influence factor has significant impact on the degree of perceived influence assigned to children.

In addition, a major concern in this research is to enquire as to the extent to which locus of control, parental type and the child age influence factor affect perceptions of child influence. Hence, it is hypothesized that:

H4: The impact of locus of control, type of parenting (single or dual) and child age influence factor will vary, depending on the involved stage of the decision-making process.

Methodology

A convenience sample comprising 106 parents in the Washington, D.C. area was used in this exploratory study. The data were collected from small groups and residential family units in three geographic areas under the supervision of the first author. Three graduate students assisted in the endeavor. About two-thirds of the respondents were females. Of the total population sample, including both males and females, about a third were single parents. The average family income ranged between \$15000 and \$25000, while the typical respondent age ranged between 25 and 40 years.

Each parent was asked to respond to a series of questions about the perceived influence of his/her children pertaining to the subdecisions within each of three leisure-time activities. The three leisure-time activities were: (a) motion picture attendance (at a family type movie), (b) family outing (a picnic), and (c) participant sports (e.g. the family going together to bowl or skate). These activities were outside-the-home, leisure-time activities in which the entire family could participate. Following the tradition of Davis (1970, 1971), with slight modifications, respondents were asked to indicate child influence on a five-point Likert-type-scale, ranging from "never influential" to "almost always influential" for the seven subdecisions of when, how much, where, etc., pertinent to each leisure-time activity.

It should be noted that even where the household contained both parents, only one parent responded to the questionnaire. Much evidence (Davis 1970; Granbois & Willet 1970; Wilkening & Morrison 1963) is provided already that the responses of husbands and wives are very similar when compared on an aggregate basis. Indeed, Davis (1976) argues that if the purpose of a study is limited to describing the relative influence of husband versus wife in making

various decisions, it is sufficient to question only one spouse; on the other hand, if the researcher in subsequent analysis wants to use a measure of influence, data should be collected from both spouses.

After responding to the items relating to the degree of child/children influence on the three leisure-time activities, subjects were asked then to respond to Rotter's Internal-External locus of control scale (Robinson & Shaver, 1980). This scale consists of 23 question pairs using a forced-choice format. A point is given to each external statement selected. Thus, scores can range from zero (most internal) to 23 (most external). In this study, scores less than 11 were classified as "internals" while scores greater than 12 were classified as "externals."

The final section of the questionnaire asked the respondents to reply to a number of demographic questions. These included questions about ages of the children concerned, the sex of the responding parent, her/his marital status, annual household income, number of children in the home, age of the responding parent, and whether the parent questioned was currently a single parent or not.

Analysis

Multivariate Analysis of Variance (MANOVA) was performed to test the hypotheses. MANOVA unique sum of squares procedure (SPSSX) was used since the cell sizes were unequal. The dependent measures were the perceived child influences for the seven subdecisions/areas. The factors in the 2x2x2 full factorial design were: external versus internal locus of control parents, single versus dual-parent families and the high versus low child age influence factor. In addition to the overall significance, the contribution of the independent variables to the overall significance was investigated using Analysis of Variance (ANOVA).

Table 1A shows the group means of the responses made by the internal and external locus of control parents. As indicated by the results for the three activities, there were consistently greater perceived influence responses coming from the external locus of control parents than from the internal locus of control parents. This was true for each individual item statement from the 68 external locus of control parents and 38 internal locus of control parents.

Table 1B shows group means of the responses made by single and dual parents. For most subdecision items single parents made greater perceived influence responses. Excepting five instances (one for movie attendance, two for participant sports and two for family outing), the group means attained from the 40 single parents and the 66 dual-parent families indicated greater single-parent perceived influence assigned to children. Table 1C shows group means of the responses for the child age influence factor to be considerably greater for the high child age influence factor group than for the low child age influence factor group.

Table 2 shows MANOVA results of the three leisure-time activities this study investigated. Wilks' Lambda is the multivariate test of significance used. For movie attendance there was a global significant difference between the responses of the external and internal locus of control parents. No interactions were significant. For participant sports, significant difference was at the 0.05 level between the high and low child age influence factor groups. That significant result is qualified by a significant interaction between locus of control and child influence. For family outing, two significant main effects were obtained for single vs dual parent and low vs high child age influence factor. No interaction effects for family outing were significant.

Partial support thus is provided for H1, H2 and H3. The locus of control main effect was significant, at least for movie attendance. Main effects of single vs dual parent and child age influence factor for family outing were significant at the .05 and .10 levels respectively. However, because of the significant interaction between locus of control and child age influence factor, the main effect for participant sports is uninterpretable.

TABLE 1* A, B and C

A - LOCUS OF CONTROL GROUP MEANS: RESPONSES FOR THREE LEISURE-TIME ACTIVITIES

Subdecision	MOVIE		PARTICIPANT SPORTS		FAMILY OUTING	
	External	Internal	External	Internal	External	Internal
When to go	3.74 (1.55)	2.87 (1.46)	3.52 (1.32)	3.24 (1.32)	3.72 (1.52)	3.65 (1.47)
How much to spend	3.17 (1.61)	2.70 (1.44)	3.05 (1.65)	2.81 (1.47)	3.11 (1.77)	2.91 (1.49)
Where to go	3.53 (1.60)	3.22 (1.40)	3.67 (1.33)	3.00 (1.26)	3.70 (1.63)	3.48 (1.38)
What type	3.75 (1.51)	3.30 (1.36)	3.49 (1.40)	2.76 (1.32)	3.71 (1.55)	3.04 (1.45)
Gathering information	3.07 (1.56)	2.39 (1.59)	3.25 (1.45)	2.52 (1.36)	3.44 (1.55)	3.04 (1.48)
Specific information	3.30 (1.57)	2.78 (1.43)	3.37 (1.62)	2.67 (1.41)	3.36 (1.63)	3.17 (1.47)
Initial suggestion	3.72 (1.43)	3.57 (1.33)	3.66 (1.52)	2.76 (1.34)	3.69 (1.55)	3.35 (1.49)

Standard deviations are bracketed

B - PARENTAL TYPE GROUP MEANS: RESPONSES FOR THREE LEISURE-TIME ACTIVITIES

Subdecision	MOVIE		PARTICIPANT SPORTS		FAMILY OUTING	
	Single	Dual	Single	Dual	Single	Dual
When to go	3.75 (1.52)	3.43 (1.48)	3.45 (1.39)	3.47 (1.25)	3.50 (1.50)	3.80 (1.46)
How much to spend	3.48 (1.40)	2.82 (1.51)	3.13 (1.52)	2.92 (1.43)	3.30 (1.61)	2.93 (1.48)
Where to go	3.80 (1.41)	3.25 (1.44)	3.52 (1.24)	3.53 (1.32)	3.67 (1.42)	3.62 (1.51)
What type	3.53 (1.31)	3.63 (1.52)	3.25 (1.49)	3.40 (1.20)	3.65 (1.56)	3.48 (1.42)
Gathering information	3.05 (1.64)	2.77 (1.49)	3.13 (1.37)	3.08 (1.37)	3.23 (1.63)	3.33 (1.42)
Specific information	3.50 (1.45)	2.92 (1.43)	3.30 (1.43)	3.17 (1.49)	3.55 (1.66)	3.22 (1.43)
Initial suggestion	3.75 (1.36)	3.67 (1.30)	3.47 (1.30)	3.47 (1.48)	3.68 (1.59)	3.58 (1.47)

Standard deviations are bracketed

C - CHILD AGE INFLUENCE FACTOR GROUP MEANS: RESPONSES FOR THREE LEISURE-TIME ACTIVITIES

Subdecision	MOVIE		PARTICIPANT SPORTS		FAMILY OUTING	
	High	Low	High	Low	High	Low
When to go	3.78 (1.43)	3.31 (1.57)	3.67 (1.43)	3.22 (1.47)	3.83 (1.23)	3.63 (1.42)
How much to spend	3.14 (1.38)	2.97 (1.59)	3.28 (1.63)	2.67 (1.41)	3.16 (1.41)	3.02 (1.60)
Where to go	3.96 (1.14)	3.10 (1.59)	3.85 (1.37)	3.15 (1.29)	3.85 (1.13)	3.43 (1.38)
What type	3.88 (1.23)	3.36 (1.53)	3.70 (1.48)	2.91 (1.34)	3.96 (1.20)	3.40 (1.36)
Gathering information	3.25 (1.49)	2.55 (1.62)	3.46 (1.51)	2.67 (1.37)	3.64 (1.26)	3.13 (1.44)
Specific information	3.53 (1.27)	2.82 (1.59)	3.59 (1.66)	2.78 (1.43)	3.52 (1.38)	3.08 (1.50)
Initial suggestion	3.89 (1.15)	3.48 (1.47)	3.74 (1.53)	3.15 (1.37)	3.91 (1.25)	3.40 (1.44)

Standard deviations are bracketed

* based on a five point Likert-type scale, ranging from "never influential" (1) to "almost always influential" (5)

TABLE 2: MANOVA RESULTS FOR ALL THREE ACTIVITIES

Source of Variation	Activity	MAIN EFFECTS	INTERACTION EFFECTS					
			Locus of Control (L)	Single vs Dual (P)	Child vs Age Influence (C)	LxP	LxC	PxC	LxPxC
Movie	App. F	3.21	1.40	1.39	1.77	1.42	1.01	1.21
	Sig. F	.01**	NS	NS	NS	NS	NS	NS
Participant Sports	App. F	1.33	1.29	2.28	.077	2.46	1.73	0.66
	Sig. F	NS	NS	.04**	NS	.02**	NS	NS
Family Outing	App. F	1.09	2.07	1.91	1.36	1.26	1.12	0.93
	Sig. F	NS	.05**	.08*	NS	NS	NS	NS

F values are given: ** P<0.05; * P<0.10

Hypothesis 4 can be examined in Table 3A, B and C. These tables show the ANOVA results for the three activities in terms of the seven subdecisions. In the case of participant sports (Table 3A), significant locus of control main effects were obtained for the following subdecision items: "what type," and "when to go." Significant parental type main effects were obtained for "how much to spend" and "where to go." All of the child age influence factor main effects were significant with exception of "where to go."

Pertinent to movie attendance (Table 3B), none of the locus of control main effects was significant and only "when to go" showed significant parental type main effect. Two

significant child age influence factor main effects were also obtained for "specific information" and "when to go." Considering Table 3C, significant main effects of locus of control and child age influence factor were found only for "specific information" and "how much to spend" respectively for the family outing subdecision items.

An examination of Tables 3A, B and C indicates that proportionately the child age influence factor shows a much greater variation than either parental type or locus of control. The hypothesis of no variation is rejected (H₄). The results show somewhat weak, but significant, variation.

Given the number of significant interaction effects between locus of control and parental type in the case of participant sports, this covariation was investigated by examining the marginal means. Table 4 presents the marginal means. In the case of external locus of control parents, there was no substantial difference in the perceived child influence between single and dual parents. However, for internal locus of control parents, the marginal means clearly show that the single parents perceive less child influence than do the dual parents in all stages of the decision making process, except "where to go."

Conclusion

Although this study does not offer conclusive results, it nevertheless lends support to the general idea that perceptions of child influence are product specific. Mehotra and Torges (1976) concluded that variables which increase the likelihood of parental yielding to influence attempts by children for such products as children's clothes,

TABLE 3A: ANOVA RESULTS FOR PARTICIPANT SPORTS

Source of Variation / Sub-decisions	MAIN EFFECTS			INTERACTION EFFECTS			
	Locus of Control (L)	Single Parent (P)	Child vs Dual Age Influence Factor (C)	LxP	LxC	PxC	LxPxC
Initial Suggestion	0.14	0.75	3.10*	1.08	1.67	0.11	0.00
Gathering Information	0.06	1.34	4.2**	3.52*	1.38	0.52	1.86
Specific Information	1.45	0.84	5.29**	0.78	0.72	0.00	0.00
How much to spend	2.64	3.65*	3.39*	2.83*	0.30	1.61	1.25
What type	2.80*	2.55	4.99**	3.84*	1.08	1.91	0.97
When to go	1.63	1.94	6.21**	3.86*	2.12	1.23	0.74
Where to go	6.77**	3.87*	1.10	5.17**	0.01	0.40	0.81

F values are given: ** P<0.05; * P<0.1

TABLE 3B: ANOVA RESULTS FOR MOVIE

Source of Variation / Sub-decisions	MAIN EFFECTS			INTERACTION EFFECTS			
	Locus of Control (L)	Single Parent (P)	Child vs Dual Age Influence Factor (C)	LxP	LxC	PxC	LxPxC
Initial Suggestion	2.15	0.99	0.00	0.80	0.15	2.00	0.23
Gathering Information	0.18	1.56	0.12	0.40	0.52	2.12	1.36
Specific Information	1.11	1.43	5.49**	0.28	0.67	0.59	0.12
How much to spend	0.87	0.58	1.66	0.75	0.55	2.50	0.20
What type	0.90	0.00	2.16	0.82	0.48	2.16	0.11
When to go	0.31	2.76*	2.96*	0.04	0.57	0.12	0.06
Where to go	0.55	0.34	0.00	0.14	1.95	0.00	0.94

F values are given: ** P<0.05; * P<0.1

potato chips and soft drinks, are product specific. In our findings, group differences in perceptions of child influence tended to be leisure-activity specific.

Partial support was provided for the Hypotheses 1, 2 and 3. The results showed that locus of control, parental type and child age influence factor had significant impact on perceived child influence. In addition, the results showed significant variation of the impact of the three factors on the perceived influence in the different stages of the family decision-making process as hypothesized in Hypothesis 4.

The child age influence factor showed a proportionately greater variation than either parental type or parental locus of control. This observation was particularly true for participant sports and for the stages of the decision-making process. Thus, for activities such as participant sports, involving a high degree of involvement, interaction and time commitment, the child age influence factor makes a big difference in the parental perception of child influence. In addition, the findings lend support to the fact that the age of the child has a significant impact on perceived child influence.

TABLE 3C: ANOVA RESULTS FOR FAMILY OUTING

Source of Variation / Sub-decisions	MAIN EFFECTS			INTERACTION EFFECTS			
	Locus of Control (L)	Single Parent (P)	Child vs Dual Age Influence Factor (C)	LxP	LxC	PxC	LxPxC
Initial Suggestion	0.10	0.61	0.38	0.02	0.11	0.02	0.03
Gathering Information	0.24	0.26	0.22	0.10	0.07	0.01	0.38
Specific Information	2.97*	0.13	0.11	0.00	0.81	0.00	0.16
How much to spend	0.04	0.00	2.70*	0.02	0.09	0.01	0.01
What type	1.42	0.73	1.61	0.47	0.00	0.06	0.00
When to go	0.87	0.28	0.00	0.85	1.27	1.50	0.66
Where to go	1.55	0.09	0.70	0.53	0.40	0.06	0.21

F values are given: ** P<0.05; * P<0.1

TABLE 4: MARGINAL MEANS FOR PARTICIPANT SPORTS

Condi- tions / Sub-decisions	Ex- ter- / Single Par- ent		Ex- ter- / Dual Par- ent		In- ter- / Single Par- ent		In- ter- / Dual Par- ent	
	Locus	ent	Locus	ent	Locus	ent	Locus	ent
Initial Suggestion	3.54		3.50		2.80		3.38	
Gathering Information	3.26		2.89		2.20		3.00	
Specific Information	3.66		3.68		2.60		3.13	
How much to spend	3.43		3.55		2.00		3.00	
What type	3.31		3.20		1.80		2.75	
When to go	3.49		3.27		2.00		2.88	
Where to go	3.74		3.59		3.89		3.66	

At the subdecision level, not counting the significant interactions, one locus of control main effect of the ANOVA results was significant for family outing. This was "specific information." Thus, at least for certain aspects of the search process, external locus of control parents perceive greater child influence. For movie attendance, there was only one significant parental type main effect, namely, "when to go." Hence, in the timing aspects of the decision making process, single parents perceive greater child influence. Finally, for the child influence factor the following significant main effects were obtained for participant sports, family outing and movie attendance: all subdecision items were significant except "where to go" in the case of participant sports; "how much to spend" for family outing; and "specific information" and "when to go" for movie attendance. The child age influence factor thus appears to make a major difference, not only to a great extent for participant sports, but also to some extent for movie attendance and family outing.

Future research should explore the locus of control and type of parent issues, using further similar and different kinds of settings with other product/activity types and in

other purchase situations. The locus of control and parental type (single versus dual) provide some insights into parental perceptions of child influence. The degree of influence which that parental type may have on the locus of control measure needs to be investigated. Given the trend toward more and more single parent families, future research should explore the effects of such changes on family decision making.

The locus of control construct may be applied to husband-wife purchase decisions in that different locus of control couples may practise a different influence strategy mix. Spiro (1983) identified several demographic and attitude variables as discriminators among influence strategy mixes used by husbands and wives in resolving disagreements concerning purchase decisions. The addition of the locus of control concept to such studies will introduce a new dimension in identifying the possible influence strategy mix of husbands and wives, since it is possible that different locus of control couples may practise different purchasing decisions. It is suggested, therefore, that the locus of control concept be investigated further in the context of husband-wife relationships in particular, and in family decision-making, in general.

Of all three factors investigated in this study, the child age influence factor appeared to have had the strongest impact on parental perception of child influence. This observation suggests that future research interested in perceived child influence would have to treat some child-age aspect as a covariate or would have to control this factor in the research design.

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A CONJOINT MODEL FOR ANALYZING NEW PRODUCT POSITIONS IN
A DIFFERENTIATED MARKET WITH PRICE COMPETITION¹

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Abstract

This paper extends existing conjoint choice techniques to handle problems involving the positioning of new product concepts in existing, competitive product markets. It permits explicit competition for customer choices among a number of existing products and one or more new entrants. The approach therefore is useful for analyzing both positioning and repositioning strategy in competitive product markets. Use of split-plot or incomplete block designs together with the multinomial logit choice model permit considerable flexibility in both design and analysis. An illustrative application to an agrochemical marketing problem is provided.

Introduction

In 1975 D.F. Jones described a simple survey technique that could be used to anticipate changes in the demand for a product or service under different pricing policies. As Jones (1975, p. 75) expressed the problem:

"One of the more challenging tasks that confronts marketing researchers is that of determining the probable effect of different pricing policies on the sale of a new or existing product. Closely allied to this problem is that of determining how the modification of a product or its image will affect sales if price remains constant or if it, too, is modified in some manner."

Jones' approach permitted one to estimate the own-elasticity of the price of the product or service of interest, assuming constant prices of existing competitors and/or other brands for the same manufacturer.

Jones' (1975) approach was extended by Mahajan, Green and Goldberg (1982) to explicitly consider the simultaneous manipulation of the prices of all competitors, not just a single competitor. Furthermore, Mahajan, Green and Goldberg (1982) linked the estimation of these effects to a conjoint choice experiment, the results of which could be analyzed by means of the multinomial logit choice model (Theil 1971; McFadden 1974; Hensher and Johnson 1981; Amemiya 1981). Thus, Mahajan, Green and Goldberg (1982) succeeded in linking multiattribute conjoint concepts with an explicit competitive choice experiment, the analysis of which was consistent with a particular theoretical choice model.³ In their 1982 paper, Mahajan, Green

and Goldberg (p.341) suggested that the simple pricing model could be extended to include non-price competition:

"... it is straightforward to extend the technique to other classes of product-service attributes, such as physical characteristics, packaging, distribution and advertising. In principle, the same kind of procedure would be followed, but attributes other than (or in addition to) price would be systematically varied for both the firm's offering and various explicitly defined competitive offerings."

Louviere and Woodworth (1983) provided a systematic extension of the Mahajan, Green and Goldberg (1982) ideas to a wide variety of choice experiments, including those in which the set of competitive products-services varies. Louviere and Woodworth also prove that certain classes of choice experiments provide near optimally efficient estimates for multinomial logit choice models. Louviere and Hensher (1983, p. 352) note that choice experiments which do not explicitly include a "non-purchase" alternative produce market share and not true demand models.

None of these research papers have explicitly considered the problem of introducing a new product concept with differing levels of a set of product attributes into a product class of existing products competing on both price and non-price attributes. The solution to such a problem is of managerial interest because managers need to know how to best position the attribute levels of a new product concept given present product positions and potential competitive reactions, often price reactions. For example, as reported by Ingrassia (1980), Sony's market share was consistently eroded by the advent of slightly modified foreign and domestic TV products which engaged in intensive price discounting, to which Sony was eventually forced to respond. If an approach were available to managers of new or existing products that could provide information about the likely competitive consequences of various attribute/price configurations in competition with current positions and possible repositionings of existing products, this would constitute a useful extension of previous work.

Such an approach also has the potential to contribute to our empirical understanding of firms' strategic positioning policies as well as the market's response to such policies. The practical relevance of the approach is to provide information to management to anticipate the likely consequences of positioning policies of their own and of their competitors. Additionally, the information provided about positioning consequences for new and existing products in the face of competition provides an important extension to existing conjoint techniques.

The need for such techniques and for empirical research in this area is well-documented in the series of papers presented at the pricing conference at the University of Rochester (Gould and Sen, 1984): for example, reviews by Rao (pp. 39-60) and Nagle (pp. 3-26) clearly indicate the current limitations of applying theoretical economic models to real managerial problems; while Markham (pp. 257-263) indicates the value of empirical research on strategic pricing problems to enrich the axiomatic base of economic models. The approach proposed in this paper, therefore, has the potential to contribute to practical problem solution, theory testing and empirical understanding. The emphasis in this paper, however, is on practical problem solving, although suggestions for useful extensions of theoretical and empirical interest are discussed in The Discussion and Conclusions section.

¹The author gratefully acknowledges the assistance of a major chemical company, who wishes to remain anonymous, in the form of a grant to the Department of Marketing, University of Iowa for data collection associated with this project. The author also wishes to acknowledge the assistance in data collection and analysis provided by Mike Zenor, Tim Heath and Tim Eliason as part of an MBA Marketing Research Project. Dave Curry, Gary Gaeth and Mark Moriarty read the first draft and provided useful comments and suggestions which this version incorporates. Faults remaining, however, are my own.

²Jordan Louviere was Associate Professor of Marketing, University of Iowa when this paper was written.

³Although relying on an orthogonal design plan to vary absolute levels of prices, the design used by Mahajan, Green and Goldberg is not orthogonal in price differences, as required by the linear logit model they employed.

The purpose of this paper, therefore, is to describe and illustrate an extension to the strategic pricing model of Mahajan, Green and Goldberg (1982) which permits the evaluation of the market potential of new product concepts competing with a set of existing products. In addition we provide two methodological extensions for conjoint choice problems:

1. An extension of the Mahajan, Green and Goldberg (1982) method which permits existing products to vary on strategic dimensions other than price. This latter extension permits examination of the potential consequences of reformulations and repositionings.
2. An extension of the Louviere and Hensher (1983) approach for creating multiple levels of numerical variables that explicitly allows for tests of nonlinearities.

The proposed approach is particularly well suited to address strategic problems in product classes in which the properties (attributes) of the existing brands are relatively fixed in the short run, as for example, agricultural chemical formulations or ethical drugs. The original formulations may have been discovered accidentally, or may have benefitted from positioning research that suggested certain attribute configurations that would appeal to particular segments. Thus, major marketing strategies for these products involve (inter alia) communication of benefits, positionings and pricing policies. For the sake of example we assume that pricing policy is of major interest to management, an assumption shared by Mahajan, Green and Goldberg (1982) in their approach.

Such problems arise frequently in agricultural chemical marketing and ethical drug marketing because of the relatively permanent nature of the product attributes and the long lead times to introduction dictated by research, development and testing, and U.S.D.A. approval policies. Although agricultural chemicals can be reformulated, existing formulations often are fixed for the near term: hence, estimates of the likely market potential of new product concepts or repositionings of existing products can be of significant strategic value to management faced with a considerable time and monetary commitment to reformulating an existing product or introducing a new formulation.

Existing conjoint judgment techniques are ill-suited to this type of strategic problem because a) there is no explicit incorporation of competitive actions/reactions, b) judgments such as ratings or rankings are not choices, and assumptions must be made to transform such data into choice data, c) the number of judgments required of customers to duplicate choice information that can be easily obtained from a few, well-designed choice sets is often considerable (e.g., in the empirical study reported later, a minimum of 40 conjoint profiles would be needed to develop a choice simulation to duplicate the information obtained from 18 choice sets).

In contrast to this relatively complicated approach that requires a number of untested and untestable assumptions about choice in order to derive forecasts, the present approach is much simpler. In particular, choices are directly observed, not simulated and all relevant products and product concepts compete for customer choice simultaneously. Thus, the data needed to forecast the likely changes in customer choices in response to competitive actions are obtained directly from respondents and used to develop a statistical choice model. The choice model can then be tested for statistical adequacy using observed choices, unlike the conjoint judgment approach that can only be assessed in terms of ability to predict to some additional (hold out) choice data collected in the study.

This paper outlines an approach to competitive choice problems, and illustrates it with an application to an existing product class of agricultural insecticides. We

avoid mention of the type and brands of insecticide and the study region to protect the identity of the organization who sponsored the empirical research. It is important to note that the approach proposed in this paper has application to a wide range of high involvement products in addition to agricultural chemicals.

Proposed Research Approach

The effect on choice behavior of introducing various new product configurations into an existing, competitive market can be examined by developing a conjoint choice experiment. This paper develops the basis for a conjoint experiment that (1) accommodates a large number of different levels of price (or any other quantitative variable which is monotonically related to the response or can be prescaled to be monotonically ordered if nominal), and (2) permits simultaneous consideration of the effects of the prices of existing products in competition with a series of new product concepts or profiles. Although the application to a pricing problem is the primary focus, the approach generalizes to any non-price attributes of interest.

The proposed approach represents an extension of the Louviere and Woodworth (1983) choice experiments based on factorial designs to include "split-plot" and block designs (See, e.g., Federer 1975a, 1975b, Cochran and Cox 1957). The idea is to use two (or more) different (fractional) factorial designs to vary both the prices of existing products, and the attribute levels of new product concepts (profiles). These two (or more) designs are then combined into two (or more) "plots" or blocks using conventional procedures associated with these types of designs. The empirical example we use to illustrate the approach is based on the use of "split-plot" designs, although a balanced, incomplete block design could have been used. We concentrate on "split-plots" because they are so easy to construct, and because they satisfy the necessary conditions of alternative independence for estimating Multinomial Logit Choice (MNL) Models.

The "plots" are created by ordering the treatments in each of the two designs (e.g., 1. existing product prices, and 2. new product concepts) separately such that the rank order correlation between the order of treatments in one design with those of a second design is minimized.⁴ The MNL model assumes non-correlated, i.e., independent, marginal utilities, so minimizing the rank order correlation of two different sets of rank orders corresponds to minimizing the correlation between the attributes of the separate marginals. Because both designs have $m(=1,2,\dots,m)$ treatments, the ordered pairs determine the choice sets to be used (the merger of the two separate designs).

The specific procedure we propose is: (1) Create separate (fractional) factorial designs with the same number of treatments, e.g., a) to examine pricing policies for existing products, and b) to create new product concepts by varying the key decision attributes of the product class. (2) Develop two sets of rank orderings whose rank order correlation is as close as possible to zero for the m treatments. (3) Then, treat the ordered pairs as choice sets, consisting of a pair of treatments from each design. For example, if the first pair of orders is (6, 16), the first choice set should pair the 6th treatment from the pricing design with the 16th treatment of the attribute or concept testing design.

If the marginal relationship of each numerically valued attribute can be assumed to be monotonic with respect to the criterion variable (e.g., "utility") then a fairly large number of levels of this particular attribute can be investigated using a procedure suggested by Louviere and Hensher (1983). In particular, most monotone rela-

⁴If there were n such designs to be merged, the rank order correlation of the orderings of all $N(n-1)/2$ pairs would need to be minimized.

tionships can be inferred from (at least) a three level factor because most such curves have only one bend.⁵ Thus, an extension of the Louviere and Hensher (1983) approach which used factors with two levels to describe price effects can be accomplished by treating each existing product of competitive interest as a price factor with three levels. The main advantage of this approach is to generate a design which varies more than two or three distinct levels of numerical attributes, while retaining the statistical power to estimate nonlinear (but monotonic) marginal relationships relying upon regression rather than ANOVA procedures.

This approach requires that the analyst divide the range of prices that contains the possible variation for the study period of interest into three categories of equal width: e.g., "high", "medium" and "low". One then chooses a (fractional) factorial design to vary product prices which is some version of a 3ⁿ plan. Each "high" level of price in the 3ⁿ design plan is randomly assigned a particular numerical value of price from a range of prices categorized as "high"; similarly, each "medium" and "low" level of price in the design plan would be determined by randomly assigning price values from the range of prices assigned to the "medium" and "low" price categories. A variation of this would be to assign price values to each price category ("low", "medium", "high") according to a latin square ordering of these levels (e.g. (1,2,3), (1,3,2), (2,1,3), (2,3,1), (3,1,2), (3,2,1) in which each price factor would receive one of the six latin square orderings selected at random. The latin square would determine the order of the levels within each price category.

The use of both the procedure for creating additional levels and the "split plot" approach for merging compatible designs is illustrated in the empirical study reported in the next section.

Empirical Illustration: Farmer Choices Among Alternative Crop Insecticides

As part of a larger study of farmers' use of, knowledge about and perceptions of a variety of crop insecticide products, a choice experiment was designed and administered according to the ideas developed in the previous section. The project was underwritten by a grant to the University of Iowa from a major chemical company, so we will reveal only as much detail as necessary to understand the experiment, the data analysis and the interpretation of the results. The research project was concerned with investigating the effect of introducing new product concepts into an existing crop insecticide market of a particular type in which existing products compete on price because positions are relative fixed.

Details of the Study Design

Relevant product attributes were determined from interviews with chemical dealers, farmers, and chemical company officials. The following product attributes were selected for analysis: 1) Price per acre at recommended levels of application; 2) Efficacy against seed attacking, plant attacking or both kinds of insects; 3) The number of weeks of protection provided (duration of effectiveness); 4) Whether the odor is described as unpleasant, offensive or irritating to nostrils; 5) The degree of toxicity expressed as a "caution", "warning" or "danger" on the label; 6) Whether the product is formulated as a liquid or granular compound for Preemergent Banded application (applied in bands prior to plant emergence); 7) Whether the product is formulated as a granular compound for Preemergent In-furrow application (applied in the furrow at the time of planting); and 8) Whether the product is formulated as a liquid or granular compound for Postemergent Banded application (applied in bands after emergence).

⁵We recognize that S- and reverse S-shaped curves would not satisfy this condition.

These attributes were varied in an orthogonal main effects fraction of a 2x3 factorial that consisted of 18 treatments (conjoint profiles, or new product concepts). This plan was selected from a 6x3⁶ fractional factorial design cataloged in (Chacko 1980) and modified for this problem. Each of the 18 treatments, therefore, represents a new product concept or "position" in the marketplace.

Seven products competed in the product market of interest at the time of this study; we will refer to them as products A-G. Local farm chemical dealers provided mean price per acre estimates at manufacturers' recommended rates of application. These per acre prices were used to determine the pricing levels of the existing products, as well as the pricing levels of the new product profiles as follows:

Each of the seven existing products was treated as a three level factor, the levels of which were prices; three price categories ("high", "medium" and "low") were used to divide the mean per acre price +/-20% into equal thirds. Each price category was given three equally spaced levels ("high" was +10%, +15%, +20%; "medium" was -5%, the mean, +5%; and "low" was -10%, -15%, -20%). The design mentioned earlier (Chacko 1980) was used to develop a main effects fraction of a 3⁷ factorial to vary the price levels.

This design insures that the marginals of each existing product are statistically independent of one another. In order to insure that the marginals of the pricing design and the marginals of the new product concept design are independent, we use a "split-plot" (Fedderer 1975a,b; Cochran and Cox 1957) procedure to create choice sets that represent a treatment from the pricing design (one profile of the prices of all existing products) paired with a treatment from the new product concept design (a description of a new product and its price).

Because there are nine levels of price for each existing product and the new product concepts, each of the nine levels occurs twice in the main effects plans. The nine levels of price were randomly assigned within each of the three "high", "medium" and "low" price categories separately for each product (other assignment procedures could be used such as Latin Square orderings). The range of price levels for the new product concepts was determined by taking the lowest and highest price levels in the existing product pricing design; this range was divided into equal thirds, nine levels were created and these nine levels were then randomly assigned exactly as was done for the existing products.

The "split-plot" procedure used to create choice sets relies on the creation of two minimally correlated vectors of ranks (the numbers 1-18). The ranks index the treatments in each design; because the treatments in factorials are ordered systematically, minimizing the rank order correlation of the two sets of treatments should make the two sets of marginals approximately statistically independent. Numerical experiments and previous experience with this procedure suggest it achieves this objective. Nonetheless, it would be wise to check the statistical properties of such designs before proceeding to implementation because no mathematical proof yet exists regarding their properties.

Each pair of minimally correlated ranks is used to create a single choice set by associating one treatment from the existing product pricing design with a second treatment from the new product concept design. For example, if an ordered pair is (8,15), the corresponding choice set pairs the 8th treatment in the pricing design with the 15th treatment in the new product concept design. The 18 ordered pairs of ranks therefore generate 18 different choice sets that are shown to subjects in the empirical example described immediately below.

Data Collection and Subjects

The choice design was placed in a survey booklet together with other sections that surveyed demographics, perceptual

positioning and insecticide use and purchase. A list of farmers (owners/operators) was obtained from the A.S.C.S. offices in the target state of interest for each of 10 randomly selected counties. In each county 150 surveys were mailed to randomly selected names based on the A.S.C.S. lists. Surveying was conducted during the height of spring planting, which fact, together with a large (but unknown) proportion of non-farmers on the list, resulted in a return rate of 190 surveys. A raffle incentive was used, giving respondents a chance to win either a \$50, \$30 or \$20 cash prize in a drawing. 135 of these surveys had complete choice data, and form the basis for the illustrative analysis. While this appears to be a very low return rate, it is consistent with normal unsolicited mail survey return rates of 20%-30% because of the large proportion of non-farmers.⁶

The respondent was required to assume that the per acre prices for products A-G were as listed and that a "New" product was also available, with characteristics and price as described. The respondent was asked to examine each set of products and to decide whether they would have purchased any of those listed for their insecticide needs in 1984 had the products been available, and if so, to indicate which one, or to indicate that they would not have purchased any of the products. Instructions emphasized that the A-G products (listed by actual Brand Name) were the only products currently available in their area, so they would have to purchase one of these products or the "New" product, or do without. Each respondent therefore made a single choice in the manner described in each of the 18 choice sets created by the "Split-Plot" design.

Analysis and Results

The discrete choices made by the respondents were aggregated to absolute frequencies for analysis by Generalized Least Squares (G.L.S.) regression. As explained in Nakanishi and Cooper (1982) and Louviere and Woodworth (1983), weighted least squares regression will produce asymptotically efficient estimates of the parameters of the Multinomial Logit Choice Model. We assume that the MNL model is a reasonable model to approximate the choice data. The MNL model may be expressed as:

$$p(a/A) = \frac{\exp[U(a)]}{\sum_{j \in A} \exp[U(j)]}, \quad (1)$$

where $p(a/A)$ is the probability of choosing the a -th product given a set of competing products, A , of which a is a member,

$U(a), U(j)$ are the mean levels of utility associated with products a and j , respectively, and

\exp is the symbol for exponentiation (i.e., e to the 'x' power).

The mean utility levels correspond to the marginal probabilities of choosing each alternative. These marginals can be parameterized as follows:

$$U(x) = \sum_k b_k X_k, \quad (2)$$

where $U(x)$ is the utility of the x -th product,

X_k is a design matrix of levels of attributes, or non-linear transformations of attribute levels, or cross-products of attribute

levels, and b_k is a vector of regression-like parameters associated with each separate vector in the design matrix.

Equation (2) expresses the mean level of utility for each product as a linear-in-the-parameters and additive function of the vectors in the design matrix.

Interest centers on parameterizing the $U(x)$ s, which is accomplished by creating alternative specific attribute vectors and dummy variables for the denominators of equation (1) as explained in Louviere and Woodworth (1983). In the present case each of the seven products (A-G) has a brand-specific parameter (intercept), and a linear and a quadratic price term; the "New" product has a brand weight coefficient, linear and quadratic terms for price, and dummy variables for (n-1) of the levels of each of the product attributes. The "No Purchase" alternative has a utility value of exactly zero. These parameters were estimated from the choice data via a G.L.S. regression (see Table 1, which also lists the mean per acre price levels used for each product as well as the levels of the "New" product attributes).

Let us describe the results for the "New" product attributes: all numbers at the bottom of Table 1 are relative utilities. All had significant effects, although efficacy against insects, duration of effectiveness and price played very major roles in the choice of a "New" product, and odor and toxicity effects were minor, as can be seen by the differences in the utility values of the levels of each attribute. Thus, efficacy against insects and duration of effectiveness had the largest non-price effects. Although not obvious from the top of Table 1, price had the largest single effect with a utility at low of .67 and at high of -.67. All price effects were approximately linear for this product market for the range of prices examined.

The MNL model predicts that all cross-price effects are proportional to the shifts in utility values of the various products. This prediction can be tested by including the cross-price effects in a second G.L.S. regression analysis. These results are given in Table 2; they indicate that there are a number of significant cross-price effects (only the significant effects at the .10 alpha level are listed). Thus, the proportionality hypothesis must be rejected; there are cross-price effects that are less than or more than the effects predicted by the simple MNL model. Such violations of the MNL model can tell us about "who competes with whom", and which products the "New" product will most affect. For example, the "New" product most affects products A, D, F and G, all of which are either low share or cheap. So, it affects the market leaders less than these products. The model fits significantly better than the simple model; the F value for the 19 additional parameters is 4.2(19,96), which is significant well beyond conventional alpha levels. There is therefore no question that the simple MNL hypothesis must be rejected for these consumers.

Farmers were asked to estimate the per acre price of each product; these data were used with the estimates in Table 1 to forecast the 1984 market shares for each product. Shares observed in another section of the mail survey were compared to shares predicted by the derived choice model using the farmers' mean estimated selling prices per acre for each currently available product. Predicted and observed values are graphed in Figure 1; products are not labelled so as to preserve anonymity. As can be noted, the choice model predicts the observed shares well: all predictions lie within the error limits at the alpha-.05 level. This is especially encouraging in view of the fact that both the sample and model estimated shares have error. While this does not necessarily mean that the choice model is externally valid, it does bolster confidence in its use as a predictive model and as a vehicle for drawing strategic inferences for management.

⁶ Despite the low return rate, our estimates of the market shares for 1983 and 1984 are well within the statistical error limits of those independently supplied to us by the company sponsoring the research. Thus, there appears to be negligible bias due to nonresponse, at least as far as share estimates are concerned. Our demographic profiles for the farmers were also consistent with the sponsoring organization's expectations, lending additional support to the representativeness of the sample.

TABLE 1

RESULTS OF CHOICE ANALYSIS FOR SIMPLE MODEL

BRANDS	BRAND WEIGHTS	BRAND PRICE SLOPES	MEAN PRICES OF PRODUCTS PER ACRE		
			MEAN ACTUAL LOW	MEAN ACTUAL MED	MEAN ACTUAL HIGH
A	-.113	-.165	\$5.64	\$6.63	\$7.62
B	-.796	-.335	\$8.45	\$9.94	\$11.43
C	-2.139	-.199	\$9.22	\$10.85	\$12.48
D	-1.819	-.437	\$7.22	\$8.50	\$9.78
E	-.462	-.267	\$8.63	\$10.15	\$11.67
F	-1.366	-.463	\$8.19	\$9.64	\$11.09
G	-2.044	-.371	\$7.14	\$8.40	\$9.66
NEW	-1.715	-.223	\$6.50	\$9.50	\$12.50
NONE	0.00	---			

NEW PRODUCT-ATTRIBUTE UTILITIES (see Section "Details of Study Design")

ATTRIBUTES:

EFFICACY AGAINST INSECTS	TYPES OF APPLICATION & FORM	
Seed eaters only 0.017	Pre-emergent, banded, liquid	0.047
Plant eaters only -0.560	Pre-emergent, banded, granular	0.114
Both insects 0.553	Pre-emergent, banded, N/A	-0.067
<u>DURATION OF EFFECTIVENESS</u>	Pre-emergent, in-furrow, granular	0.291
6 weeks -0.638	Pre-emergent, in-furrow, N/A	-0.291
8 weeks 0.228	Post-emergent banded, liquid	-0.156
10 weeks 0.408	Post-emergent, banded, granular	0.163
<u>ODOR SCALE LEVELS</u>	Post-emergent, banded, N/A	-0.007
Unpleasant -0.116		
Offensive 0.003		
Irritating -0.113		
<u>TOXICITY SCALE LEVELS</u>		
Danger -0.120		
Caution -0.139		
Warning 0.259		

FIGURE 1

PREDICTED AND OBSERVED MARKET SHARES

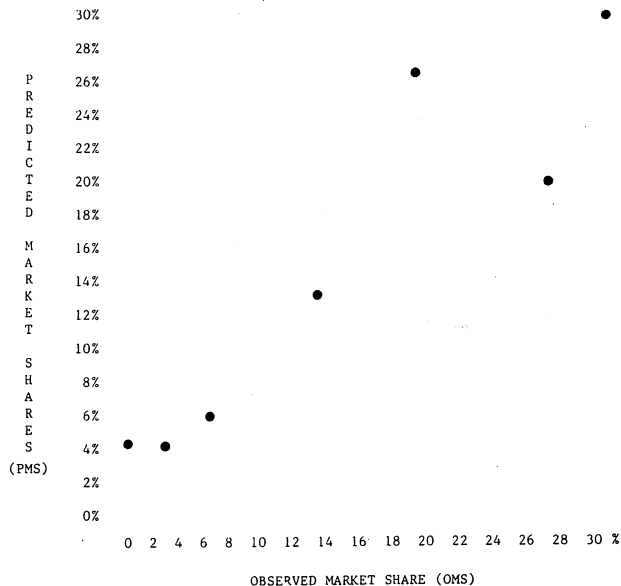


TABLE 2

COMPARISON OF MODEL COEFFICIENT ESTIMATES

	FINAL MODEL	
	ESTIMATE	t
A	-.121	-2.81
B	-.796	-14.84
C	-2.170	-22.36
D	-1.914	-21.57
E	-.486	-10.09
F	-1.407	-20.28
G	-2.102	-21.92
NEW	-1.721	-5.80
BOTH INSECTS	.528	5.87
SEED EATERS	.020	0.20
LASTS 8 WEEKS	.248	2.54
LASTS 10 WEEKS	.436	4.49
UNPLEASANT ODOR	-.162	-1.75
OFFENSIVE ODOR	-.093	-0.98
DANGER	-.101	-1.06
CAUTION	-.091	-0.94
PRE,BANDED GRANULAR	.144	1.52
PRE,BANDED LIQUID	.020	0.22
PRE,INFURROW GRANULAR	.303	2.05
POST,GRANULAR	.153	1.75
POST,LIQUID	-.165	-1.74
A PRICE	-.110	-2.29
B PRICE	-.287	-7.40
C PRICE	-.217	-3.32
D PRICE	-.493	-6.66
E PRICE	-.263	-7.92
F PRICE	-.338	-6.23
G PRICE	-.259	-2.79
NEW PRICE	-.211	-7.13
PRICE OF B ON A	.047	1.53
PRICE OF E ON A	.049	1.58
PRICE OF F ON A	.055	1.50
PRICE OF G ON A	.057	1.53
PRICE OF NEW ON A	.061	3.17
PRICE OF F ON B	.113	2.75
PRICE OF F ON C	.179	2.31
PRICE OF E ON D	.177	2.45
PRICE OF G ON D	.255	3.31
PRICE OF NEW ON D	.105	2.70
PRICE OF B ON E	.101	3.01
PRICE OF F ON E	.127	3.38
PRICE OF D ON F	.158	3.05
PRICE OF NEW ON F	.071	2.87
PRICE OF A ON G	.190	1.85
PRICE OF B ON G	.082	1.19
PRICE OF E ON G	.133	1.78
PRICE OF F ON G	.184	2.33
PRICE OF NEW ON G	.082	1.82
F(df)	35.28(65,96)	
R ²	0.96	

Discussion and Conclusions

This paper described an approach to studying competitive pricing strategy in an existing product market into which new product concepts with varying attribute levels are introduced. This approach extends the previous work of Mahajan, Green and Goldberg (1982) to include more levels of price and competition from a new product. The design approach proposed, when combined with the MNL choice model, permits an analyst to draw strategic inferences about the likely market share consequences of pricing strategies of existing products, as well as the potential shares which can be realized by various positionings of a new product. The proposed approach was illustrated with a strategic choice study of crop insecticides. Model results were meaningful, statistically significant and predictive of actual observed market shares.

Several extensions to the proposed approach are possible. As discussed in Green (1974), the fractional designs within each "plot" can be chosen so as to permit one to esti-

mate various interactions of interest. For example, it will normally be sufficient to estimate only the linear x linear component of each two-way interaction in order to test the null hypothesis of no interaction effects because the majority of the variance in the interaction terms usually will be in that component, even if other components are significant. This is especially true for models in which all marginal effects can be assumed to be monotonic with the criterion; and, of course, this should be the case with price.

An extension to the present study can be developed by imbedding the products that compete on price in a 2^n design as described in Louviere and Woodworth (1983). This 2^n design can be used to place combinations of products in subsets, each of which could have a (potentially) different pricing design. The use of these subsets of designs permits the analyst to simultaneously examine both the effect of entry and exit (presence/absence) and pricing strategy. In this way the analyst can make inferences about which products will gain share at a rate greater (or less) than in proportion to their average utility levels when competing with various other products. The analyst can also make inferences about the way in which pricing strategy might be expected to interact with the product effects, (See, e.g., Batsell 1980; Batsell and Polking 1984).

Another extension involves the new product concepts: the interactions of the attributes of interest could be examined by creating one or more designs which permit them to be estimated independently. The effects of multiple products being introduced could be examined by creating additional "plots" using minimally correlated n -tuples of orders, or by imbedding the products in a second 2^n design to create different choice surveys. In any case, the "split plot" approach allows one to examine a wide variety of realistic competitive choice problems from which strategic inferences can be drawn according to the nature of the design(s) employed. One could also use block design concepts to develop design strategies for studying these kinds of choice problems.

A major advantage to the strategic choice experiments described in this paper is that they are a step closer to simulating the competitive effects of real markets, while retaining many of the advantages of the traditional conjoint analysis approach. Their appeal is the ability to extend choice analyses to non-Luce type models which avoid the IIA (independence from irrelevant alternatives) and constant cross-elasticity assumptions (See, e.g. Batsell 1980; Batsell and Polking 1984). Allowing for the inclusion of certain types of interactions provides the statistical ability to test for violations of MNL assumptions and to estimate statistical models which describe the violations if appropriate. Yet another advantage is that the estimation can be accomplished using G.L.S. regression approaches with widely available statistical software. This should allow progress to be made in the development and testing of choice models which more closely approximate real behavior in response to competitive strategies and tactics.

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CONSUMER REACTIONS TO STYLISTIC EXTENSION OF A PRODUCT LINE: THE THEORETICAL RELEVANCE OF TWO "ANCHORING" THEORIES

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Abstract

Previous fashion research has focused on innovation and/or the innovator. From the retailer's standpoint this emphasis may be disproportionate inasmuch as the majority of his/her sales comes from existing (non-innovative) items. Two psychological anchoring theories are proposed which are potentially relevant in predicting changes in product perceptions and purchasing propensities of previously-offered goods under conditions of product-line extension induced by stylistic innovation. A particular example is presented concerning the addition of the new ultra-wide women's belt. Limitations of the theories are discussed and a potential research methodology is proposed for testing the theoretical predictions.

Introduction

It can be acknowledged that when fashion for an item appears to be moving in a particular direction, at least some retailers respond by carrying innovative versions of the existing product (Wicks 1982). Such innovations, in which the "alteration of a product is involved, rather than the establishment of a new product," are often called continuous innovations (Robertson 1971, p. 15).

The offering by a retailer of these continuous innovations is often a necessity in terms of being competitive. According to Hirschman and Stempel:

The essence of intratype competition (retail) involves convincing consumers to buy a non-unique product from a supposedly unique seller that, in reality, shares many characteristics with other stores of the same type (1980, p. 21).

Thus, by offering the most "up-to-date" items a retailer may succeed in gaining patronage from other retailers by appearing to be unique and, therefore, preferable.

The study of the diffusion of innovation has received widespread attention within a variety of disciplines, and has grown rapidly within the marketing discipline since the 1960s. Research has been conducted by both commercially- and academically-employed marketers, and the S-shaped diffusion curve has become a well-known phenomenon within the discipline (Rogers 1962 and 1976).

However, inherent within such research is, from the standpoint of the clothing retailer, a (perhaps) disproportionate emphasis on innovation and/or innovators. Specifically, to the retailer revenues from the existing product-line are likely to be his mainstay; sales from continuous innovations, in the short-run, are usually a welcome bonus (Wicks 1982). Thus, an important and interesting side-issue concerning innovations is the effect they have on perceptions and purchasing propensities of various previously-offered items within a product-line. Some background considerations of two potentially relevant psychological "anchoring theories" will be discussed, which may prove useful in predicting such effects of product-line extension. Later, specific predictions of each theory concerning the effect of addition of the new ultra-wide women's belt to the product-line will be given. Finally, potential methodology for testing the various predictions will be presented.

Background

Anchoring theories were first developed to explain shifts in psychophysical judgements. Psychophysical

judgments are those in which an individual is asked to rate objects which vary along a physical dimension (e.g., weight) in terms of a subjective psychological dimension (e.g., light versus heavy). In psychophysical experiments certain stimuli which are external to the individual tend to serve as relatively strong judgmental anchors. That is, the range of the present objects along the physical continuum and/or the midpoint of the object series, as well as a "standard" (reference) object within the series, have been shown to affect psychophysical judgments (Helson 1947; Parducci and Marshall 1962; Postman and Miller 1945; M. Sherif, Taub and Hovland 1958; Volkman 1951).

Later, anchoring theories were applied to psychosocial judgments which underlie attitudes and attitude change. Psychosocial judgments can be distinguished from psychophysical judgments by both of the following:

- 1) The predetermined evaluative nature of categories is less inherent to the individual in psychosocial judgments than in psychophysical rating tasks, and
- 2) As a result, greater discrepancies among judgements of individuals are observed in psychosocial tasks than in purely psychophysical rating tasks.

Typically, in psychosocial judgments tasks individuals have been asked to judge the favorability of statements about an attitude object(s). Certain anchors external to the individual, usually stimulus range (Ostrom and Upshaw 1968; M. Sherif and C. Sherif 1969) and midpoint (Helson 1964) have again been shown to produce judgmental shifts. However, internal anchors such as the individual's own attitude or advocated position along a continuum of object-related statements (Helson 1964; Manis 1964; Ostrom and Upshaw 1968; M. Sherif and C. Sherif 1969; C. Sherif 1980; Upshaw 1977), his/her cultural membership (C. Sherif 1963), his/her prepurchase expectations (Olson and Dover 1979) or an instrumental value (Pettit 1983) have also been found to affect judgments.

When a consumer judges a product it can be argued that both psychophysical and psychosocial rating tasks are involved. For instance, when a woman judges the subjective width of a belt the task is predominantly psychophysical in nature. That is, a consumer is presented with a physical property of an object--its objectively measurable width--and asked to "translate" that cue into a psychological judgment such as wide, medium, or narrow. Such a judgment is characteristic of psychophysical rating tasks in that items of objectively wider dimensions are nearly uniformly rated as wider by all consumers.

However, when a shopper evaluates a product in terms of its appeal, or assesses her own propensity of purchasing the item, the judgment task becomes more psychosocial in nature. That is, consumers may have very idiosyncratic assessments of either the appeal of a particular item or their own likelihood of purchasing it. Thus, to a greater extent than with judged width, the appeal of the items lies in the minds of individual consumers.

It is rather easy to see in the belt judgment problem being proposed that the range of widths of belts available on the rack could serve as the relevant external judgmental anchors. However, what sort of internal anchor could reasonably be expected to affect width and/or purchasing propensity judgments? Early adoption propensity has been conceptualized as being functionally

related to the need-fulfillment potential of a product, product accessibility, the income sufficiency of the consumer, and the innovation disposition of the consumer (Kotler and Zaltman 1976). The question remains, however, whether the consumer is actually aware of her own innovation disposition.

Support for the notion of awareness of one's own innovation disposition comes from a variety of sources. First, self-image and self-concept is becoming increasingly recognized as a relevant predictor of human behavior (Archer 1980; Arkin 1980; Bem 1965; Enzle 1980). Markus (1977 and 1980) has identified several self-schemas which:

...Develop from the repeated similar categorization and evaluation of behavior by oneself and others, and result in a clear idea of the kind of person one is in a particular area of behavior. Such (cognitive) structures enable individuals to understand their own social experiences and to integrate a wide range of stimulus information about the self into meaningful patterns. They also direct attention to behavior that is informative of these aspects of the self (Markus 1980, p. 111).

A schematic, as opposed to an aschematic individual, views the particular dimension (e.g., fashion-conscious versus fashion-unaware) as important to herself. Furthermore, schematics for a particular dimension, for instance fashion-consciousness, may exhibit varying polarities, of which they are aware. Within marketing contexts self-image was shown to be successful in developing managerially-useful fashion lifestyle segments (Gutman and Mills 1982), and included such measures as "traditional-" versus "modern-", and "taking changes-" versus "playing it safe-" self-descriptors. Gutman and Mills have identified three distinct fashion lifestyles segments of "fashion-conscious" or "fashion-involved" shoppers which, collectively, comprised about one-third of their sample and included:

- 1) Leaders (14.0%): Individuals who scored high on such factors as fashion leadership, interest, and importance, and low on antifashion attitude, ...and who accepted the "establishment views" on fashion ...as demonstrated by their strong involvement with mainstream (e.g., designer) fashion looks,
- 2) Followers (8.3%): Individuals who exhibited a similar profile to leaders, but with an obviously lower score on the leadership dimension, and with a tendency to emulate the leaders, and
- 3) Independents (10.4%): Individuals who are also fashion-aware but differ from the first two groups in their strong antifashion attitudes, ...and who are interested in fashion, but resent designers and other fashion experts in the "fashion establishment" dictating tastes to them (Gutman and Mills 1982, p. 75).

Further support is found in the research of Crask and his colleagues who reported that "Modern males display a greater degree of fashion consciousness as well as a greater desire to differentiate themselves through their dress than do traditional males" (Crask et al. 1977, p. 244). Modernness of masculine lifestyle, as well as fashion-consciousness, was again determined through self-designation techniques.

Finally, upon reviewing the literature both within and outside of the domain of fashion, Darden and Reynolds conclude:

Studies which have employed two or three operations (self-designation, sociometric and key informants' ratings) with the same respondents have consistently found positive correlations between the operations (Abelson and Rugg 1958; Rogers and Burdge 1962; Rogers and Svenning 1969). These findings indicate that each of the methods is equally valid (Rogers and Shoemaker 1971). (Darden and Reynolds 1972, p. 324)

Thus, within the context of the present paper the position will be taken that: 1) innovation disposition is an important element of innovation propensity, 2) fashion-conscious individuals comprise a sizeable segment of the apparel retailer's market, particularly for upper-end specialty stores, 3) fashion-conscious consumers may be leaders (innovation-prone), followers (innovation-reluctant) or more moderate in their innovation disposition, and 4) that through the change agent role of retailers (Hirschman and Stampel 1980) consumers are aware in advance of the purchasing occasion of the "appropriate" physical attributes of a garment for consumers of their innovation disposition. Precise predictions of the two selected anchoring theories, based on the above assumptions, will be presented below.

Adaptation-Level Theory

Adaptation-Level Theory is centered around the assumption that every stimulus is perceived and judged in relation to some point of perceived neutrality (Helson 1947 and 1964). The "psychological zero" represents the organism's level of adaptation (AL) for the presented stimulus. The individual is characterized as maintaining some sort of running average of all the stimulus intensities to which she is exposed. She compares a new stimulus to this internal anchor to arrive at a judgment. Helson defines AL as the weighted logarithmic mean of three classes of stimuli. The first, "focal stimuli," are those which the individual is currently attending and judging. These focal stimuli are compared to "contextual stimuli." Helson further acknowledges "residual stimuli" which account for any unexplained variation.

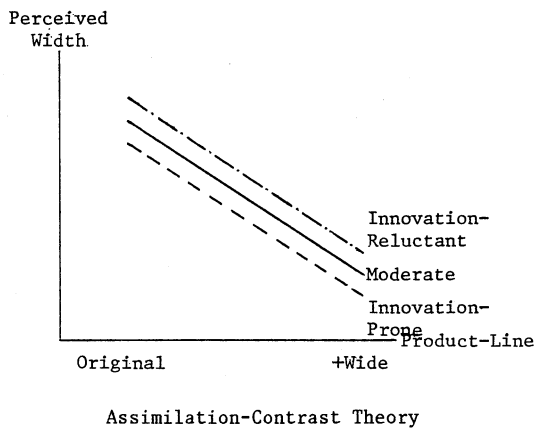
In the present case of a woman judging the subjective widths of belts on a shopping spree, the actual items available on the rack would be presumed to be the focal stimuli. Contextual stimuli might include the purpose of purchase and the store environment. Individual differences in the backgrounds of various shoppers, such as education, occupation, and age might be regarded as the relevant residual stimuli.

The latter classification of stimuli becomes relatively more important when one considers the effects of promotional efforts made to convince a shopper of the "appropriate" width for her. Thus, a shopper usually knows prior to purchase what will be worn by the "up-to-date" woman, versus the more traditional sort. In the present belt-width rating task, AL Theory would predict that an extremely innovation-reluctant individual (traditional) would have an adaptation level (internal anchor) toward the narrow-width end of the continuum. Presumably, she would have had more product experiences with narrower belts, either directly (own purchases) or indirectly (seeing her reference group members wear narrow belts). The latter prediction is consistent with the Selective Exposure Hypothesis, as revised by Sears and Freedman (1965). Therefore, because she would judge items within the presented product-line relative to her own prevailing adaptation level, the theory predicts that the innovation-reluctant consumer will judge all items within the line as subjectively wider than will a shopper of more moderate innovation propensity. Conversely, an innovation-prone consumer will judge all belts within the line as subjectively narrower than will other shoppers, due to her prevailing AL toward the wide extreme of the continuum.

The direct effect of changing the range of widths of belts within the product-line (external anchors) should be an adjustment of AL. If wider belts are available on the racks or T-stands, along with other belts of previously-offered widths, the prevailing AL of all consumers should be shifted toward the wider end. This should indirectly result in all belts being judged as more narrow.

Thus, AL Theory would predict that both the innovation disposition of the consumer and the range of widths of belts offered in the product-line will affect her judgments of the width of various items. Indirectly, shifts in perceived width of the belts may induce adjustments in purchasing propensities for various items. No interactive effect, however, of innovation propensity and range of belt widths available in the product-line is predicted by Adaptation-Level Theory. Figure 1 presents a graphical representation of the AL Theory predictions concerning judgments of widths of an (objectively) intermediate-width belt.

FIGURE 1. JOINT EFFECT OF PRODUCT-LINE AND INNOVATION DISPOSITION: ADAPTATION-LEVEL THEORY



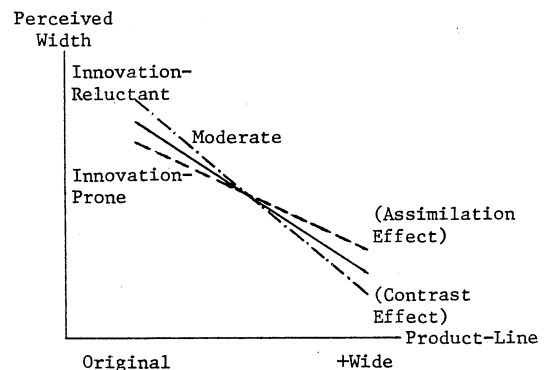
A second alternative, Assimilation-Contrast Theory, has been developed to explain apparent shifts in judgments of objects as predominantly a function of the proximity to one's "latitude of acceptance" (internal anchor) along some objectively measurable dimension of the judged object. Sherif and his co-workers (C. Sherif 1976 and 1980; M. Sherif and Hovland 1961; C. Sherif, M. Sherif and Nebergall 1965) postulate that judgments of items within a presented series will be displaced in different directions, depending upon the proximity of each item to previously encountered acceptable items. He believes that an objectively measurable continuum can be divided into various latitudes of relative subjective acceptability to a particular individual. The "latitude of acceptance" contains the most strongly advocated position along the continuum, as well as (possibly) other acceptable positions. Additionally, Sherif postulates that there exists a "latitude of rejection" which contains unacceptable items or positions. Other positions along the continuum, containing items neither acceptable nor unacceptable, are defined as belonging to the "latitude(s) of noncommitment."

In the present case concerning judgments of various belts within a product-line, latitudes of acceptance, rejection, and noncommitment may be defined by the widths within the product-line which the consumer finds acceptable, unacceptable, or neutral. Thus, as a result of both direct and indirect product experiences, as well as the promotional activities of women's apparel firms, the latitude of acceptance would be expected to be toward the wide end of the continuum for the innovation-prone consumer, and toward the narrow end for her innovation-reluctant counterpart.

When an individual is presented with items to judge, the model predicts that she will "assimilate" those items which lie within, or slightly beyond, her latitude of acceptance. By this it is meant that the judgment of the item should be displaced toward the judge's own preferred position. On the other hand, those items which lie relatively distant from one's latitude of acceptance are expected to be contrasted. That is, a displacement away from the judge's advocated position is predicted. Thus, for an innovation-prone consumer the perceived discrepancy between an objectively moderately-wide belt and her preferred width is predicted by A-C Theory to be underestimated relative to the judgments of the discrepancy between the same item-widths by a consumer of more moderate innovation disposition. In the case of an objectively narrow belt the innovation-prone shopper would be expected to "contrast" the item, or overestimate its discrepancy from her own preferred width, relative to the judgment of the same two widths by a consumer of moderate innovation disposition. Conversely, the innovation-reluctant consumer is predicted to assimilate those items toward the narrow end of the product line, and contrast the wider belts, relative to the judgments of the more moderate shopper.

The effects on judgments of intermediate-width belts by innovation-prone and innovation-reluctant consumers is further complicated by extension of the product-line through the addition of a new, wide (extreme) item. The reaction of the innovation-prone consumer to the addition of an extremely wide belt to the product-line is to assimilate its width with that of a belt of her preferred width prior to the purchase occasion. Thus, the effect on the previously preferred, moderately-wide belt under such conditions of product-line extension would be predicted to be an increase in the perceived width of the previously offered belt, due to its assimilation with the new product. For the innovation-reluctant shopper, the effect on the moderately-wide belt, induced by inclusion of the new, extremely-wide item, will be a reduction of perceived width of the intermediate belt. Such a shift in judgment would be predicted to come about as a result of a contrasting of the previously-offered item with the new one. Figure 2 depicts graphically the predictions of Assimilation-Contrast Theory concerning perceived width.

FIGURE 2. JOINT EFFECT OF PRODUCT-LINE AND INNOVATION DISPOSITION: ASSIMILATION-CONTRAST THEORY



Thus, the Assimilation Contrast Model would predict a significant shift in perceptions of widths of particular belts, induced by both the innovation disposition of the consumer and the extension of the product-line through the addition of a wide (extreme) item. Significant effects were also predicted for both variables by the Adaptation-Level Model. In the case of A-C Theory, shifts in both directions (wider and more narrow) are expected for intermediate-width goods depending on their proximity to the individual's previously-preferred belt width. However, the predictions of Adaptation-Level Theory involve only unidirectional shifts arising from the innovation disposition of the consumer. In the

terminology of Sherif's theory, the Adaptation-Level model can only account for "contrast" effects.

Furthermore, unlike Adaptation-Level Theory, the Assimilation-Contrast Model predicts an interactive effect of range of widths of the belts presented and the innovation disposition of the consumer. As originally postulated by Sherif, this prediction was not made concerning relatively purely psychosocial judgments. However, due to the inseparability of psychophysical and psychosocial judgments for certain objects, such a prediction was added to the theory (C. Sherif, C. Sherif and Nebergall 1965). Support for this notion was found in a study involving "valued stimuli" (products), which were judged by American Caucasian and American Indian children (C. Sherif 1963).

Effect on Retail Sales

When a new style or fashion of an item is introduced, it can be anticipated that at least some sales of the new item will normally be realized. If one could assume that total sales within a product category (women's belts) were fixed, then it would follow that sales of items of the originally-offered items would decrease. Thus, the retailer who decided to add an innovative product to the line (e.g., the new ultra-wide belts) would know to order fewer items of previous styles (narrow and intermediate-width belts).

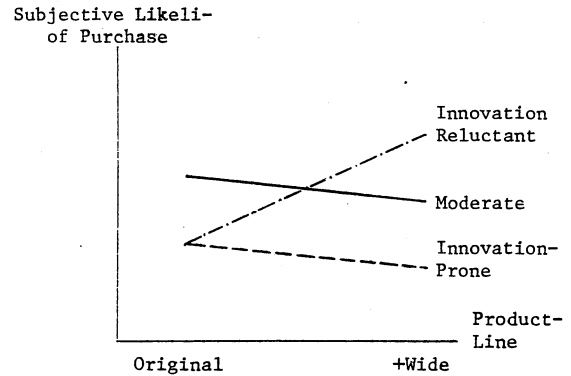
However, demand for items that appear to be functional substitutes does not always conform to expectations rendered by such an assumption. Monroe states that "complementarity is likely to exist even if products are functionally substitutable" (1979, p. 12), a conclusion which was empirically supported by Urban (1969) concerning complementarity among brands within a product-line.

Why might this occur? One reason may be that product involvement may increase. As a result, women may wear belts more frequently or may wish to have more varieties of belts from which to choose to accompany particular garments. Furthermore, in his/her role as a change agent, the retailer may lead the consumer to decide that a previously-purchased item is obsolete in terms of fashion, and should therefore be removed from her wardrobe. However, another reason for altered purchasing propensities of certain items, based on perceptual shifts predicted by the anchoring theories, may also be responsible.

If one assumes that an innovation-prone shopper knows prior to the actual purchasing occasion that she wishes to purchase a wide belt, and the addition of a new ultra-wide belt alters her perceptions of the width of other belts, it should in some way alter her propensities of purchasing all items. Similarly, the innovation-reluctant consumer who wishes to purchase a narrower belt would be expected to adjust purchasing behavior of various items in response to width-perceptual shifts.

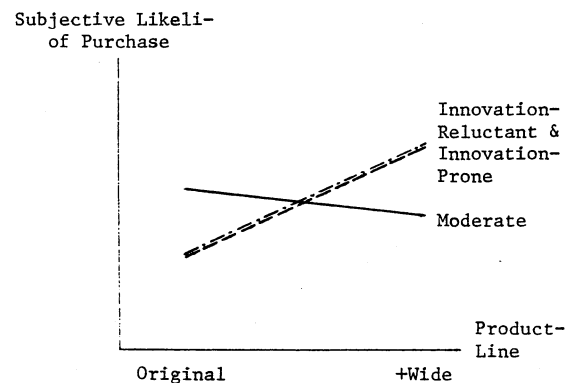
Thus, the differing predictions of the two anchoring theories concerning width perceptions become relevant in determining purchasing intentions toward the non-innovative items. Adaptation-Level Theory would predict that the addition of the ultra-wide belt would result in all customers--innovation-prone, moderate, and innovation-reluctant--to perceive the intermediate-width belts as more narrow than they previously did. The effect on sales would be predicted to be: 1) a slight decrease for the moderate consumer, 2) a more dramatic decrease for the innovation-prone consumer, and 3) an increase for the innovation-reluctant group. If approximately equivalent numbers of shoppers of each innovation disposition are among the retailer's customers, the net effect from the perceptual shifts would be a decrease in sales of the intermediate-width, previously-offered items. Figure 3 presents the effect on sales which would result from the perceptual shifts predicted by Adaptation-Level Theory.

FIGURE 3. JOINT EFFECT OF PRODUCT-LINE AND INNOVATION DISPOSITION: ADAPTATION-LEVEL THEORY



However, if the Assimilation-Contrast Model predictions obtain regarding width-perceptual shifts induced through the addition of the new item, the net effect may reverse (see Figure 4).

FIGURE 4. JOINT EFFECT OF PRODUCT-LINE AND INNOVATION DISPOSITION: ASSIMILATION-CONTRAST THEORY



Specifically, due to the prediction of an interactive effect of innovation disposition and range of widths of belts in the product-line, a different conclusion must result. As with AL Theory, the Assimilation-Contrast model predicts that addition of the ultra-wide belt will result in a narrowing of the perceived width of the (objectively) intermediately-wide belts among moderate shoppers. Again, this would be expected to result in a slight decrease in sales of that item among the moderate group. However, for both the innovation-prone consumer, who now judges the intermediate-width belt as wider (assimilation effect), and the innovation-reluctant shopper, who perceives the same item as narrower when compared to the ultra-wide item, an INCREASE in purchasing propensity of the intermediate-width item would be predicted to result. Thus, the new effect on sales predicted by the Assimilation-Contrast Model would be positive, assuming equivalent group sizes of the three consumer types.

Limitations

The previous discussion has been totally centered around the theoretical relevance of either of two psychological "anchoring" theories. Until the predictions of either theory can be empirically demonstrated in this type of fashion innovation problem, no conclusion concerning retailing strategy would be appropriate.

The cases in which either theory is potentially relevant are limited to particular types of fashion innovation. The above discussion is confined to the domain of extension of a series of items for which an objectively measurable continuum of values is present. Thus, these theories could be applicable for such types of innovations as skirt length, fullness of slacks, pointedness of the toes of shoes, or even "boxiness" of automobiles. However, they would not be useful in predicting such things as popularity shifts in particular styles of furniture (e.g., Early American versus Mediterranean).

Furthermore, the presented predictions of the two theories concerning effects on sales are centered around the assumption that consumers are fashion-conscious and know the "appropriate" style for individuals of their innovation disposition. Width-perceptual shifts might occur for consumers who were fashion-unaware, but the effect on purchasing propensities would be less predictable. Thus, if empirically validated, the theoretical predictions of the supported model would be most relevant for particular stores whose major clientele was fashion-conscious, regardless of relative percentages of innovation-prone or -reluctant customers.

Additionally, the effects of other factors, such as changes in product-category involvement, were not included in the above analysis. It is not believed that changes in perception of physical attributes of a product would be the only factor which might affect purchasing propensities of originally-offered items. Rather, the proposed effects should be treated as tentative contributory influences on sales responses.

Proposed Research

Previous researchers have identified a series of self-designation questions which have been shown to provide a reliable and valid measurement of fashion-consciousness or -involvement. As such, consumers can be classified as fashion leaders (innovation-prone), followers (innovation-reluctant) or independents (Gutman and Mills 1982, p. 72). Future research is suggested in which consumer subjects are measured on fashion-consciousness, as well as asked to rate various items within a presented product-line in terms of both psychophysical and psychosocial judgments (e.g., dependent measures of subjective belt width, preference, and likelihood of purchase estimates). In order to minimize bias and demand characteristics, half of the subjects should be asked the fashion-consciousness questions prior to judgments of the stimulus items; half should provide the dependent measures prior to their responses to the self-designation items. Finally a mixed effects model is proposed in which consumers of each type are asked to rate several individual items (within subjects factor) within a single product-line (between subjects factor)--which is either narrow or extended through the inclusion of an extreme item. Thus, subjects would rate the innovative fashion item (if present), as well as several other "original" items which differed objectively along the innovation continuum (e.g., belt width). Other attributes of the items within the line should either be counterbalanced or made as equivalent as possible (e.g., same color, similar closure types, etc.). If the predictions of either theory were empirically validated, it could lead to a greater understanding and prediction of consumer responses to innovative offerings of retailers.

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PERCEIVED RISK AS A MEDIATOR IN REPETITION-AFFECT RELATIONSHIPS

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Abstract

This paper reports on two experiments that assess the relevance of the functional exposure hypothesis for the explanation of consumer repetition-affect relationships. The hypothesis suggests that these relationships are less positive under conditions of low and high perceived risk than under conditions of intermediate (medium) risk. In spite of operational problems concerning perceived risk levels, some supporting evidence is obtained.

Introduction

Repetition of marketing stimuli, such as brandnames, is a particular feature of the consumer's environment. For a variety of reasons, including differences between individual marketers' communication intensities, the level of repetition varies greatly over brandnames. Repetition has been shown to play a multiple role in consumer behavior. Repetition enhances learning and information processing (see Sawyer 1981, 1977, 1974). It also interacts with other factors relevant for the explanation of consumer behavior (see Belch 1982). Repetition, as an autonomous variable, has been linked with consumer affect in several attempts. The most widely known attempt was formulated and documented by Zajonc (1968). In his mere exposure hypothesis, mere repeated exposure to a stimulus is taken as a sufficient condition for the enhancement of positive affect toward that stimulus. However, research aimed at the assessment of the hypothesis' validity produced conflicting results. Vanbeselaere (1984), after discussing the available evidence, concluded that '(...) the exposure phenomenon remains a phenomenon in search for an explanation'. Poiesz (1983, 1981) introduced the 'functional exposure hypothesis' (FE-hypothesis) as a possible alternative to Zajonc's (1968) hypothesis. A series of both social psychological and consumer psychological experiments, reported in Poiesz (1983), produced supporting results. In the first part of this paper, the FE-hypothesis is described and a brief summary is presented of the social psychological experiments. The second part deals with two consumer psychological studies. Finally, in part three, possible implications for the status of the exposure hypotheses are discussed.

The FE-Hypothesis: Some Social Psychological Evidence

For a correct interpretation of exposure effects, it is necessary to first describe the experimental conditions under which they typically tend to be obtained. In a laboratory situation, subjects are requested to carefully watch the presented stimuli. Exposure may or may not be preceded by task instructions. In the case of instructions, they are usually very implicit. Stimuli tend to be unknown words, names or symbols that are exposed at different frequencies. Following exposure, subjects rate the stimuli on a Likert affect scale. Poiesz (1983) suggested that repeatedly exposed stimuli will be associated with more positive affect only and to the extent that these may be considered capable of reducing the subjects' subjective uncertainty, a state conceived as determined by incongruity or by the inability to predict the future, combined with apprehension concerning the consequences (Kagan 1972). At first sight, the FE-hypothesis seems very similar to the 'uncertainty reduction' hypothesis that Sawyer (1981) considers tenable for the explanation of exposure effects: the response competition hypothesis (Matlin 1970; Harrison 1968), the optimal arousal hypothesis (Berlyne 1971, 1960), and the two-factor theory (Stang 1973; Berlyne 1970). The FE-hypothesis is similar to these hypotheses in that it takes uncertainty reduction as effectuated by familiar stimuli to be the

responsible factor for the relatively positive affect towards these stimuli. Therefore, all these hypotheses could actually be labeled 'functional exposure' hypotheses. However, the uncertainty reduction hypotheses take functionality of repetition in a more narrow sense than the FE-hypothesis. They depart from uncertainty and repetition functionality as resulting from person and/or object characteristics. The FE-hypothesis, on the other hand, considers more explicitly the interaction of person, object and situational characteristics for the assessment of repetition functionality.

This difference between the two types of hypotheses has two implications. First, uncertainty (reduction) is taken in a broader sense by the FE-hypothesis than by the uncertainty reduction hypotheses. Second, while the other hypotheses view functionality as relating exclusively to uncertainty reduction, the FE-hypothesis allows for the possibility that uncertainty enhancement is preferred to uncertainty reduction. If so, to the extent that repetition produces uncertainty reduction, repetition is dysfunctional and will be associated with negative affect. That the two implications are not trivial ones will be clarified with the help of a few examples, in which the two types of hypotheses will be distinguished. According to the response competition explanation, the exposure of a novel stimulus elicits different, sometimes antagonistic response tendencies. By repeated exposure response competition and the associated tension is reduced, resulting in more positive affect towards the more frequent stimuli. However, this explanation focuses on novelty per se, thus ignoring the possibility that novelty may have a different psychological meaning in different circumstances. For example, for an experimental subject a novel task related stimulus is psychologically basically different from the same stimulus encountered outside of the laboratory as one of the many novel stimuli. It is clear that in the first case, the stimulus is much more likely to generate uncertainty and aversive tension (i.e. apprehension) than in the second case. Consequently, repetition in the first case is more likely to be functional and to lead to positive affect than in the second case. A second example may be offered in relation to arousal interpretations. In these, stimulus complexity is hypothesized to be related to exposure effects: the repeated exposure of a complex stimulus reduces its arousal potential to the preferred level, resulting in positive affect. In some studies, complexity was operationalized in mere physical terms: number of bits and redundancy (e.g. Vanbeselaere 1980). Again, the same physically very complex stimulus may or may not be associated with aversive tension (a surplus of arousal potential) depending upon the person and the situation: a complex visual pattern presented as task material in a laboratory is psychologically incomparable to the same pattern introduced as a painting in a museum. In the former as opposed to the latter case, uncertainty and apprehension are more likely to be generated. And, even though stimulus complexity is the same in both cases, only in the former case repetition may be expected to reduce uncertainty/to be functional and to result in affect enhancement. This latter example may also be turned around. If a person has been deprived of external stimulation for some time, the first exposure to a complex stimulus will be more functional than the repetition of that stimulus, which would result in a negative repetition affect relationship.

The FE-hypothesis does not view preference for familiarity and preference for novelty (Berlyne 1970, 1960) to be in theoretical conflict: these apparent opposites are seen as having a common denominator: repetition functionality.

It must be noted that also arousal and two factor explanations discuss negative repetition-affect relationships. However, these explanations view negative

relationships as resulting from repetition overdoses. At lower repetition levels, positive relationships are predicted. The examples above suggest that the interaction of person, object, and situational characteristics should be considered for the adequate assessment of repetition functionality as a basis for positive repetition-affect relationships. In summary, the FE-hypothesis does not provide a strict alternative for the uncertainty reduction hypotheses. It supplements them in that it takes the potential function or psychological significance of repetition to be broader than that of uncertainty reduction alone; mere object related uncertainty reduction is not taken as a necessary condition for positive repetition-affect relationships to occur. Extending this, it is expected that with the FE-hypothesis also nonpositive relationships can be predicted more accurately.

For unknown complex stimuli the uncertainty hypotheses would predict repetition to lead to more positive affect. The FE-hypothesis would make the same prediction but only for conditions under which repetition can be considered functional. For example, in a task situation in which subjects are apprehensive with regard to the quality of their performance.

In some initial social psychological experiments in which paralogues were repeatedly exposed (Polesz 1983) subjective uncertainty/apprehension and repetition functionality was expected to take place

- in task conditions in which the quality of S's performance is at stake (as opposed to non-task conditions or to conditions in which performance quality is irrelevant, stimulus type held constant);
- in task conditions in which subjects are informed of an intermediate probability (i.e. 75%) of success (as opposed to conditions with a very low or very high probability of success, stimulus type held constant).

Repetition-affect relationships were significantly more positive in the apprehension conditions than in the other conditions, supporting the functional exposure interpretation. Additionally, in these other conditions, repetition-affect relationships were usually nonpositive (not significantly different from 'slope zero', depicting the absence of any relationship). The obtained results were replicated in several laboratory studies.

Two Consumer Psychological Experiments

In essence, the step from a social psychological experiment to a consumer psychological experiment is not necessarily a large one. To adult subjects, the consumer's role is a familiar one; in prepurchase situations the concept of perceived risk can be taken as the equivalent of the concept of subjective uncertainty as both contain an unpredictability and an apprehension component; and unknown names can easily be presented as (unknown) brandnames. In the following, two experiments will be briefly described in which the validity of a functional exposure interpretation in a consumer laboratory situation was assessed.

In line with this interpretation, it is hypothesized that positive repetition-affect relationships will be observed only if subjects experience an intermediate level of perceived risk. At this level, to be interpreted as located between the levels of high and low perceived risk, repetition is expected to be functional by its uncertainty reducing effect. The functionality of higher exposure frequencies at the other two levels is limited for two different reasons respectively. If perceived risk is low, so is the need for information, that is, any information. So stimulus familiarity is bound to be irrelevant/nonfunctional as well. If perceived risk is high, the need for issue relevant (intrinsic product/brand quality or price) information is high. Here, the exposure frequency of stimuli is unlikely to serve as the single basis for the risky decision (unless no further information can be expected). Therefore, in general, if perceived risk is high, the functionality of higher exposure frequencies is low. In conclusion, we expect less positive repetition-affect relationships under conditions of low and high perceived risk than under conditions of intermediate (medium) perceived risk. Note that an uncertainty

reduction hypothesis would predict the relationships to become more positive with risk.

Experiment 1

Subjects (Ss). 48 persons, 20 men and 28 women of various ages participated in the experiment. Prior to the experiment, they were told that they would receive the standard compensation worth approximately \$ 3.00 for their cooperation. Ss were divided evenly over the three conditions. The data of 3 Ss were discarded because of incompleteness. These Ss were replaced. Stimuli. The stimuli ('brandnames') employed were the presumably unknown names of French hamlets that a group of 15 non-subjects rated affectively neutral (TRESSON, ENCAUSSE, LE DORAT, PREGONDE, VERGONS and MARCILLAT). Stimuli were presented 0, 1, 3, 6, 9 and 12 times, and were rotated over frequency levels. A particular stimulus did not follow itself in the exposure sequence. Stimuli were exposed for 2 seconds each. Interexposure intervals were 4 seconds.

Procedure. The experiment took place in the Laboratory of the Psychology Department, Tilburg University. Ss were situated vis-à-vis a Philips monitor. All Ss could clearly see the stimuli. Conditions were run simultaneously, with a maximum of 8 Ss participating at the same time.

Instructions. Ss will be confronted with one of three types of instructions, each aimed at producing a particular level of perceived risk. We may expect Ss to consider decisions to be more difficult with increasing risk. Also, with increasing risk Ss are assumed to reduce their perceived chance of being able to select the brand they would prefer most. Therefore, subjective ratings of 'difficulty of choice' and 'chance of preferred brand' will serve as manipulation checks on perceived risk.

Condition 1: Low Risk (LR). Instructions: This study is on the evaluation of roller pens. The Consumers' Guide wrote (in fact, it did not - note added in the present text) about these pens: "All brands of roller pens have passed our test excellently. There are quality differences but a bad buy is definitely impossible". The value of these pens is between 2 and 3 dollars a piece. You may select one of them later-on and keep it. It is not possible to try them out first because they are wrapped. However, if you, after selecting a pen, consider another pen somewhat more attractive, then we will simply change pens around. So, you will receive the pen that you prefer most. In a few moments we will acquaint you with the brandnames. These will appear on the monitor.

Condition 2: Medium Risk (MR). The instructions are equal to those of Condition 1, except for the so-called Consumers' Guide section: "You do not run the chance of a bad buy when purchasing a roller pen. Our test indicated that there are no bad pens. Yet, it can do no harm to be somewhat careful when choosing a pen because of the differences in quality. All pens are approximately equally priced". The sentence indicating that after the selection pens may be changed around is left out here.

Condition 3: High Risk (HR). Instructions are equal to those of Condition 1 and 2, except for the Consumers' Guide section: "When choosing a roller pen the consumer must be very careful. Some brands are fair or good, others are just bad. And the bad brands are not cheaper than the good ones. In all, a very risky product". Also here the sentence about the changing of pens afterwards is left out.

Immediately following the exposure phase, instructions relating to the affect ratings were handed out. For the rating each stimulus was presented once for 2 seconds. Between presentation times were 4 seconds. The order of stimuli in the rating phase was varied so as to approach counterbalancing. The time lapse between the exposure and rating phase was about 2 minutes. Affect ratings were of two types. The first type concerns the traditional affect rating on a 7-point scale ranging from 'this brandname makes a very unfavorable impression upon me' to '(...) a very favorable impression (...)'. The second type concerns the exposure frequency

of the chosen brand when subjects are requested to make a selection out of the various brands/brandnames that are available.

Results. Before being exposed to the various brandnames, SS had been requested to rate the manipulation checks 'difficulty of choice' and 'chance of preferred brand'. See Tables 1 and 2 for the respective results.

TABLE 1
"DIFFICULTY OF CHOICE" (LIKERT SCALE
1-5; 5=MOST DIFFICULT), PER CONDITION

Condition	mean	t-values (F2,45 = 9.85, p .001)
Low Risk	2.56	t(30) = .22 n.s.
Medium Risk	2.63	t(30) = 3.97, p < .001
High Risk	3.69	t(30) = 3.77, p < .001

TABLE 2
"CHANCE OF PREFERRED BRAND" (LIKERT SCALE
1-7; 7=VERY SMALL CHANCE), PER CONDITION

Condition	Mean	t-values (F2,44 = 7.77, p .01)
Low Risk	3.19	t(30) = .16 n.s.
Medium Risk	3.25	t(29) = 3.52, p < .001
High Risk	4.67	t(29) = 3.21, p < .01

Differences between conditions are in the right direction. However, the differences between the conditions Low and Medium Risk are not significant for neither one of the manipulation checks.

In spite of these outcomes, we will first consider the results as they relate to the hypothesis. Results will be presented for linear trends and frequency of the chosen brand. Only linear trends are considered here as these relate most directly to the hypothesis.

Linear trends. For the conditions LR, MR and HR the respective means are 4.06, 5.63 and 0.44, differences being in the expected direction. These are the mean sums of the transformed raw scores per individual (transformation by coefficients of orthogonal polynomials for a linear trend with 6 observations, coefficients being -5, -3, -1, 1, 3, and 5). The overall effect is not significant, however - $F_{2,45} = 0.60$ n.s. (analysis of linear trend (Winer 1971); a main effect in this analysis may be interpreted as equivalent to an interaction effect in an ordinary ANOVA).

Frequency of chosen brand. For analyses on this variable, absolute exposure frequencies were changed into the corresponding coefficients of orthogonal polynomials referred to earlier. Cell mean differences are in the expected direction, cell means being 1.27, 3.25 and 0.00 for the LR, MR and HR conditions, respectively. An ordinary analysis of variance indicates a significant effect for perceived risk ($F_{2,44} = 6.42$, $p < .01$). As hypothesized, there is no significant difference between the LR- and the HR-Condition ($t(29) = 1.21$, n.s.), a significant difference between the LR- and the MR-Condition ($t(29) = 2.11$, $p < .05$) and a significant difference between the MR- and the HR-Condition ($t(30) = 4.21$, $p < .001$).

Discussion. For the dependent variable 'frequency of chosen brand', but not for linear trends, the factor perceived risk did have the hypothesized effect. A possible reason for this difference may be that the consequence aspect, as one of the two aspects of uncertainty/perceived risk, is rendered more dominant in the case of choice than when Ss is required to give affect scores only.

An important question concerns the lack of a difference in both manipulation checks between the so-called Low Risk and Medium Risk Condition. The scores on the manipulation checks of the Ss in the former condition suggest that these Ss did experience an intermediate level of risk. Therefore, the outcomes of the manipulation checks leave us a second option for the analyses on the dependent variables. This option is to distinguish two instead of three levels of perceived risk, considering the insignificance of the LR and MR manipulation check

differences. When the LR condition is combined with the MR condition on the basis of the manipulation checks, the effect of risk on the linear trends is not significant at the customary levels. However, a trend is observed: LR + MR vs. HR : $t(46) = 1.44$, $0.05 < p < 0.10$. As could be expected on the basis of the results presented earlier, for the dependent variable frequency of the chosen brand, the combination of the LR and the MR condition differs significantly from the HR condition: $t(54) = 2.77$, $p < .01$.

Perceived risk may be assumed to be positively and linearly related to depth of processing and the various risk instructions may have resulted in depth of processing differences. These differences can not be associated with repetition-affect relationship differences, however, given the obtained results: the repetition-affect relationships do not increase positively and linearly with risk.

Experiment 2

In reference to the manipulation problems in Experiment 1, the main purpose of the present experiment is to attempt to generate low levels of perceived risk. In Experiment 2 the experimental situation and procedure will be equal to the ones in that Experiment 1. It is assumed that perceived risk may be lowered by attenuating its component 'consequence(s)'. For example, by eliminating S's possibility to make a choice, thus rendering choice outcome completely beyond his/her control. Alternatively, by giving S the expectation of an opportunity to actually try out the alternatives before making a selection, perceived risk may be assumed to be low relative to the situation in which there is no such expectation.

In combination with the Medium and Low Risk instructions of Experiment 1, these two alternative risk reducing possibilities may be worked out in the following experimental conditions:

1. Low Risk/Choice
2. Medium Risk/No choice
3. No Risk: Low Risk instruction; No choice.

Together with the Medium Risk Condition of Experiment 1 (Medium Risk instruction; Choice), these conditions form a complete 2x2 design.

It is hypothesized that in the no-choice conditions frequency-affect relationships and frequencies of the chosen brand¹ will be nonpositive/small, that is, approximating (slope) zero.

Because of the requirement to make a choice, the dependent variables will assume higher values in the Low Risk/Choice Condition. However, these are expected to be lower as compared to the corresponding values in the LR- and MR-Condition of Experiment 1.

Subjects. Subjects were 16 men and 32 women of various ages. Their names were drawn from the same participants-pool as used for obtaining the names of participants in Experiment 1. (Of course, no person participated in both experiments). For their cooperation the compensation worth about \$ 3.00 was announced. Ss were divided evenly over the three conditions: 16 Ss each. No data had to be discarded.

Stimuli and Procedure. See Experiment 1. For instructions see below.

Condition 1. Low Risk/Choice (LR/Choice). This study is on the evaluation of roller pens. The Consumers' Guide wrote about these roller pens - the same as we employ in this study: 'All brands of roller pens have passed our test excellently. A bad buy is definitely impossible'. The value of the pens is between 2 and 3 dollars a piece. Later-on we give you 6 pens of different brands. Then, you should try out these pens and make a selection out of them. You may keep the selected brand. You will have ample time for trying out the pens. In a few minutes we will acquaint you with the brandnames. These will appear

¹In each condition, Ss will be requested to make a selection anyway, but in such a way that the consequence component is not introduced.

on the monitor.

Condition 2. Medium Risk/No choice (MR/No choice). Up to the so-called Consumers' Guide section, instructions are equal to those of Condition 1. Then: 'You do not run the chance of a bad buy when purchasing a roller pen. Our test indicated that there are no bad roller pens. Yet, it can do no harm to be somewhat careful choosing a pen because of the differences in quality. By the way, all pens are approximately equally priced'. The value of the pens is between 2 and 3 dollars a piece. Later-on we give you one of these pens. After you have tried out this pen for a little while, we would like you to answer some very simple (written) questions about it. You may keep the concerning pen. It is not possible at this moment to indicate which brand that will be as the pens will be distributed completely arbitrarily. In a few minutes we will acquaint you with the brandnames. These will appear on the monitor. (As manipulation-checks on risk would be awkward here and possibly counteracting manipulations, they are left out).

Condition 3. No Risk: Low Risk instruction/No choice (LR/No choice). The instructions are the same as those in Condition 1 except for the part after the value information:

Later-on we give you one of these pens. After you have tried out this pen for a little while, we would like you to answer some very simple (written) questions about it. (Etcetera). (See instructions Condition 2).

For the no-choice conditions, the brand-selection question was adapted by formulating it as follows: 'If you would have to make a selection yourself now, which brand would you choose?'. The rest of the procedure is equal to the one in Experiment 1.

Results. With the three conditions LR/Choice, MR/No choice and LR/No choice, it was attempted to obtain perceived risk levels lower than those generated in Experiment 1, Conditions LR and MR. The only condition for which this can be checked is the LR/Choice Condition, of which the instructions announced the request to make a selection.

In Condition LR/Choice the mean of the variable 'difficulty of choice' is 13.9 on the 5-point scale and the mean of the variable 'chance of preferred brand' is 3.50 on the 7-point scale. It was expected that these means would be lower than the respective means of Conditions LR and MR of the previous experiment. However, this is not the case. The differences are even in the wrong direction. Assuming that manipulations in the remaining two conditions of the present experiment were successful, it seems justified to adapt the hypothesis: Considering the outcomes on the manipulation checks, we should expect a repetition-affect difference between the LR/Choice Condition on the one hand and the Conditions MR/No choice and LR/No choice on the other. At the same time, no repetition-affect differences are expected to be observed between the LR/Choice Condition and the MR/Choice Condition (Experiment 1).

Linear trends. Per condition, the mean sum of the raw scores transformed by coefficients of orthogonal polynomials (linear trend) are:

LR/Choice	5.88
MR/No choice	-0.06
LR/No choice	-1.31
(MR/Choice, Experiment 1)	5.63

An analysis of linear trend on the 2x2 design shows a significant effect for choice ($F_{1,60} = 4.70, p < .05$), but not for type of instruction ($F_{1,60} < 1, n.s.$). Also, there is no interaction-effect ($F_{1,60} < 1, n.s.$). The mean individual (linear) trend in the choice conditions is higher than in the no-choice conditions, as predicted. Means are, respectively, 5.76 and -0.69. The means of both type of instruction levels are in the predicted direction, MR instruction: 2.78 and LR instruction: 2.28. However, as the trend analysis indicates, we should not interpret the difference as supportive of the hypothesis.

Frequency of the chosen brand. For the dependent variable frequency of chosen brand, the factor choice is highly significant ($F_{1,58} = 13.08, p < .001$, ordinary ANOVA) and there is a significant choice x type of

instruction interaction ($F_{1,58} = 4.81, p < .05$). There is no significant effect for type of risk-instruction ($F_{1,58}, p < 1, n.s.$).

In the choice conditions, the mean frequency of the chosen brand is 2.31 (coefficients of orthogonal polynomials, linear trend); in the no-choice condition: -0.33. This difference is as hypothesized. When SS received an MR instruction, their mean frequency score is 1.27, while for the LR Condition, this score is 0.81. This difference is insignificant. The risk x choice interaction is significant, however. Condition means are: 1.38, -1.00 and 0.25 for the Conditions LR/Choice, MR/No choice and LR/No choice respectively. The mean of the MR Condition (Experiment 1) was 3.25.

Discussion. In the LR/Choice Condition, the intended low risk level was not obtained. Possibly, Ss in this condition still experienced the try-out of the pens and the subsequent selection as some type of performance task (see introduction). However, this post-hoc interpretation is exactly the reverse of the initial interpretation that led to the concerning operationalization. Because it was attempted, in three of the four conditions of Experiment 2, to obtain low risk levels, no significant effect for type of instruction was to be expected. Departing from the original hypothesis that supposed low risk in all three conditions, a difference should have been observed between the condition-combination MR (Experiment 1) and LR/Choice, with the former having a significantly more positive frequency-affect relationship as measured by the two dependent variables. Now that the manipulation in the LR/Choice Condition turned out to be unsuccessful, this hypothesis had to be adapted on the basis of the manipulation checks. In the adapted version, departing from medium risk levels in both Conditions MR (Experiment 1) and LR/Choice (Experiment 2), no difference was to be expected and observed.

Conclusion

Summing up, three general observations can be made. The first observation is that the FE-hypothesis differs from the mere exposure hypothesis and the uncertainty reduction hypotheses with regard to the prediction of repetition-affect relationships at various perceived risk levels, and that the FE-hypothesis is supported by some evidence.

The second observation is that risk manipulations are tricky. Even though, theoretically speaking, a low level of perceived risk is not problematic, operationally it is. It is likely that the very nature of the experimental setting is a disturbing factor here.

A final observation is that a number of questions is still open, one of them concerning the level of cognizing that is required for exposure to be functional. These questions will have to be dealt with before the implications of functional exposure for consumer behavior can be discussed.

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MEASURE VALIDATION IN CONSUMER RESEARCH: A CONFIRMATORY
FACTOR ANALYSIS OF THE VOLUNTARY SIMPLICITY LIFESTYLE SCALE

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Abstract

The development of a measurement tradition in consumer research will necessitate a stronger emphasis on replication. The validity of standardized instruments must be established through repeated application of scales in different contexts and among different population groups. Leonard-Barton's Voluntary Simplicity Lifestyle Scale was administered to a sample of California and Colorado voters. Examination of the factorial validity of the scale supports a three dimensional structure which is based on theory. The values constructs of material simplicity, self-determination, and ecological awareness adequately account for the observed inter-item correlations.

Introduction

Consumer behaviorists have exhibited a renewed interest in the role that research plays in the theory development process. Increased attention to the relationship between research and theory has spawned "considerable interest in methodological issues related to theoretical constructs" (Brown and Gauden 1980, p. 241). Perhaps foremost among these concerns is the apparent lack of a tradition of measurement research and instrumentation in the marketing and consumer behavior disciplines. Bagozzi (1980) has observed that while marketers readily acknowledge in their journals the importance of measurement, they seldom examine in these same journals the conceptual underpinnings of measurement procedures and relate them to the purposes for which they were constructed. This indifference is remarkable, considering that measurement and theory "are inseparably bound in a logical sense" (Bagozzi 1980). Theory development requires theory testing. More than a decade ago, Heeler and Ray (1972) observed that tests of existing theories in marketing and consumer behavior have been marred because they were not preceded by adequate measure validation.

Some authors have pointed to replication as a way to solve at least some of the measurement problems plaguing marketing and consumer research, including the prevailing "disregard" (Ray 1979, p. 1) for measure validation. Consumer behaviorists, in particular, have been vocal in their call for replication (Jacoby 1978; Brown and Coney 1976; Engel, Blackwell and Kollat 1978), on the grounds that spurious conclusions hamper theory development. "There is a strong necessity for replicating our findings using different subject populations, test products, etc. The name of the game is confidence in our findings" (Jacoby 1978, p. 93). Replication lies at the heart of generalization of any body of knowledge (Kollat, Engel and Blackwell 1970). Generalizability, in turn, is fundamental to theory's capability to predict phenomena.

Measurement Validation in Psychology

Not all of the social sciences have been so neglect in building a foundation of replication and instrumentation. In contrast with marketing, psychology can boast a long tradition of measurement research. Indicative of this heritage is the science's regular publishing of compendiums of measurement tools. The Eighth Mental Measurements Yearbook (Buros 1978), for example, is a lengthy, two-volume collection of measurement instruments covering a wide range of topics (achievement batteries, multiple-aptitude batteries, personality, intelligence, education, etc.). Other similar repositories for published tests and measurement tools exist in the field of psychology (Straus and Brown 1978, Johnson 1976). Compendiums like these serve to facilitate measurement validation, as well as other aspects of measurement research, via exact replication and related studies.

Scholars like Frederic M. Lord of the Educational Testing Service have devoted most of their lives to the study of mental tests (Wainer and Messick, 1983). That is not to say, however, that these scholars have solved all the problems associated with psychological measurement, in particular the issue of measurement validation. "The determination of validity . . . is not so much a process as it is a program. The measurement of the psychological properties of individuals is a complicated affair, to be accomplished laboriously, and seldom, if ever, with the degree of precision desired" (Ghiselli 1964, p. 368).

Nevertheless, scholars in the field of psychology pursue this "broad problem area" (Ghiselli 1964, p. 368), evidently with a commitment to precision not known to the marketing discipline as a whole. Even a cursory review of the major psychology journals at any time would produce more than a handful of perfect and imperfect replications--tests of established measurement instruments, across time, various population groups and settings--designed to examine the validity of those tools (e.g., Gahar and Hale 1982; Ibrahim 1982; and LaFromboise 1983). Marketing and consumer behavior journals are all but void of such examinations. Calls for replications, lamentations over the sorry state of measure validation in marketing, and suggestions with respect to how one can improve measurement validation appear more frequently in the marketing literature.

Improving Measures of Consumer
Behavior Constructs

Psychometric procedures for developing better measures of marketing and consumer behavior constructs have been well described by Churchill (1979) and do not require restatement. Worthy of note, however, are two of the principles which underlie these procedures. One principle is that most measures of consumer behavior phenomena, and indeed the phenomena themselves, are seldom uni-dimensional. This means that in developing standardized instruments, correspondence rules linking theoretical dimensions to test components and subscales must be clearly established. This can be done only if the theory is sufficiently explicit about the definition and domain of the construct. Care must also be taken not to segregate the conceptual stage of the research from its test (Bagozzi 1980). The specification of theoretical constructs should include a measurement model, and it is this model which should be empirically tested. The initial concern is usually to verify the factorial validity of the proposed measure, with convergent and discriminant validity being established later.

Another principle is that measure validation cannot be accomplished in a single study. As in all research, apparent regularities involving measures and measurement items may be the result of chance or spurious relationships. There is also a need to establish that the measurement model holds across the full range of the underlying variables. If measures are found to behave differently when tested across time and across population groups, this suggests that either the measure is invalid or the concept, poorly understood. It is possible that a measurement instrument taps different constructs when applied at different times or to different population groups. Thus, repeated tests of the factorial, convergent, and discriminant validity of tests need to be made.

These two important principles are best illustrated with a specific example from the consumer behavior literature.

Voluntary Simplicity Lifestyle Scale

An examination of the Voluntary Simplicity Lifestyle (VSL) Scale (Leonard-Barton 1981) is especially appropriate for the purposes of this paper for a number of reasons. First, the scale has not been finalized; Leonard-Barton admits potential scale shortcomings and has suggested a number of areas that may need improving. Thus, the current research shows the value of measurement research to the theory development process. Second, Leonard-Barton's scale represents only one of a number of ways that have been suggested to model voluntary simplicity (VS) (Ensley 1983).

Despite the potential value of this scale and other similar instruments, some scholars have questioned the validity of lifestyle concepts and measures in general (Mehrotra and Wells 1977; Wells 1975; Wells and Cosmas 1982). Lastovicka observed that while there is an "overabundance of lifestyle traits" (1982, p. 138), there have been few attempts in the literature to examine the validity of the proposed traits. An examination of the scale (and the theoretical model it implies) enables one to consider more closely the relationship between theory and research, specifically, the relationship between theoretical constructs and the tools that are supposed to measure them.

The use of the VSL scale to explore the value of measurement validation to consumer research is appropriate also because the scale focuses on extremely dynamic characteristics of our society. Marketers more often than not face the challenges of a fast-changing marketplace while conducting research. Finally, the development of not only a theory (model) to explain voluntary simplicity, but also a measurement tool (scale) to predict (identify) the lifestyle are potentially matters of great concern to marketers. "Growth in the number of adherents to VS (voluntary simplicity) could dramatically affect current marketing practices" (Ensley 1983, p. 385).

Voluntary Simplicity: The Concept

An in-depth review of the VS literature is not required for the purposes of this paper. Recent reviews (Ensley 1983, Leonard-Barton 1981, Leonard-Barton and Rogers 1980) report agreement among scholars as to the building blocks of the lifestyle: material simplicity (nonconsumption-orientation patterns of use); human scale (a desire for small-scale institutions and simpler technologies); self-determination (desire for greater control over personal destiny); ecological awareness (recognition of the interdependency of people and resources); personal growth (a desire to explore and develop the "inner life").

Scholars do not agree, however, about what comprises the best method for identifying voluntary simplifiers. The measurement tool which is the focus of this article, developed by Leonard-Barton (1981), is essentially a behavioral scale. Leonard-Barton maintains that while certain "humanistic values" are an important part of the concept, "as any student of human behavior knows, there is often a large gap between an attitude and an act. . . Behaviors are, therefore, probably better indicators of public support for a voluntary simplicity lifestyle than verbal responses to survey questions" (p. 244).

The scale, which employs survey methodology, asks respondents to report the frequency with which they engage in behaviors that are "typical of self-proclaimed advocates of this scaled-down lifestyle and that were also suggested in literature on the topic. . ." (Leonard-Barton 1981, p. 244). Lastovicka (1982) has criticized the reliance of lifestyle research on self-report data as a "serious problem in lifestyle trait measurement" (p. 138). Another potential problem in the development of a behavioral scale that would be usable over time is the rate of diffusion of behaviors included in the scale. Table 1 shows that the so-called VSL behaviors have diffused considerably in just a few years. While the percentage of respondents giving a positive response in each

category increased as much as 47 percent, it is unlikely that the number of voluntary simplifiers has increased to the same extent. In short, the behaviors do not necessarily indicate VS. Leonard-Barton (1981) defends her approach, maintaining:

"an individual's high score on any one of these six factors by itself does not indicate an interest in voluntary simplicity. . . However, if an individual engages in many of the 18 behaviors. . . then we may assume that some sort of coherent (although often unrecognized) philosophy underlies these diverse acts" (p. 246).

But Ensley (1983) asserts that VS "is essentially an attitude, and adherents emphasize that no particular behavior is required" (p. 388).

TABLE 1
ITEMS IN THE VOLUNTARY SIMPLICITY INDEX
IN ORDER OF RATE OF ADOPTION

Scale Item	% of Respondents with Positive Response		Rank
	(Leonard-Barton 1981/Current Research)		
	n=812	n=424	
Make gifts instead of buying	71.9/81.8		1/3
Eat meatless main meals	70.8/82.0		2/2
Change oil in car	69.8/78.3		3/5
Get instruction to increase self-reliance	65.3/82.5		4/1
Recycle newspapers	62.3/71.3		5/7
Make clothes/furniture	59.5/73.3		6/6
Recycle cans	54.2/79.8		7/4
Recycle glass	52.9/67.2		8/8
Grow vegetables	50.7/57.9		9/12
Bike for exercise	49.9/62.0		10/9
Buy at garage sales	48.4/59.3		11/10
Exchange goods or services	44.3/58.3		12/11
Contribute to ecology organizations	33.1/40.1		13/14
Buy used clothing	32.1/44.1		14/13
Bike on errands	26.8/28.4		15/15
Have a compost pile	20.3/19.2		16/16
Bike to work	9.1/10.5		17/17
Belong to a cooperative	7.6/8.0		18/18

The Behavioral Scale

The scale developed by Leonard-Barton (1981, p. 244) "evolved through three stages, each revision being tested on a different California population. All three versions of the scale were factor analyzed; factors that emerged were reported by Leonard-Barton to be "quite robust" for all versions, across samples. Leonard-Barton characterized the six factors that emerged in the data collected from the most recent version (n=812 California homeowners) as: conservation through biking; self-sufficiency in services; recycling resources (metals, glass); self-sufficiency through making goods; recycling of durable goods (clothes, furniture); and closeness with nature.

"As Cattell (1961) and others demonstrate, factor analysis is the primary tool for systematically identifying and measuring (lifestyle) traits" (Lastovicka 1982, p. 126). Nevertheless, factors and traits are not the same. A factor is linked to a trait via a correspondence rule. In the case at hand, Leonard-Barton has employed exploratory factor analysis to identify six dimensions which are given a trait-like interpretation. While Leonard-Barton does not specifically use the word "trait", her discussion of the factors is consistent with the accepted defini-

dition of traits as "generalized action tendencies" (Allport 1966, p. 3). Figure 1 shows the implied relationship between scale items, resultant factors, and VSL. While the author acknowledges that at least two of the five "building blocks" of VSL are not represented (human scale and personal growth), no explanation is proffered concerning the conceptual meaning of the six empirically derived factors/traits.

Throughout the social sciences, there is growing recognition that the approach of exploratory factor analysis is seriously flawed. To quote Long (1983, p. 12), "The exploratory factor model's inability to incorporate substantively meaningful constraints, and its necessary imposition of substantively meaningless constraints, has

earned it the scornful label of garbage in/garbage out (GIGO) model." The use of exploratory factor analysis in the Leonard-Barton studies seems particularly unfortunate given there is fairly specific theory regarding the value underpinnings of VSL. Leonard-Barton can be criticized for failing to integrate her conceptualization with the empirical test. Figure 2 presents an alternative VSL model that is more theory-based. Behavioral constructs which comprise the alternative model are not the result of factor analysis, rather they are suggested by VSL theory as presented in the literature. According to this new conceptualization, individual items in the Leonard-Barton scale should be viewed as indicators of behavioral tendencies which are values driven. The undersampling of some behavioral constructs (i.e., two "building blocks" are not represented) and the oversampling of others can be directly traced to the decoupling of the theory and its test.

FIGURE 1
CONFIRMATORY FACTOR ANALYSIS (CFA) MODEL
IMPLIED BY VOLUNTARY SIMPLICITY INDEX
(Leonard-Barton 1981)

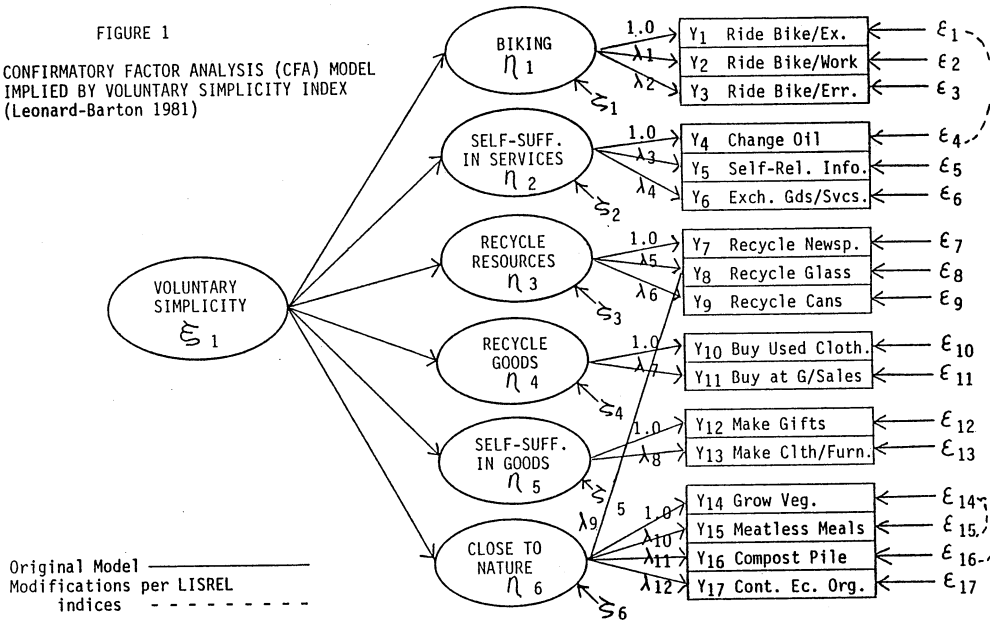
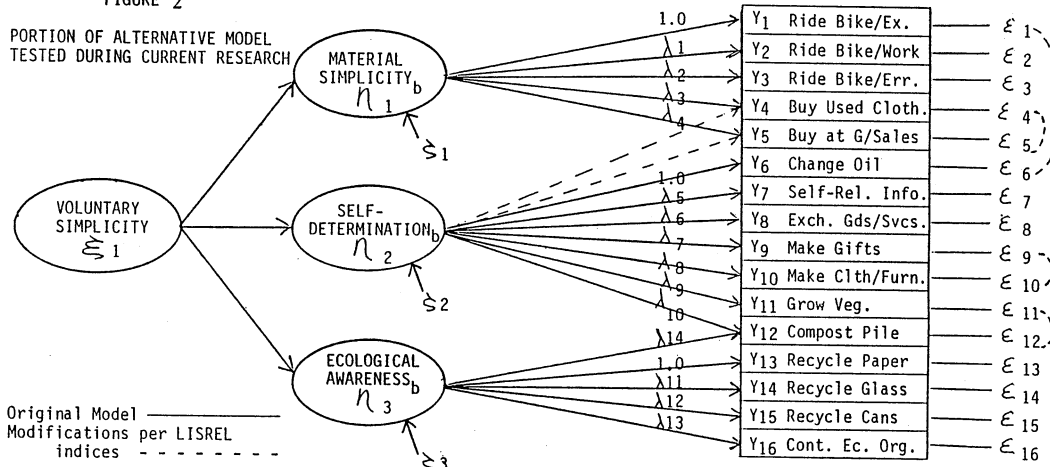


FIGURE 2
PORTION OF ALTERNATIVE MODEL
TESTED DURING CURRENT RESEARCH



Despite the above-mentioned problems, Figures 1 and 2 provide competing models or hypotheses concerning the structure of VSL. These models were compared, insofar as data would permit, in terms of their ability to account for the observed inter-item correlations in new data. The data were obtained as part of a voting behavior study which included Leonard-Barton's VSL scale as one of its measures.

Methodology

Data

Voter, legislator, and consumer behavior concerning "bottle bills" is an environmental issue of current public and research interest. The data for the analysis came from a study of voter behavior concerning bottle bills appearing on the November 2, 1982 ballots in California and Colorado. A quota sample of consumer panel households in these states was supplied by a large field research organization. Households were selected for inclusion by matching household characteristics with known census data for each state. A random selection procedure was then used to select an eligible adult voter within each household.

The questionnaire, which was preceded by a pre-alert postcard, was mailed to 1,000 panel members, 500 in each state. The Leonard-Barton VSL scale was one of several measurement instruments included in the questionnaire. A standard inducement was offered to panel respondents. A total of 662 surveys were returned (66.2 percent response rate); 424 of the returned questionnaires included complete responses to all VSL scale items.

Analysis

The VSL models portrayed in Figure 1 and 2, suggest that voluntary simplicity is a multidimensional unobserved, or latent, variable the presence of which to varying degrees can be measured by specific behaviors. Confirmatory factor analysis via the computer program LISREL (Joreskog and Sorbom 1977; Sorbom 1974) was used to assess the factorial validity of the models for a population other than those from which Leonard-Barton had developed the scale. Technically, these are both higher-order factor models which are estimated by Submodel #3 in LISREL. The endogenous latent variables ($\eta_1, \eta_2 \dots$) are assumed to be partial functions of a global tendency toward VSL. Errors in the equations for these latent variables ($\zeta_1, \zeta_2 \dots$) acknowledge there are other unspecified influences on the VSL responses. The fitting function for unweighted least squares (ULS) was used to obtain parameter estimates. The ULS estimator has been shown to be consistent without making assumptions about the distribution of the variables (Bentler and Weeks 1980). Estimation via ULS "involves minimizing the sum of squares, in much the same way that ordinary or unweighted least squares for regression analysis minimizes the sum of the squared residuals" (Long 1983, p. 57). Because ULS estimators are scale-dependent the scales of the observed variables were standardized by analyzing a correlation matrix.

Long (1983) notes that while it can be advantageous not having to make distributional assumptions about the observed variables, a major limitation is that "there are no statistical tests associated with ULS estimation of the confirmatory factor model" (p. 57). One must rely on an overall goodness-of-fit index, as well as an examination of parameter values, variances and covariances. Despite this limitation, a major advantage to using the confirmatory factor analysis approach over the exploratory factor analysis approach is that "a hypothesized factor structure can be specified as a pattern of zero and nonzero factor loadings. The adequacy of the model (and the theory for which it stands) as representation of the original data matrix can then be empirically assessed" (Aneshensel et al, p. 388). The technique also allows one to compare the hypothesized model with alternative specifications of the model in which parameter

constraints are modified, a most important feature for theory builders.

Results

The confirmatory factor model suggested by the Leonard-Barton research (1981) and shown in Figure 1, was tested to determine its tenability. Goodness-of-fit indices and ULS parameter estimates for a modified version of that model are found in Table 2. Modifications to the original model, which were indicated by LISREL program output, were made within the bounds of practicality and theory. These modifications took the form of an allowance for some correlated error among the indicators. The results show that the Leonard-Barton model is relatively robust for this population, with an adjusted goodness of fit of .956. Table 3 provides goodness-of-fit indexes and ULS parameter estimates for a modified version of the alternative model, which is at least as robust as the model suggested by Leonard-Barton. The adjusted goodness of fit index for the alternative model was .962. Table 4 compares the two models' estimates of indicator and construct reliability.

Discussion

Given the model in Figure 2 is incomplete, yet performs as well as the Leonard-Barton model, it would appear to be a better approach to the development of a VSL scale for a number of reasons. First, the constructs, as configured, more accurately reflect VSL theory as it is presented in the literature. Second, as Leonard-Barton points out, the meaning of a specific behavior can change over time and across boundary lines. The assignment of these or other behavioral indicators to theoretical (vs. behavioral) constructs would seem to offer more flexibility in theory/scale development. Finally, the model is more explicit in portraying the relationship between and among variables and constructs, a characteristic of great value to theory builders.

The current research has shown that Leonard-Barton has made a significant contribution to VSL research and theory development. Her scale, which was developed with a California-only population, yielded meaningful results when applied to a different California/Colorado population. However, as Leonard-Barton recommends in her 1981 article, future research should include a "further refinement of the index, including tests for the applicability of items to different geographic locations" (p. 250), and "expansion of the 18-item index to cover interest in holistic health, improved nutrition, and greater personal happiness" (p. 250) -- perhaps as a means of addressing the VSL components not included in the scale.

Curiously, however, Leonard-Barton at the same time calls for a streamlining of the scale, and suggests three different ways to achieve this: by factor analysis (selecting the highest loading variables); by multiple regression (dropping those behaviors that explain little variance in the regression line); and by using rate of adoption. Although a more streamline scale is not necessarily indicated, an analysis of the rate of adoption of VSL behaviors, seems appropriate for any VSL research. Indeed, it seems unlikely that researchers will be able to capture the underpinnings of VSL via simplistic models:

... recognition of nomological validity as a necessary tool for testing lifestyle trait concepts emphasizes the need for better lifestyle theory. The current elementary theoretical schemes provide settings for simple tests of trait validity, but as nomological validity is more seriously examined these schemes must become more elaborate. (Lastovicka 1982, p. 138)

Although the more complex model with all five VSL building blocks has not been put to a rigorous test, the preliminary analysis of a portion of the model holds promise for future VSL research. Opportunities exist to examine how VSL, and lifestyle traits, in general, relate to the individual's value structure. Also important is the manner in which lifestyles and

TABLE 2

PARAMETER ESTIMATES (UNWEIGHTED LEAST SQUARES)
LEONARD-BARTON VSL CONFIRMATORY FACTOR MODEL

LAMDA-Y	Eta 1	Eta 2	Eta 3	Eta 4	Eta 5	Eta 6
Y1	1.000	0.0	0.0	0.0	0.0	0.0
Y2	0.863	0.0	0.0	0.0	0.0	0.0
Y3	1.211	0.0	0.0	0.0	0.0	0.0
Y4	0.0	1.000	0.0	0.0	0.0	0.0
Y5	0.0	1.842	0.0	0.0	0.0	0.0
Y6	0.0	1.472	0.0	0.0	0.0	0.0
Y7	0.0	0.0	1.000	0.0	0.0	0.0
Y8	0.0	0.0	0.637	0.0	0.0	1.012
Y9	0.0	0.0	0.973	0.0	0.0	0.0
Y10	0.0	0.0	0.0	1.000	0.0	0.0
Y11	0.0	0.0	0.0	1.069	0.0	0.0
Y12	0.0	0.0	0.0	0.0	1.000	0.0
Y13	0.0	0.0	0.0	0.0	0.804	0.0
Y14	0.0	0.0	0.0	0.0	0.0	1.000
Y15	0.0	0.0	0.0	0.0	0.0	1.515
Y16	0.0	0.0	0.0	0.0	0.0	-0.241
Y17	0.0	0.0	0.0	0.0	0.0	1.273

GAMMA	Ksi 1	Measures of Goodness of Fit For the Whole Model:
EQ 1	0.265	
EQ 2	0.327	
EQ 3	0.346	Goodness of Fit Index: .969
EQ 4	0.423	Adj. Goodness of Fit Index: .956
EQ 5	0.580	Root Mean Square Residuals: .055
EQ 6	0.287	

TABLE 4

RELIABILITY OF INDIVIDUAL
AND COMPOSITE MEASURES
(MODIFIED MODELS)

Individual Measures	Reliabilities	
	Leonard- Barton Model	Alternative Model
Ride bike/exercise	.682*	.693*
Ride Bike/work	.553	.552
Ride bike/errands	.871	.838
Change oil	.536*	.538*
Get self-rel. inst.	.862	.818
Exchange goods/svcs.	.753	.756
Recycle newspaper	.597	.558
Recycle glass	.401**	.795
Recycle cans	.578	.558
Buy used clothes	.673	.687**
Buy at garage sales	.735	.661**
Make gifts	.739	.779*
Make clothes/furniture.	.526	.661*
Grow vegetables	.535*	.454*
Eat meatless meals	.767*	N/A
Have compost pile	.055*	.003**
Contribute ec. org.	.673	.459

Composite Measures	Leonard- Barton Model	Alternative Model
Biking	.880	N/A
Self-suff./svcs.	.898	N/A
Recycling resources	.775**	N/A
Recycling goods	.827	N/A
Self-suff./goods	.777	N/A
Closeness to nature	.865**	N/A

Material Simplicity	N/A	.779**
Self Determination	N/A	.938**
Ecological Awareness	N/A	.892**

* Estimate, due to correlated error

** Estimate, due to double-loading of indicator

TABLE 3

PARAMETER ESTIMATES (UNWEIGHTED LEAST SQUARES)
ALTERNATIVE VSL CONFIRMATORY FACTOR MODEL

LAMDA-Y	Eta 1	Eta 2	Eta 3
Y1	1.000	0.0	0.0
Y2	0.856	0.0	0.0
Y3	1.167	0.0	0.0
Y4	-0.144	1.310	0.0
Y5	-0.021	1.241	0.0
Y6	0.0	1.000	0.0
Y7	0.0	1.662	0.0
Y8	0.0	1.470	0.0
Y9	0.0	1.539	0.0
Y10	0.0	1.238	0.0
Y11	0.0	1.863	0.0
Y12	0.0	0.056	-0.275
Y13	0.0	0.0	1.000
Y14	0.0	0.0	1.465
Y15	0.0	0.0	1.014
Y16	0.0	0.0	0.849

GAMMA	Ksi 1	Measures of Goodness of Fit For the Whole Model:
EQ 1	0.311	
EQ 2	0.294	Goodness of Fit Index: .974
EQ 3	0.412	Adj. Goodness of Fit Index: .962
		Root Mean Square Residuals: .051

values combine to influence consumer and voter decision-making in specific choice situations. Finally, returning to the issue of measurement in marketing research, it is clear that research tools available to marketing will only be of value if they can be shown to be reliable and valid. The literature is consistent in its appraisal that the VSL concept is potentially of great importance to marketers (Ensley 1983). If for no other reason than this, the development of a valid and reliable VSL measurement tool based on theory should be an integral part of all future VSL research.

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THE CONGRUENCE OF ALTERNATIVE OSL MEASURES
WITH CONSUMER EXPLORATORY BEHAVIOR TENDENCIES

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Abstract

The present study examines the measurement congruence among several alternative operationalizations of the optimal stimulation level construct against a common set of exploratory tendency items. The results suggest that the alternative OSL scales examined in the study represent different dimensions of the OSL construct. The findings indicate that Arousal Seeking Tendency is the best measure of OSL in relation to exploration through shopping, risk taking, and innovativeness. Additionally, Raju's measure of exploratory behavior proneness appears to represent a useful, preliminary benchmark for identifying appropriate measures of OSL in a marketing context.

Background

As subsets of the general area of exploratory behavior, the concepts of variety seeking and novelty seeking offer significant implications for marketing managers concerned with promotion and product strategy development. While a copious volume of research has examined the consumer decision-making process and the concepts of brand and store loyalty, a great deal remains unknown about the processes and dynamics relating to variety seeking as a form of exploratory behavior in the consumer context.

In the traditional behavioral sciences, the arousal construct and the individual's quest for new experiences have interested psychologists since Freud and have been major themes in a number of behavioral theories (Hebb 1949; Duffy 1957; Malmo 1959; Berlyne 1960) involving the relationship between the state of an individual and his/her response to stimuli. However, Raju and Venkatesan (1980) have noted that in the consumer behavior literature the number of empirical findings that relate to variety or novelty seeking explanations are few, and no consumer studies have attempted to directly validate any particular framework. They assert that exploratory behavior processes have been neglected in consumer decision-making research due to the lack of a coherent theoretical framework appropriately modified for examining consumer behavior.

In identifying four alternative theoretical frameworks for the study of exploratory behavior in psychology, Raju and Venkatesan (1980) have critically compared and contrasted Berlyne's (1960, 1963) novelty seeking approach, Fiske and Maddi's (1961) activation theory, Hunt's (1963) concept of environmental incongruity, and the general incongruity adaptation level (GIAL) hypothesis espoused by Driver and Streufert (1965). A number of concepts are provided by these frameworks ... many of which are not in agreement with each other. However, all four frameworks are similar to the extent that they are based on the optimal stimulation level (OSL) construct and the notion that OSL varies from individual to individual.

In discussing some of the major conceptual and operational issues that need to be resolved in order to advance the discipline's understanding of the exploratory behavior process, Raju and Venkatesan (1980) note that while suggestions for operationalizing environmental stimulation have been implied by the various theoretical frameworks developed in psychology, actual OSL measures applicable to the study of exploratory behavior in the consumer context are unavailable. Thus, the measurement of OSL represents a fundamental issue to be resolved by consumer researchers interested in studying the

exploratory behavior process of consumers. The present study is an attempt to identify the most appropriate OSL measure for consumer research applications.

The Concept of Optimal Stimulation Level

Berlyne (1960, 1963) asserts that all stimulus situations have four attributes (novelty, uncertainty, conflict, and complexity) in varying degrees. These attributes, or "collative variables" join with affective characteristics (reward or punishment associated with the stimulus) and external physical features (such as size, brightness, color, or pitch) to create "arousal potential." When the environment's arousal potential is low, the individual is bored, and the desire for increased stimulation rises. Conversely, stimulus conditions exhibiting very high arousal potential will cause the individual to seek more moderate situations. In Berlyne's theory, exploratory behavior is manifested under both of these conditions. Between seeking and avoiding arousing stimuli is the individual's desired "arousal tonus" or the average, comfortable level of arousal required of an organism in a particular circumstance. The relationship between arousal potential and an individual's level of arousal has been described as an inverted-U in which low levels of arousal potential in the environment stimulate greater arousal in the individual (i.e., diversive exploration) up to some optimal level. Beyond that level, increases in arousal are disfunctional such that further increases in arousal potential produce lower levels of arousal as the individual seeks ways to return to a more familiar situation (i.e., specific exploration).

Whether the arousal potential of one's environment is perceived as too high or too low depends on the individual's optimal level of stimulation or ideal arousal. This optimal level, according to Berlyne (1960, p. 211) is determined by "personality factors, cultural factors, learning and psychological states."

In contrast to Berlyne's theory which holds that the minimization of arousal serves as the underlying motivational mechanism, Driver and Streufert (1965) suggest that over time individuals via past experiences develop expectations concerning the degree of environmental incongruity which characterizes certain situations. This level of expected incongruity is analogous to OSL and is termed the individual's general incongruity adaptation level (GIAL). According to Driver and Streufert's hypothesis, environmental deviations from one's GIAL causes cognitive action aimed at reestablishing a homeostatic GIAL. This cognitive action may take the form of exploratory behavior (if the associated incongruity is not too severe) and is specifically related to information search behavior (Streufert and Driver 1971).

Citing the refinement of a suitable framework for studying exploratory behavior as a critical problem facing consumer researcher, Raju (1979) has proposed a hybrid framework which combines Berlyne's ideas relating to the arousal potential of stimuli to Streufert and Driver's notion of environmental incongruity as the motivational mechanism underlying exploratory behavior. This approach likewise incorporates the optimal stimulation level notion as an integral component.

OSL and Consumer Research

Optimal stimulation has been the subject of a limited amount of empirical research in marketing but seems to

offer significant potential for application. The need for high levels of stimulation has been found to be positively related to the acceptance of new retail facilities (Grossbart, Mittelstaedt, and Devere 1976); new product trial (Mittelstaedt, et al. 1976); preferences for novel vacation experiences (Ettel and Wahlers 1984); exploratory tendencies relating to risk taking, variety seeking, and curiosity (Raju 1980); and selected personality traits and demographics (Raju 1980; Joachimsthaler and Lastovicka 1984). In general, the marketing literature supports the notion that OSL appears to be positively related to the degree of exploratory behavior manifested.

A fundamental issue in studies involving optimal stimulation level is the measurement of the OSL construct. Of the available scaling approaches found in the psychology literature, studies published in the consumer behavior literature have principally made use of either Mehrabian and Russell's (1974) Arousal Seeking Tendency Scale (Goodwin 1980; Raju 1980; Ettel and Wahlers 1984; Joachimsthaler and Lastovicka 1984) or the Zuckerman et al. (1964) Sensation Seeking Scale (Grossbart, Mittelstaedt, and Devere 1976; Mittelstaedt, et al. 1976). However, despite the variety of scales purporting to operationalize the OSL construct, to date little research has focused on the construct and content validity of OSL measurement in marketing context studies.

Research Objectives

Recognizing the paucity of marketing research addressing the OSL measurement issue, the present study was conducted to evaluate the efficacy of five alternative OSL-related scales found in the psychology literature in explaining exploratory tendencies in a consumer context.

More specifically, the research was conducted to:

- (1) Examine the measurement congruence among five alternative OSL-related scales.
- (2) Determine the appropriateness of the five alternative OSL-related scales as indicators of consumer exploratory behavior proneness.

The Study

Operationalization of Optimal Stimulation

A questionnaire was developed to measure both the subjects' exploratory behavior proneness and optimal stimulation levels. With respect to this latter issue, several alternative scales pertinent to OSL were included in the instrument to enable a comparison of measurement approaches.

In the psychology literature, OSL has been measured via a number of verbal instruments including the Sensation Seeking Scale (Zuckerman, Kolin, Price, and Zoob 1964), the Change Seeker Index (Garlington and Shimota 1964), the Stimulus Variation Seeking Scale (Penney and Reinehr 1966), the Similes Preference Inventory (Pearson and Maddi 1966), the Desire for Novelty Scale (Pearson 1970), and the Arousal Seeking Tendency Scale (Mehrabian and Russell 1974). Of these measurement approaches, previous studies in consumer behavior have made use primarily of the Sensation Seeking and Arousal Seeking Tendency instruments.

After a review of the available scales, five alternative measurement methods were selected for operationalizing OSL in the present study. Of these five measures, the Arousal Seeking Tendency and Sensation Seeking scales were included based on their popular use in the marketing studies dealing with OSL. Additionally, a more contemporary, abbreviated version of Arousal Seeking Tendency (Mehrabian 1978) was included. (Hereafter, Arousal Seeking Tendency I and Arousal Seeking Tendency II refer respectively to the 1974 and 1978 versions.) According to Mehrabian and Russell (1974, pp. 318-319), arousal seeking tendency reflects an individual's preference for arousal levels. Similarly, Zuckerman (1979, p. 10) describes sensation seeking as a "trait defined by the need for varied, novel, and complex

sensations and experiences..." Fourth, Pearson's (1970) Desire for Novelty instrument was selected because of its relative brevity and general applicability. Pearson (1970, p. 199) defines one's desire for novelty as a "tendency to approach versus a tendency to avoid novel experiences." Finally, Mehrabian's (1976) Stimulus Screening scale was included. The scale, according to Mehrabian (1976, p. 1), is an inverse measure of individual arousability.

Both Arousal Seeking Tendency I and Stimulus Screening instruments consist of 40 items scored on 9-point Likert scales ranging from "very strong disagreement" (-4) to "very strong agreement" (+4). Arousal Seeking Tendency II is similarly constructed but consists of 32 items. The Sensation Seeking Scale and the Desire for Novelty measure, consisting of 40 and 10 items respectively, require the subject to make a forced choice between two competing statements which comprise each item. For Arousal Seeking Tendency I and II, Sensation Seeking, and desire for Novelty -- the total score of the items after appropriate scale reversals indicates the respondent's OSL. In the case of Stimulus Screening, each respondent's total score reflects an inverse measure of OSL.

Exploratory Behavior and OSL

To measure general exploratory tendencies, Raju's (1980, pp. 277-79) 39-item lifestyle-type instrument was included in the questionnaire. Each item was scored on a 7-point Likert scale ranging from "strongly disagree" (-3) to "strongly agree" (+3). When the items are grouped according to Raju's directions and summed after the necessary scale reversals, the 39-item battery is purported to identify seven categories of exploratory behavior proneness. The seven categories include:

- (a) Repetitive behavior proneness: the tendency to stick with the same response over time.
- (b) Innovativeness: eagerness to buy or know about new products/services.
- (c) Risk taking: a preference for taking risks or being adventurous.
- (d) Exploration through shopping: a preference for shopping and investigating brands.
- (e) interpersonal communication: communicating with friends about purchases.
- (f) Brand switching: switching brands primarily for change or novelty.
- (g) Information seeking: interest in knowing about various products and brands mainly out of curiosity.

The 39 items which represent these seven response categories were developed such that they offer a general representation of exploratory tendencies, have demonstrated a lack of social desirability response bias, capture the essence of exploratory behavior as indicated by high item-total correlations, and are generalizable to a variety of populations of interest to marketers (Raju 1980, p. 277).

Data Collection

The questionnaire was administered to a sample of undergraduate business students at a major Midwestern university. A convenience sample of students was used to enable a comparison of results with those reported by Raju (1980) and Joachimsthaler and Lastovicka (1984) based on student data and was justified by the theoretical interest of the research (Calder, Phillips, and Tybout 1981). Subjects were given approximately thirty minutes to complete the instrument. Data reported in the study are based on 69 respondents.

Analysis and Findings

Each subject's responses to the five alternative OSL-related measures were scored in accordance with the procedures described in the literature. A reliability coefficient was calculated for each of the five scales. The results of this procedure are contained in Table 1. All five scales were found to exhibit KR-20 coefficients

greater than 0.7 thus demonstrating sufficient levels of internal reliability.

With respect to the question of the general degree of measurement congruence among the various OSL-related scales, correlations were calculated to assess the overall strength of association among the five instruments. The results of this analysis are included in Table 1. Both measures of Arousal Seeking Tendency exhibited a high intercorrelation as expected since the two instruments share many of the same items. The correlations between Sensation Seeking and both Arousal Seeking Tendency I and II were statistically significant but disappointing given the apparent presumption in prior consumer behavior research that the instruments are virtually interchangeable. However, given the reliability coefficients associated with Arousal Seeking Tendency I and II and Sensation Seeking, the between-scale correlations of .601 and .585 were considered too high to conclude that the scales are entirely different. Desire for Novelty was significantly related to only the Sensation Seeking measure - explaining only 5.9 percent of the variance between scales. As an inverse measure of OSL, Stimulus Screening correlated negatively with both measures of Arousal Seeking Tendency but was not significantly linked to either the Sensation Seeking or Desire for Novelty scales.

The directions and significance levels of the correlation coefficients in Table 1 thus suggest that the first four scales individually appear to reflect some common dimensions of OSL while the Stimulus Screening instrument represents a related inverse measure. However, four out of ten between-scale correlations were not statistically significant; and the levels of shared variance explained by those correlations, significant at $p < .05$, were at best marginal. The analysis, therefore, provides preliminary evidence that despite similarities among the five measurement scales in question, they may be tapping somewhat distinct and different aspects of OSL.

TABLE 1
CORRELATION AMONG ALTERNATIVE OSL-RELATED SCALES^a

Measure- ment Scale	Arousal Seeking Tend I	Arousal Seeking Tend II	Desire for Novelty	Stimulus Screening
Arousal Seeking Tend I	(.881)			
Arousal Seeking Tend II	.957 ^c	(.887)		
Sensation Seeking	.601 ^c	.585 ^c	(.802)	
Desire for Novelty	.168	.206	.242 ^b	(.772)
Stimulus Screening	-.516 ^c	-.519 ^c	-.126	-.226 (.889)

Note: ^aReliability estimates shown on the diagonal.
^b $p < .05$ ^c $p < .01$

An approach to investigate the similarity of two measures is to compare them to a common third measure. Raju's (1980) exploratory tendencies instrument served as such a common benchmark in this study. The 39 exploratory tendency items were scored and summed to yield measures of seven types of exploratory interest. The mean item-total correlation and internal reliability associated with each of the seven exploratory tendency categories were computed (Table 2) and were found to be in reasonable agreement with the figures reported by Raju (1980, p. 279).

Subsequently, the five OSL scores for each respondent were correlated with the scores associated with these seven exploratory tendency dimensions.

TABLE 2
MEAN ITEM-TOTAL CORRELATION AND RELIABILITY
FOR EXPLORATORY BEHAVIOR CATEGORIES

Exploratory Tendency Categories	Mean	
	Item-Total Correlation	Kuder-Richardson Reliability Coeff
Repetitive Behavior		
Proneness	.540	.591
Innovativeness	.550	.745
Risk Taking	.592	.761
Exploration via Shopping	.703	.803
Interpersonal Communication	.726	.561
Brand Switching	.573	.677
Information Seeking	.492	.669

The results of this procedure are shown in Table 3. The correlations between Arousal Seeking Tendency I and II and the exploratory categories were statistically significant with the exception of "interpersonal communication." Further, the respective degrees of association were found to be in reasonable accord with similar figures reported by Raju (1980, p. 279) in his study using Arousal Seeking Tendency I as an operationalization of OSL. However, the association between the exploratory tendency dimensions and the remaining OSL-related measures included in Table 3 was less than satisfactory.

Two general findings emerged from this correlation analysis. First, the level of variance associated with the exploratory tendency dimensions explained by either of the Arousal Seeking Tendency measures was substantially different (greater) than that explained by any of the remaining OSL-related instruments under study. Second, of the seven exploratory response dimensions, "repetitive behavior proneness" appears to be statistically related to the largest number of the various OSL measures. Thus, the analysis offers evidence that with respect to Raju's set of exploratory tendency categories the five alternative OSL scales appear to capture a common element of OSL related to repetitive behavior. However, despite this common thread, the remaining exploratory tendencies are not uniformly represented across alternative OSL measurement instruments.

To further refine the scale comparison, Raju's 39 items were subjected to principal component factor analysis using an oblique rotation. The results, shown in Table 4, produced seven factor with eigenvalues greater than 1.0, explaining 67.2 percent of the total variance. Thirteen items failed to load on any factor and are, therefore, excluded from further analysis.

Four of the factors are virtually identical to the categories of exploratory tendencies defined by Raju as: exploration via shopping (factor 1), risk taking (factor 2), innovativeness (factor 3), and information seeking (factor 7). Additional factors identified but not consistent with Raju's categorization are termed brand sensitivity (factor 4), new product interest (factor 5), and diversive exploration (factor 6).

The OSL scores for each respondent were correlated with the factor scores associated with these seven redefined exploratory tendency dimensions. The results are shown in Table 5. Statistically significant correlations were produced between Arousal Seeking Tendency I and II and exploration via shopping, risk taking, and innovativeness. Sensation seeking was significantly correlated with risk taking. Finally, Stimulus Screening was associated with exploration via shopping and brand sensitivity. The results, though less impressive than those found with Raju's categorization, support the Arousal Seeking Tendency scales as the most representative of consumer exploratory behavior.

TABLE 3
CORRELATION BETWEEN EXPLORATORY TENDENCY
CATEGORIES AND ALTERNATIVE OSL-RELATED SCALES

Exploratory Tendency	Arousal Seeking Tend I	Arousal Seeking Tend II	Sensation Seeking	Desire for Novelty	Stimulus Screening
Repetitive Behavior Proneness	-.334 ^b	-.310 ^b	-.230 ^a	-.239 ^a	.087
Innovativeness	.511 ^b	.499 ^b	.161	.002	-.208
Risk Taking	.468 ^b	.391 ^b	.195	.087	-.161
Exploration Via Shopping	.382 ^b	.393 ^b	-.033	.066	-.263 ^a
Interpersonal Communication	.121	.099	-.048	-.082	-.042
Brand Switching	.298 ^b	.297 ^b	.127	.114	-.061
Information Seeking	.244 ^b	.262 ^a	-.028	-.037	-.065
Total Exploratory Tendencies	.482 ^a	.465 ^b	.169	.024	-.190

Note: ^ap<.05 ^bp<.01

TABLE 5
CORRELATION BETWEEN EXPLORATORY TENDENCY
FACTORS AND ALTERNATIVE OSL-RELATED SCALES

Exploratory Factors	Arousal Seeking Tend I	Arousal Seeking Tend II	Sensation Seeking	Desire for Novelty	Stimulus Screening
(1) Explor. Via Shopping	.295 ^b	.315 ^b	-.046	-.143	-.346 ^b
(2) Risk Taking	.467 ^b	.380 ^b	.248 ^a	-.032	-.119
(3) Innovativeness	.415 ^b	.458 ^b	.067	.019	-.227
(4) Brand Sensitivity	.067	.107	.067	.029	-.229 ^a
(5) New Prod. Interest	.182	.164	-.015	-.008	-.166
(6) Diverse Exploration	.084	.113	-.031	.103	.172
(7) Informat. Seeking	.090	.077	-.204	-.172	-.094

Note: ^ap<.05 ^bp<.01

TABLE 4
FACTOR STRUCTURE OF EXPLORATORY TENDENCY ITEMS
(Oblique Rotation)^a

Exploratory Item	(1) Exploration Via Shopping	(2) Risk Taking	(3) Innovativeness	(4) Brand Sensitivity	(5) New Product Interest	(6) Diverse Exploration	(7) Information Seeking
2	-.815	-	-	-	-	-	-
23	-.769	-	-	-	-	-	-
4	.785	-	-	-	-	-	-
10	.814	-	-	-	-	-	-
12	-	-.854	-	-	-	-	-
13	-	-.738	-	-	-	-	-
28	-	-.726	-	-	-	-	-
25	-	-.572	-	-	-	-	-
3	-	.714	-	-	-	-	-
31	-	-	-.788	-	-	-	-
11	-	-	-.593	-	-	-	-
34	-	-	.765	-	-	-	-
7	-	-	-	.655	-	-	-
39	-	-	-	.599	-	-	-
27	-	-	-	.625	-	-	-
22	-	-	-	-.672	-	-	-
37	-	-	-	-	.753	-	-
17	-	-	-	-	.652	-	-
18	-	-	-	-	.633	-	-
19	-	-	-	-	-.550	-	-
15	-	-	-	-	-	.777	-
26	-	-	-	-	-	.511	-
20	-	-	-	-	-	-.726	-
24	-	-	-	-	-	-	.632
8	-	-	-	-	-	-	.648
33	-	-	-	-	-	-	-.693

^aFactor loadings less than 0.5 are omitted.

^bItems descriptions have been omitted due to space constraint. The reader is referred to Raju's (1980) original article for a complete listing. Item numbers correspond to Raju's original items.

Conclusions

Based upon the results of this study it would appear that OSL as measured by the Arousal Seeking Tendency scales (I and II) can be related to the consumer activities of exploration via shopping, risk taking, and innovativeness. That is, individuals with high Arousal Seeking Tendency scores are likely, as consumers, to engage in considerable shopping, assume greater risk levels, and behave as innovators. The relationships with other forms of consumer behavior would at best be speculative at this time.

Raju's scale to measure consumer exploratory tendencies proved to be useful as a benchmark for identifying the most appropriate measure of OSL. However, Raju's contention that the scale reflects seven dimensions or types of exploration appears open to question. To improve the description of the consumer behavior of arousal seekers, the scale should be refined. The objective would be a set of attributes in addition to the three substantiated in this study that would describe the consumer exploratory responses of arousal seekers and avoiders.

To the extent that the results reported here are generalizable given the nature of the sample, future buyer behavior studies that attempt to operationalize OSL should use one of the Mehrabian and Russell Arousal Seeking Tendency scales since they most clearly correlate with consumer behaviors associated with exploration. Since the more recent scale (Mehrabian 1978) incorporates more contemporary language and is briefer than the original version of the instrument (Mehrabian and Russell 1974), the newer version should be preferred.

Finally, based on the explained variance between the five scales tested, it would appear that despite some overlap -- each is measuring some unique dimension(s) of OSL. Future research addressing the construct should attempt to determine what these dimensions are and how they relate to consumer behavior.

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TOWARD THE CONSTRUCT OF CONVENIENCE IN CONSUMER RESEARCH

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Abstract

The authors evaluate the notion of convenience as it appears in the existing marketing/consumer behavior literature and explore the multidimensionality of the concept. With the emergence of consumer services in the past decade and the growing movement of the American society toward a service economy, the need arises to investigate consumer convenience in a systematic way. This paper addresses the issue by providing a background analysis of how the term "convenience" has appeared in marketing/consumer behavior literature and what further refinements are needed to define it in the total context of consumer behavior.

Introduction

The idea of convenience was assumably first introduced into marketing by Copeland in 1923 in his HBR article suggesting the now-classic product typology: convenience, shopping, and specialty goods. His original taxonomy has been criticized and modified over the years but the idea of a convenience good as one which requires little if any cognitive decision making has survived. Recently, convenience has been empirically operationalized by various researchers (Douglas 1976; Strober and Weinberg 1977; Strober and Weinberg 1980; Schaninger and Allen 1981; Reilly 1982), but the meaning attached to the term is not that of Copeland or his successors but of time-buying or time savings instead.

The underlying hypothesis of most of these studies has been that the more constraints on a consumer's time, the more likely he/she will be to use convenience products or services, i.e., those products and services that will save or buy time. In a recent paper, however, Venkatesh and Vitalari (1985) demonstrated that not all household technologies lead to net time savings. While the theory (of time savings) is intuitively appealing it has not proven to be strongly supported. Most studies yield insignificant results or only weak support for the hypothesis and the researchers express surprise, and some dismay, at these counterintuitive results.

In this paper, the authors propose some rationale for these enigmatic findings. It is proposed that the research suffers from three problems: 1) insignificant differences in the independent sets, 2) imprecise, "fuzzy" delineation of the dependent sets, and 3) most importantly, the lack of theoretical construction and consideration of convenience as a consumer construct.

The paper begins with a review of the original use of convenience in marketing and the theoretical underpinnings of its present use as equivalent to time savings. The recent empirical research is next summarized and critiqued. The authors then offer some preliminary theoretical development of convenience as a consumer behavior construct. Recent trends are suggested which will lead to an increase in convenience as a primary salient product attribute, and the paper concludes with proposed areas of research the authors believe are needed to develop convenience into a viable consumer construct.

Background

Convenience Goods Perspective

Copeland (1923) defined convenience goods as "those customarily purchased at easily accessible stores...." The consumer is familiar with these articles; and as soon as he recognizes the want, the demand usually becomes

clearly defined in his mind." In 1948, the AMA Definitions Committee defined convenience goods as those consumer goods which the consumer usually purchases frequently, immediately, and with a minimum of effort (Holton, 1958). Shopping and specialty goods entailed a more concerted and cognitive effort on the part of the consumer.

Holton (1958) recognized that goods vary from category to category depending on the perception and shopping propensities of the individual consumer. The consumer will consider a good a convenience (or shopping/specialty) good based upon his/her perception of the "probable gain (large vs. small) from making price and quality comparisons among alternative sellers." Interestingly, Holton suggested that nonworking wives would perceive more goods as shopping goods, while working wives would perceive more as convenience goods due to their greater opportunity cost of time. This deduction marks the link between Copeland's original usage of convenience and the recent time savings connotation.

Bucklin (1963) updated the definition of convenience goods by adding the modern concept of perceptual mapping to indicate the consumer's quick routine decision behavior: "those for which the consumer, before his need arises, possesses a preference map." Apparently, this simple definition has been accepted, by default, by marketing scholars and therefore they do not feel the need to define the term further. For example, Jolson and Proia (1976) assert "there is little disagreement as to the meaning of convenience goods." However, more recent research on the notion of convenience uses the term with a different connotation.

Convenience as a Time Dependent Construct

Through its operationalization in recent research, convenience is overwhelmingly implied to be equivalent to time saving or time buying. The theoretical framework for this new and restricted definition lies primarily in the economic concept of the household as production unit.

Becker (1965), and Michael and Becker (1973) expanded the classic economic consumer choice behavior model to include time. The classic model describes purchase behavior as a utility function in which the consuming unit attempts to maximize utility subject to constraints of income and relative prices of goods. In order to account for variations of demands (other than by the traditional economic catch-all of tastes), Michael and Becker suggest that the household produces basic commodities through the productive activity of combining purchased market goods and services with the household's own time. The household's "full income" then is composed of monetary income and total available time. Income and time constrain the production capabilities of the household.

Michael and Becker allude to the time saving connotation of recent researchers:

"it has long been recognized not only that consumers sell time in labor markets, but also that they buy time in the form of certain consumer goods and services: (these goods and services) are all in some measure time-savers. The demand for such items would be quite different if time were not a scarce resource" (1973).

Etgar, utilizing the notion of the household as a production unit, offers the marketing theory behind the recent empirical work conducted on convenience consumption

(Etgar 1978). He adds the consumption time component to previous Consumer Behavior models, transforming previous choice models into an overarching consumption model.

From the paradigm of the household as production unit, researchers, in general, hypothesize that consumers with greater time constraints will attempt to buy or save time through purchase of convenience goods (e.g., frozen dinners) and time saving durables. This intuitively appealing hypothesis, derived from the just mentioned theoretical background, has been empirically studied in the past ten years.

Findings from Previous Research

Studies, conducted within the last decade, have tested the time saving notion of convenience. However, most of these studies have focused on convenience consumption levels of working wife (WW) versus nonworking wife (NWW) households. Only one major study included single adult households in the study sample, and unfortunately for comparison's sake, it was merely an exploratory study (Hendrix 1984).

The empirical studies have found few significant differences in ownership of time saving durables or convenience good purchases between WW and NWW households. Strober and Weinberg (1977) considered the difference in purchase of time saving durables between WW and NWW households. Data from the 1968 Michigan Survey Research panel on Survey of Consumer Finances revealed no significant difference once income was taken into account. Mallan (1968), working with 1963-64 data, did find significant differences in WW families' likelihood to purchase durable goods. In 1980, Strober and Weinberg replicated and expanded their previous study using 1977 data and again found no significant differences between strategies used to cope with time pressures between NWW and WW households. "Convenience foods" were included as a variable in this latter study. Douglas (1976), too, found no significant difference in purchase of "convenience foods." Waldman and Jacobs (1978) also found no significant difference concerning expenditures for food away from home.

Schaninger and Allen (1981), noting the insignificant results of previous research, looked to wife's occupational status as an intervening variable to explain ownership of durables and purchase of many different products, including convenience foods. Results did indicate that, though WW and NWW households did not show a difference, wife's occupational status did explain some of the variation in consumption of convenience foods, but no significant difference in use of convenience stores and only weak support for ownership of appliances and durables.

Reilly (1982) conducted a study hypothesizing that role overload may be an intervening variable in the convenience consumption process. He found only weak support that those WW households reporting role overload consume more convenience foods and time saving durables. Interestingly, Reilly was the first empirical researcher to strongly suggest that the problem of the previous research may have been due to insufficient theoretical development of convenience as a construct:

"It may be that the measure of convenience consumption used in this and similar research is not particularly sensitive. Individuals may or may not use the measured convenience foods for a number of reasons other than a desire to save time. Similarly, the ownership of time-saving durables may be motivated by considerations other than work-load reduction. Some measurement research is needed to identify behavioral measures of convenience consumption which are not confounded with other factors.

"A second possibility is that the factors which influence the use of convenience foods and the ownership of time saving durables are not well explicated.

It may be that one or more important factors were omitted here. Further research is needed to identify these factors, so that our knowledge of convenience-consumption determinants might be more complete."

The foregoing empirical studies suffer from three problems. First, the independent variables in the studies were restricted to husband-wife households. Comparisons between the stratified groups (NWW, WW, and other slightly different variations) were then made. We suggest that the stratifications (clustering) of the groups were not dissimilar enough to allow for detection of significant differences in level of time saving durable ownership and convenience good consumption. In other words, the between treatment variation was not large enough to permit the emergence of significant differences on the dependent variables. It is possible, and we believe probable, that similar empirical studies utilizing strata representing all possible household types (i.e., singles, husband-wife, single parent, non-traditional households) would reveal significant differences in the dependent variables.

Compounding the problem of independent variable uniformity is the impreciseness in the operationalization of the dependent variables. The variables "time saving durables" and "convenience goods" were fuzzily delineated. Time saving durables included such commonly owned appliances as refrigerator, stove, freezer, waffle iron, drip coffee maker, and oven timer. Convenience goods included a wide variety of everyday products such as cream cheese spread, seasoning mixes, bottled juices, hot dogs, frozen vegetables, and teabags. Given the wide distribution and common usage of the just mentioned products, we believe these operationalizations measure the dependent variables in a very ambiguous, nonsensitive manner.

Lastly, but most importantly, the studies had a limitation because little specific theoretical development was undertaken to define the convenience construct. Few attempts have been made to reduce the ambiguities involved in the definition and operationalization of convenience. A construct can only be given clearer meaning when placed in a theoretical context which relates it to other variables. The simple unidimensionality of convenience as a time saving has proven too ambiguous for successful empirical study.

We believe it is time to pause in our empirical research and to reconsider the composition of convenience with some preliminary theoretical development. Hopefully, such theory development will lead to more fruitful operationalization of the construct.

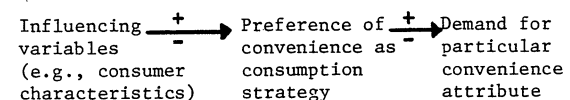
Convenience Issues in Marketing

There are two levels at which convenience becomes an important issue in marketing: 1) the determination of convenience seeking consumer segments, 2) the determination and inclusion of convenience attributes in products and services.

Figure 1 illustrates a modeling of these two related issues.

FIGURE 1

RELATION OF CONVENIENCE ISSUES



The influencing variables are characteristics of the individual consumer. These variables will increase or decrease the consumer's preference for convenience as a consumption strategy. A high preference for convenience

will lead to a heightened demand for products the consumer perceives as fulfilling his/her convenience consumption strategy. Hence, characteristics of the product and its marketing become important in motivating convenience-preferring consumer segments to purchase a product/service.

Convenience thus represents an important construct on two levels: a consumption behavior level and a product attribute level. Marketers must understand the complexity of convenience in order to determine convenience seeking consumer segments and to design products and marketing for these segments which highlight consumer perceived convenience attributes.

Proposed Variables Influencing Convenience Preference

Etgar (1978), Feldman and Hornik (1981), Hendrix (1984), and Nicosia and Mayer (1976), each called for researchers and marketers alike to consider the multidimensionality of the entire household production/consumption/time allocation function. In that context, convenience, as an integral factor in consumption, should be considered in psycho-behavioral as well as simple economic and temporal terms. What follows is only an admittedly first tentative step toward theoretical development of a multi-dimensional construct of convenience.

By and large, convenience has been implied to involve two variables, economic and temporal. The economic dimension simply articulates the monetary value of time; that the individual can sell his time for money, or refrain from selling his time, thus incurring an opportunity cost (Mincer 1963; Becker 1965).

The temporal variable, which has been mentioned throughout the first section of this paper, also refers to the consumer's ability to buy or save time, which is strictly constrained to the total available number of hours represented by the number of members in the household times 24 hours per day. Thus both the economic and temporal variables reduce to the same thing. We believe a single temporal/economic dimension inadequately delineates convenience. One could deduce that all consumption in any trade economy can be considered convenience consumption. For example, a woman buys a suit for work because she does not have time to sew; another woman buys wool cloth to sew a suit because she does not have time to weave. Still another woman buys sheared virgin wool because she does not have time to raise sheep! Additional variables need to be considered in order to gain clearer meaning of convenience in the consumption process.

For preliminary discussion and exploration, we suggest the consideration of the following variables: spatial, psychological, sociological, philosophical, and situational.

The spatial variable is inferred from the temporal/economic and variable. Proximity in location or in time offers utility to the consumer in a simple efficiency sense. This spatial sense is colloquially "being in the right place at the right time." It is this sense that Copeland implied in his original work. Once the consumer recognizes a need, the first opportunity to fulfill that need will be taken. The consumer will prefer to satisfy several needs in one location if given the option, as long as the economic cost incurred is not seen as significant.

There is also a psychological variable. The values, personality, opinions, attitudes, abilities, and preferences of an individual will influence his/her choice of consumption behavior. Different individuals will have different preferences for each style of consumption, each consumption strategy (Etgar 1978). A traditional mother-wife may place great value on her role as nurturer and therefore she will prefer consumption strategies which allow her to actively participate in production activities which she perceives as nurturing to her family. This same

woman, when placed in a more time constrained situation (e.g., she takes a job outside the home), will most likely continue with her values and traditional consumption strategy in order to maintain her feelings of fulfillment as nurturer. Many examples such as this can be suggested to demonstrate the importance of the psychological dimension of convenience. All that will be emphasized here is that, just as psychological variables influence all individual behavior, similar variables will influence the consumer's want for, and perception of, convenience.

The construct of convenience also includes a sociological dimension, again as all human behavior does. The various roles that an individual plays will influence the individual's perception of, and use for, convenience. Reference groups such as family, church, state, and peer groups all will contribute to the importance and meaning of convenience to the individual. In addition, social class, race and cultural norms and values may suggest or preclude certain behaviors which have an impact on convenience as manifested in society. The classic story of the rationale for the exclusion of powdered eggs from cake mixes serves as an example of cultural norms influencing socially acceptable convenience-seeking behavior.

Cultural and personal values, in their most macro sense, give rise to differing philosophies. There may indeed be a philosophical dimension to convenience. Above and beyond apparent cultural norms, the individual's philosophy of life may affect his/her perception of convenience and whether or not he/she chooses to value convenience as a product attribute or benefit of behavior. Those 1980's consumers with a conservationist philosophy of life decry many "convenience" products, e.g., disposables, aerosols.

Lastly, one would expect convenience to include a situational variable. As product choice has demonstrated situational variation (Belk 1975, 1979), convenience perception and need can also be expected to vary among differing usage situations. Hornik (1982) found that time allocation was situationally influenced. As convenience admittedly includes a temporal dimension, one can deduce that in severely constrained time situations, convenience may be of greatest importance. In less time constrained situations, convenience may not be considered salient at all. Similarly, other variables of convenience may be situationally affected.

Additionally, convenience may vary depending on purchase situation. For example, convenience (in its spatial sense) may lead to situationally suggested impulse purchasing where there had not been any previous purchase intent. The inclusion of florist departments in supermarkets assumably gives rise to many impulse purchases of flowers and floral arrangements for the evening meal that otherwise would not have been considered by the consumer.

The lack of empirical evidence supporting the simple singular time savings notion of convenience implies that the construct is more complex, with a number of variables interacting to determine the individual's need for and perception of convenience. Convenience apparently is many things to many people and it may vary among, and within, individuals along the variables just outlined.

Proposed Consumer Perceived Convenience Classes

In order to develop a more comprehensive concept of convenience, we explored a list of factors which the consumer may perceive as making a product "convenient." The many factors can be grouped into six categories, six "classes of convenience": time utilization, handiness, appropriateness, portability, accessibility, and avoidance of unpleasantness.

Table 1 lists these six classes of convenience with some product examples which we believe demonstrate each class. The six classes can be seen as marketing strategies which have been used by companies to meet consumer perceived convenience needs. Many of the products/services could

be included under more than one class but each product/service is listed only once under the class we believe is most applicable.

TABLE 1
CONVENTIONAL CLASSES
AND
SAMPLE PRODUCTS/SERVICES

Time Utilization	Fast food restaurants Child care Housekeeping chores Federal Express
Accessibility	Branch banking Vending machines Drive-up windows Frequent bus schedules 800 numbers (telephone)
Portability	Tapes vs. records Personal computers/ electronics
Appropriateness	Take-out food Frozen entrees Liquid margarine
Handiness	Frozen orange juice Movie rentals Under-cabinet appliances
Avoidance of Unpleasantness	Home and yard maintenance Disposable diapers Dishwasher

The time utilization class of convenience is the single type of convenience that has been operationalized in the research cited in this paper. It implies a time saving or time buying utility. But the consumer's preference for the time saving utility of a product depends on many considerations. Is there an assignable monetary opportunity cost to the consumer's use of the specific time of day, e.g., 7:00 p.m.? What amount of time does the consumer have available to allocate among consumption activities? Is the consumption time perceived as being enjoyable or creative? Can the time spent in consumption be combined with other rewarding activities, such as socializing with friends/family, watching the evening news, etc.? A most important element in choice of consumption activity may be the degree to which the activity is appreciated/rewarded by significant others, e.g., mother cooking evening meal for family.

The handiness class of convenience refers to effort saving capability. This classification represents "ease of production." A product may be viewed as convenient because it makes the consumption activity easier to perform. A food processor cuts, chops, etc. with more uniformity, speed, and with less mess than the equivalent manual activity. In addition, handiness can imply flexibility of use or production. A single appliance serves many functions, thus "easing" several different production processes.

Appropriateness refers to fittingness to specific needs. Single serving cans fulfill a specific need for single consumers. The new, under-the-cabinet appliances fill a specific need to have an appliance close at hand while still maintaining clear counter space. Gourmet frozen entrees provide singles with variety in their diet without the need to purchase and store the wide assortment of staples necessary to produce the dishes or to purchase larger than needed quantities of perishables. A further "convenience" the entrees provide is the lack of interminable leftovers that the single would otherwise accumulate.

Portability allows the consumer to consume the product in any location he/she desires. Individual packaging, dehydration, and several modern preserving methods make foods more "portable" in this convenience sense. The portable computer and the "Walkman"-type stereo allow the consumer to gain concomitant utilities, e.g., perform work while traveling and listen to music while exercising.

Accessibility is a primary class of convenience. This category includes proximity of location, availability when consumer desires product, and flexibility of delivery of product. The all-under-one-roof malls and superstores provide a variety of goods which are in the right place at the right time. Doctors and other professionals provide appointment times in the evening to be accessible when the consumer is free to partake of their services. Mail-order catalogs and videotex services allow the consumer to shop at his/her leisure at any time of day, any day of the week.

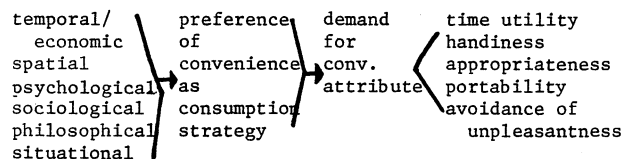
Avoidance of unpleasantness is a class of convenience in that it allows the consumer to forego an activity that he/she previously had to perform but did not enjoy. This concept includes a preference or relativity aspect. The consumer prefers other activities to activities that must be performed. The consumer would consider it "convenient" to have the necessary activities performed by someone other than him/her-self.

Figure 2 incorporates our proposed influencing variables and convenience classes into the previously illustrated convenience issues diagram (Figure 1). The proposed influencing variables increase or decrease the likelihood of a consumer choosing a convenience consumption strategy. If such a strategy is chosen the consumer will then compare products on one or more of the proposed convenience class attributes.

We are therefore suggesting that choice of convenience as a consumption strategy is a function of the previously mentioned influencing variables, and that consumer perception of a product as convenient is a function of the six just mentioned classes of attributes.

FIGURE 2

PROPOSED CONVENIENCE CONSUMPTION MODEL



Implications and Suggested Research Directions

We believe it is especially important to seriously and systematically study the idea of convenience at this time because a myriad of trends foreshadow that convenience, as theoretically discussed in this paper, will become a dominant salient attribute of virtually all products consumed in American society.

Existing research has already emphasized the hypothesized effect of the increasing proportion of women working on the demand for convenience. There are also many non-time-constraining trends which increase the likelihood of heightened demand for convenience.

Americans, with increased affluence gained via attainment of high levels of education and dual income/career households, are demonstrating a new frame of mind. Housework, chores, and traditional house and family maintenance activities are being seen as menial and

non-fulfilling. No longer is a woman a bad mother or unskilled woman if she can not bake a good pie or sew a practical dress. A man no longer need fear for his masculinity if he does not fix cars, mow the lawn or chop wood. The "upscale" American would simply prefer to pay others to fulfill such functions which are seen as boring or unpleasant. The affluent consumer is more and more likely to choose to devote non-working time to sports and hobbies.

The family structure of the country has changed markedly over the past 15 years, giving rise to a large minority of single person households and other non-traditional family patterns. These non-traditional households assuredly have different consumption needs and preferences than the traditional unit of husband, housewife, two kids, and a dog.

Marketers have responded to the increased level of affluence by offering products and services which could not have been afforded by a less affluent society. The mere availability of such new convenience services such as videotex and other electronic services increases the consumer's awareness of the "convenience attribute," and may increase his/her demand for "convenience" in virtually any goods.

All of these trends--increased time demands, greater affluence, increasing percentage of non-traditional households, and availability of new products--lead to the deduction that convenience as a construct and product attribute will become increasingly important to consumers, and marketers, in the future. Therefore, convenience needs much research effort in order to be utilized as a fruitful marketing construct. This concluding section represents a suggested path for future research.

First, an exploratory study is needed to gain preliminary knowledge on the perceptions consumers have concerning convenience. This exploratory effort would yield information concerning the variables influencing perceived need for convenience and information about product attributes perceived as making one product more convenient than another. Those mentioned in this paper may or may not be found to underlie convenience in the minds of consumers. Only ethnographic research can provide qualitative knowledge upon which to build the construct and lead to more valid and reliable operationalization of the construct in empirical testing.

After exploratory research has been conducted, theories and models must be generated in order to develop hypothetical links between convenience and other marketing and social science concepts and constructs. Once preliminary theories have been articulated, empirical studies need to be conducted, testing specific hypotheses. Samples representative of consumers at large need to be utilized in order to develop complete conceptualizations. Researchers need to begin to study the construct from the point of view of all household types. One can easily argue, for example, that single person households are under the severest time constraints in that there is no other household member to share in the consumption/production process.

Finally, after empirical tests have been conducted on a variety of theoretically derived hypotheses, it will be necessary to integrate the construct of convenience into the consumer behavior model and the broad area of marketing. The construct, once satisfactorily defined, operationalized, and understood, should then be applied by marketing practitioners to more effectively and efficiently deliver the products and services needed by the modern consumer. If the aforementioned trends do indeed give rise to greater consumer need for "convenience" as a product attribute and benefit, marketers must be aware of the complexity of the construct.

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A RE-EXAMINATION OF COMMUNICATION CHANNEL USAGE
BY ADOPTER CATEGORIES

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Abstract

Because early adopters are pivotal in securing widespread acceptance of new products, they have been the subject of much research. Of particular interest in understanding the diffusion of innovations is the question of how early adopters find out about new products, and whether and how they communicate this information with others. Systematic research on the use of mass media channels compared to interpersonal channels by different adopter categories is notably absent in consumer research. This paper reports the results of research undertaken to examine communication channel usage by different adopter categories for consumer nondurable products. Results of a nation-wide study of 1531 households indicate that earlier adopters find mass media sources relatively more important than later adopters. However, earlier adopters rate both mass media and interpersonal sources as more important than later adopters. Earlier adopters also are more likely to transmit information than later adopters. These results are discussed in light of the media intensiveness of consumer goods markets.

Introduction

The diffusion of innovations is a communication process in which interpersonal transmission of information is of primary importance in facilitating awareness and trial of new products. Early purchasers have been the subject of much research partially because they are recognized as being pivotal in securing widespread acceptance of new products through their communicated experiences. The answers to two questions are of particular interest in understanding the diffusion of innovations: 1) how do earlier adopters find out about new products? 2) how do they communicate this information to later adopters? It is important to recognize that the questions address both the intake and transmission of information.

In answering the question pertaining to the intake of information by adopter categories, the literature suggests that earlier adopters rely on mass media more than interpersonal channels in making the adoption decision (Rogers 1983, Robertson and Gatignon 1985). A number of diffusion models are predicted on the assumption that the earliest adopters purchase products independently of the communicated experience of others (Bass 1969, Midgley 1977, Midgley and Dowling 1978, Horsky and Simon 1983). Rogers (1983) summarizes the relative reliance on mass media over interpersonal sources by adopter categories with the following generalization: "Mass media channels are relatively more important than interpersonal channels for earlier adopters than for later adopters," (p. 201). This same notion is proposed by Robertson and Gatignon (1985) (see proposition 26, page 851). Despite widespread acceptance of this generalization, there is little systematic research comparing adopter categories on use of mass media relative to interpersonal channels. While some research in marketing has shown that earlier adopters have greater exposure to mass media than later adopters (Summers 1971), the research has not explored the relative use of mass media and interpersonal sources in product purchase decisions.

In answering the question about the nature of information transmission by the various adopter groups, research indicates that earlier adopters communicate their experiences with products to others and are central to the acceptance of innovations by later adopters (Arndt 1967; Engel, Kegerreis, and Blackwell 1969; Midgley and Dowling 1978; Sheth 1971). In fact, a number of writers have noted that

interpersonal information transmission by earlier adopters is necessary for the cumulative diffusion curve to attain its familiar S shape (Midgley 1977, Mahajan and Mueller 1979).

In summary, accepted thinking regarding the information acquisition and transmission of adopter groups suggests that earlier adopters make their purchase decisions more-or-less independently of input from others. These individuals then serve as models for an imitation effect which occurs actively through word-of-mouth and/or passively in the case of highly visible innovations. This model suggests a one-way flow of communication from earlier adopters to later adopters. There is a substantial amount of intuitive appeal to this view. It seems reasonable to assume that at the earliest stages of introduction, the first adopters of a product must find out about its existence through mass media (or other seller-sponsored sources) since there is typically little opportunity for interpersonal information exchange until there is an awareness of the product's existence.

For a number of reasons, this model of the diffusion process deserves reexamination despite its intuitive logic. First, the model seems to be inconsistent with a number of studies which have found the diffusion of information to be more of an exchange process than a unidirectional flow (Arndt 1954, Whyte 1967). Second, research evidence in support of the model is limited. Of only ten studies that addressed the question, Rogers (1983) notes that eight studies supported the tendency of earlier adopters to rely more heavily on mass media sources than later adopters. All of the studies cited by Rogers, however, involved new agricultural technologies. Thus, the model is based primarily on research involving major, discontinuous innovations. These types of products and their associated information media are dissimilar to those found in consumer product markets. In consumer product markets, continuous innovations dominate discontinuous ones and appear to be a more relevant focus for inquiry by consumer researchers. Finally, the acquisition and transmission of information by earlier adopters has rarely been studied simultaneously in consumer settings. Past research, therefore, offers little insight into whether innovators who report a higher reliance on mass media information sources are also inclined to transmit information to other buyers.

The purpose of this research was to examine differences in earlier and later adopters both on the relative use of mass media sources of new product information, and also on the transmission of new product information. This study is unique in that it: (a) explores both the intake and transmission of information, (b) measures the relative reliance on mass media versus interpersonal sources, and (c) explores these phenomena in the context of the adoption of new products in frequently purchased product categories which are typified by continuous innovation rather than major discontinuous innovations.

Method

Data Collection Procedure

Data used to examine the sources and transmission of information by adopter categories were obtained from telephone interviews. The final data collection instrument was preceded by pilot testing designed to refine the measures. In total, 425 students were used in the pilot testing phase. The questionnaire on which the results presented

in this study are based, was administered by telephone interviews conducted during the middle two weeks of August 1984. Sample selection was done by random digit dialing of the 48 contiguous states. The researchers assigned sex, alternating male and female, to the telephone numbers. Interviewers then screened for either male or female head of household. In homes in which that person was not available, call backs were scheduled; in homes in which the person of the assigned sex did not exist, the interview spoke with the sole household head. Initial calls were made between the hours of 3:30 p.m. and 9:30 p.m. local time with call backs scheduled for any time convenient for the respondents. A minimum of three call backs per telephone number were made in an attempt to contact the pre-assigned household head.

A total of 1531 interviews were completed. The response rate (completed interviews as a percentage of eligible interviewees; where eligible interviewees are defined as the sum of completed interviews, refusals, and terminations) was 47 percent. The demographics of the respondents, with the exception of sex, closely approximated those of the 1980 census and recent updates. The sex distribution of the sample (64 percent female and 36 percent male) was significantly different from that of the population of household heads (57 percent female and 43 percent male).

Development of Measures

Definition of Adopter Category Membership. Traditionally, innovativeness has been viewed as a behavioral variable and defined as the actual adoption of a product. As a result of this definition, most studies have examined innovativeness by focusing on individuals who have adopted a new product at a single point in time (Assael 1983, Kotler and Zaltman 1976). This approach to studying innovativeness is plagued with at least three limitations. First, examining only the time of adoption does not consider differences in the time which elapses between exposure to the innovation and actual adoption (Kotler and Zaltman 1976). Second, such a measure is incapable of making the distinction between the product-specific and the general innovator (Midgley and Dowling 1978). Finally, as Midgley and Dowling (1978) suggest and Carlson and Grossbart (1984) empirically support, actual adoption is mediated by a host of situation specific variables.

As a consequence of these limitations and in an attempt to improve the generalizability of the findings, we used a single item self-designation method for identifying membership in the adopter groups. Half of the respondents were asked: "In general, when new food and common household products first appear on the market which of the following best describes when you are likely to buy the item? Would you say that you are among the first to buy it, you buy before most the majority of people, you buy at about the same time as most people, you buy after most people, or you buy much later than most people?" The other half of the sample was asked the same question except that the product class considered was "non-prescription drugs and health and beauty products". These product categories represent a substantial portion of consumer nondurables which were the focus of this study. The time-of-adoption measure used in this study aggregates across the two halves because initial analyses indicated that there were no differences between the two groups on the variables of interest in this research. Each of the five responses to the question was designed to correspond to one of the five adopter categories defined by Rogers (1962) -- innovators, early adopters, early majority, late majority, and laggards respectively. Our measure of time of adoption seemed to have reasonable convergent validity as it was correlated with a number of other measures that also appear to tap the construct of innovativeness. For example, the correlation between our measure of innovativeness described above and an item stated "I usually try a new product shortly after I learn that it is on the market" was to be .39, and .28 with an item stated "I am the kind of person who would try any new once."

Information Transmission. We defined information transmission to be an individual's tendency to share new product and other information with friends or acquaintances. Five items required respondents to indicate, on a seven-point scale, the extent to which they agreed or disagreed with statements pertaining to their information transmission tendencies. These items were:

1. I like helping people by providing them with information about many kinds of products.
2. My friends think of me as a good source of information when it comes to new products or sales.
3. I like introducing new brands and products to my friends.
4. People ask me for information about new products, and places to shop for sales.
5. If someone asked me where to get the best buy on several types of products, I could tell him or her where to shop.

The correlation between these five items was high, ranging from .43 to .55.

Reliance on Mass Media Relative to Interpersonal Information Sources. Reliance on mass media was measured by taking the average level of importance ascribed to four media (television, radio, magazines, and newspapers) in obtaining new product information.

Reliance on interpersonal sources was measured by a single item which required respondents to indicate the importance of friends and relatives in obtaining a new product information. Seven-point very important/not very important scales were used to measure both mass media and interpersonal source importance. For both sources of information, the items were framed in product-specific terms. For example, "When considering new food or common household products, how important to you are the following sources of information?"

Results

Definition of Adopter Categories

As illustrated in Table 1, the definition of adopter categories based on the self-report measure of innovativeness employed in this study closely mirrors the distribution proposed by Rogers (1962) and provides face validity for the measure.

TABLE 1

	This Study	As Proposed by Rogers
Innovators	5.5%	2.5%
Early Adopters	10.4	13.5
Early Majority	40.9	34.0
Late Majority	20.5	34.0
Laggards	22.7	16.0

Information Channel Usage Across Adopter Groups

The results on the importance of mass media and interpersonal sources of information are presented in Table 1. A one-way analysis of variance indicated that adopter groups differed in their the use of both mass ($F=29.1$, $p < .001$) and interpersonal information ($F=8.7$, $p < .001$) sources. The importance of both types of information declined with later adoption. The results, however, provided only partial support for previous research suggesting

greater importance of mass media sources among earlier adopters. Mass media sources had the greatest relative importance among earlier adopters. For example, the ratio of the mean on mass media to the mean on interpersonal sources for innovators was .97, while this ratio for the late majority was .85. However, mass media sources were consistently regarded as less important than interpersonal sources across adopter groups. While innovators and early adopters ascribed the greatest and second greatest importance, respectively, to mass media sources of information, they also were the adopter groups reporting the greatest importance of interpersonal sources. Among all of the adopter groups except for innovators and early adopters, the mean importance of interpersonal sources was significantly greater than mass media sources. In the innovator and early adopter groups the mean differences between mass and interpersonal sources were not significant.

The percentage changes in means by adopter categories included in Table 2 indicate that the decline in mass media sources importance is more precipitous than the decline of interpersonal source importance across the adopter categories. In addition, the table indicates a dramatic decline in the importance of both types of sources for the laggard group compared to the late majority.

Information Transmission

To examine the extent to which the adopter groups differed on disseminating product related information, the five items measuring information transmission were compared across groups. As reported in Table 3, one-way analysis of variance indicated significant differences among the groups on all four items. The tendency to actively disseminate information is highest for earlier adopters and declines sharply for later adopters.

TABLE 2

VARIATION IN INFORMATION SOURCE USAGE ACROSS ADOPTER CATEGORIES

Adopter Group	Mass Media Sources		Interpersonal Sources		N	t
	Mean	Pct. Chg.	Mean	Pct. Chg.		
Innovators	5.03 (1.16)	---	5.16 (2.03)	---	77	.54
Early Adopters	4.84 (1.16)	3.9%	5.10 (1.54)	1.1%	147	1.90
Early Majority	4.54 (1.29)	6.6	5.00 (1.66)	2.0	572	5.94**
Late Majority	4.19 (1.14)	8.3	4.93 (1.78)	1.4	287	6.57**
Laggards	3.73 (1.58)	12.3	4.36 (2.03)	13.1	320	5.46**
F	29.1*		8.7*			

* p < .01
** p < .001

Figures in parentheses are standard deviations

A Closer Look at Acquisition and Transmission by Earlier Adopters

Because of the critical role played by earlier adopters in transmitting new product information, and because only partial support for previous research was obtained, we decided to do further analysis of the data. Of particular concern was the possibility that in aggregating we had obscured a group of earlier adopters who are mass media specialists. As a consequence, the sample was divided according to their relative usage of mass media sources. Individuals with a positive difference between mass and interpersonal source importance were classified as mass media intensive and those with a negative difference were classified as interpersonal source intensive. In addition, we divided the sample into earlier adopters (innovators and early adopters) and later adopters (early and late majority and laggards). We then examined the differences among the groups on information source importance and information transmission.

TABLE 3

MEANS AND STANDARD DEVIATION ON INFORMATION TRANSMISSION ITEMS BY ADOPTER GROUPS

ITEM	ADOPTER GROUP					F
	Innovators	Early Adopters	Early Majority	Late Majority	Laggards	
I like helping people by providing them with information about many kinds of products.	5.35 (1.62)	5.12 (1.72)	4.64 (1.87)	4.23 (1.99)	3.97 (2.18)	15.6*
My friends think of me as a good source of information when it comes to new products or sales.	4.82 (1.79)	4.70 (1.77)	4.38 (1.78)	3.93 (1.89)	3.77 (2.12)	11.5*
I like introducing new brands and products to my friends.	4.65 (1.98)	4.83 (1.81)	4.03 (1.93)	3.67 (2.12)	3.17 (2.12)	23.8*
People ask me for information about products, places to shop or sales.	4.83 (2.00)	4.68 (1.85)	4.13 (2.01)	3.77 (2.01)	3.59 (2.08)	13.1*
If someone asked me where to get the best buy on several types of products, I could tell them where to shop.	5.38 (1.75)	5.17 (1.65)	4.87 (1.78)	4.42 (1.92)	4.20 (2.13)	13.3*

* p < .001

Figures in parentheses are standard deviations

Table 4 presents the results of these analyses. The F statistics indicated significant differences among the groups for the information source importance items. This result was expected since these questions formed the basis for defining the groups. The F statistics for the information transmission items also indicated significant differences among the groups. Post hoc comparisons (Scheffe procedure at $\alpha = .05$) of the information transmission items across the groups indicated that the mass media and interpersonal source specialists (i.e., the differences between groups 1 and 2 and between 3 and 4 in Table 4) are not significantly different among either the earlier or later adopters. However, mass media specialists in the earlier adopter group (group 1) differed significantly from their later adopter counterparts (group 3) on four of the five information transmission items. Similarly, interpersonal source specialists in the earlier adopter group (group 2) significantly differed from their later adopter counterparts (group 4) on all of the five information transmission items. Thus, the difference in information transmission among the groups appears to arise from the effect of the time of adoption, not relative use of mass media within the groups. However, there is a consistent, but nonsignificant, tendency for the interpersonal source intensive consumers to be slightly higher on transmission than the mass media intensive consumers. This tendency occurred in both earlier and later adopters.

In summary, the results indicated that the importance of both mass media and interpersonal sources of information was greatest among earlier adopters and declined steadily across later adopter categories. Mass media sources were relatively more important for earlier than later adopters. However, in all adopter groups, the importance of interpersonal sources was greater than mass media sources of information. While the tendency to transmit information was greatest for earlier adopters, there was no relationship between the tendency to transmit information and sources of information used to learn about new products.

TABLE 4

COMPARISON OF MEANS OF INFORMATION SOURCE IMPORTANCE AND TENDENCY TO TRANSMIT PRODUCT RELATED INFORMATION FOR MASS MEDIA INTENSIVE AND INTERPERSONAL SOURCE INTENSIVE CONSUMERS

Information Source Importance	Earlier Adopters		Later Adopters		F
	(1) Mass Media Intensive	(2) Interpersonal Intensive	(3) Mass Media Intensive	(4) Interpersonal Intensive	
Mass Media	5.06 (1.34)	4.39 (1.21)	4.72 (1.56)	3.89 (1.32)	49.34**
Interpersonal	3.69 (1.88)	5.89 (1.16)	3.47 (1.83)	5.67 (1.23)	26.23**
Information Transmission					
I like helping people by providing them with information about many kinds of products.	4.76 (2.13)	5.07 (1.68)	4.88 (2.14)	4.43 (1.95)	9.14**
My friends think of me as a good source of information when it comes to new products or sales.	4.36 (2.08)	4.68 (1.75)	4.01 (2.01)	4.10 (1.90)	4.56*
I like introducing new brands and products to my friends.	4.37 (2.16)	4.70 (1.89)	3.61 (2.09)	3.72 (1.98)	15.32**
People ask me for information about products, places to shop or sales.	4.40 (2.17)	4.61 (1.87)	3.98 (2.05)	4.08 (1.93)	8.18**
If someone asked me where to get the best buy on several types of products, I could tell them where to shop.	5.02 (2.03)	5.00 (1.73)	4.47 (2.05)	4.57 (1.88)	4.91*
N	123	158	495	749	

Earlier adopters included innovators and early adopters.

Later adopters included early majority, late majority, and laggards.

Figures in parentheses are standard deviations.

*p < .01

**p < .001

Discussion

Our results provide only limited support for previous research on the importance of information sources by adopter categories. Consistent with Rogers' (1983) generalization, later adopters seem more attuned to interpersonal than mass media information sources, and mass media information sources are relatively more important for earlier than later adopters. However, the results on earlier adopters seem to differ from those that might be expected by previous research. Earlier adopters find mass media sources more important than do later adopters, but they also find interpersonal sources to be more important than later adopters. Earlier adopters seem to collect information from a variety of sources and appear to be generally information hungry.

The results indicating a more rapid decrease in importance of mass media than interpersonal sources from earlier to later adopters seem consistent with literature which suggests that the importance of an imitation effect increases as adoption of an innovation becomes more widespread (Bass 1969, Midgley 1978). In addition, the substantially lower importance of both mass media and interpersonal sources among laggards seems consistent with Rogers (1983) who indicates that laggards tend to be social isolates.

It is important to consider why our findings on the importance ascribed to interpersonal sources by earlier adopters seem to differ from those expected from Rogers' generalization. At least in part, our results may have occurred because the information environment for consumer goods seems to be substantially different from that of the agricultural industry on which Rogers' generalization was based. The consumer information environment is considerably more media intensive than that of agriculture and, as a result, large numbers of consumers can be aware of the existence of a new product even though they may have never tried it. Because of the relatively high

level of general awareness, earlier adopters are able to use interpersonal sources to learn about new products. This is consistent with the empirical work indicating that the product life cycle is shortening, partly because of increased availability of information (Olshavsky 1980). It is also consistent with the existence of information sensitive consumers who are either product class specialists or market generalists, but need not be users of a particular product about which they have information (Feick and Price 1985, Price and Feick 1984).

The results that indicated a relatively high reliance on interpersonal sources across all adopter categories suggest that the primary function of interpersonal sources may not be risk reduction. Since there is little risk associated with the purchase of the consumer nondurables considered in our study, we would expect to find (if risk reduction were of primary importance) less use of interpersonal sources. The consistent importance of interpersonal sources across adopter groups, but particularly the importance of these sources among earlier adopters, suggests risk reduction may not be the most important motivation for the use of these sources. They may, in fact, simply perform an information function.

While the findings presented in this study are based on consumer nondurables, they may generalize to durable goods as well since the information environment for consumer durables is very similar to that of nondurables. Because the fraction of individuals who are aware of the product but who have not purchased it would be expected to be greater for durables (given the higher cost, risk etc.), there should exist an interpersonal network of knowledgeable nonadopters available to earlier adopters.

Several caveats regarding the findings should also be recognized. First, due to the relatively large sample sizes for each of the adopter groups, certain differences between use of mass media and interpersonal sources were found to be statistically significant but may not be regarded as substantively important. Second, the reliance on mass media relative to interpersonal sources was not directly measured. A more direct measure (e.g., having the respondent allocate a certain number of points to each source of information) may have lead to somewhat different results. Finally, the measure used to assess reliance on each information source was framed in product-specific terms whereas the measure of information transmission was stated in more general language. It is conceivable that people may generally like to disseminate new product information to their friends for every product category except drugs and household items (i.e., the categories considered in this study).

We undertook this study to test some widely held beliefs about diffusion. As is the case with much of the received doctrine on the diffusion of innovations, the generalization tested here was derived from studies not undertaken in consumer product markets. Our results only partially supported the generalization we tested. It is interesting to speculate about how many of the commonly held propositions in the diffusion literature are not completely generalizable to the consumer setting. The exploration of these propositions in consumer settings may provide a very fruitful avenue for future research.

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CORRELATES OF SEARCH PATTERNS
FOR AN INNOVATION

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Abstract

This study addresses several of the shortcomings of diffusion research as summarized by Rogers (1976, 1983) and Robertson (1984). To better understand the role of marketer-dominated, sociometric, and non-commercial sources of information in the adoption process, factor analysis was used to infer subjects' information search typology from an information display board. Using indexes reflecting source structure, subjects were grouped by cluster analysis into patterns of typology use. Zero-order correlations provide insight into demographic, task environment, and behavioral associations with types of search for a discontinuous innovation.

Overview

Rogers (1976, 1983) and Robertson (1984) review several conceptual and research deficiencies in adoption theory which represent important challenges for the continued examination of this unique aspect of consumer behavior. These researchers argue that most innovation studies (1) neglect to use a process approach which tracks multiple dependent measures over time, and rely too heavily on retrospective measures; (2) focus on innovations of which adoption is assumed to be desirable; (3) fail to include thorough sociometric analysis, including multi-influence decision making; (4) avoid examination of innovations which are only tangentially important and are not highly recommended, for which low-involvement models of decision behavior may be most appropriate; (5) fail to consider that situations may exist where adopter categorization and innovator identification may not be relevant; (6) need a stronger emphasis on market segmentation; (7) avoid the study of innovations where performance of the offering is difficult to judge; and (8) neglect to account for the very real world influence of marketer-controlled communications such as advertising, personal selling, sales promotion, and packaging.

One aspect of the adoption process which draws together several of these seemingly disparate conceptual and research design issues is the magnitude and composition of external search. Search composition is determined by the information sought from various sources and has long been reported to have different effects on the prospective adopter. For example, commercial-source information detailing design, function and performance is thought to stimulate awareness and interest in the innovation, while support from professional and personal sources are needed to encourage trial (Katz 1961; Lionberger 1960; Ryan and Gross 1943).

However, most of the recent studies of search magnitude and composition (e.g., Newman and Staelin 1972), as well as those which examine effects of availability, format and number of alternatives (e.g., Jacoby 1984) and individual difference effects such as demographics, personality, cognitive structure and experience (e.g., Duncan and Olshavsky 1982; Schaninger and Sciglimpaglia 1980, 1981) base their findings on offerings other than innovations (for exceptions, see Arndt 1967; Berning and Jacoby 1974; Bettman 1970; Black 1983; Dickerson and Gentry 1983; Furse, Punj and Stewart 1984; Shoemaker and Shoaf 1975; Wilton and Pessemier 1981). Those studies which were conducted in an adoption of innovation context, however, possess many of the characteristics criticized by Rogers (1976, 1983) and Robertson (1984), outlined above. Consequently, more needs to be known about external search for innovations, using research designs which address these criticisms.

Research Goals

To address several of these shortcomings, six goals guided the development of this study: (1) to report the magnitude and composition of consumers' external search for an innovation in a real-time environment which would lessen the reliance on retrospective measures and strengthen the opportunity for both control and insight into process; (2) to make available to prospective adopters all possible combinations of commercial, non-commercial, personal and impersonal types of information; (3) to validate decision makers' perceptions of differences in these information sources; (4) to establish search patterns across information source and selected demographic and task environment measures, as well as behavior; and (6) to present these findings where the object of the study is a relatively inexpensive, comparatively unimportant product, true of most innovations to be found in the consumer marketplace.

Method

One hundred twenty-four women responsible for food preparation were recruited through a variety of civic, special interest, and church groups. Their average age was just over 35 ($s = 14$), with 1.8 children ($s = 1.3$), middle income and house value, with 55% college educated.

Upon arrival at their meeting room, subjects were seated away from the information display boards and handed a written product introduction which was described as a "press release to familiarize the public with a new texturized vegetable protein food product which was soon to become available in local supermarkets." Having read the press release, each subject was seated in front of an information display board (IDB) and told that the next thing requested of them was to select as much or little information beyond the press release as they would need to decide whether or not to try the product.

Each IDB contained sixteen cards which were visible to the subject: Package Front, Comment of a Family Member Who has Tasted Product, Sales Representative, Manufacturer's Reputation, Government Report: Flavoring, Product Ingredients, Consumer Reports Study, Print-Ad, Nutritional Information, Good Housekeeping Test, Cooking Instructions, Government Report: Coloring, Government Report: TVP, Comment of a Friend Who has Tasted, No Trial, and Trial. The women were told that the information labeled on the front of each card was contained on the back and that to obtain the desired information they were to remove the card from the hook, turn it over, read it, stack it in a pile, and then choose whatever information was next desired. Subjects were told to repeat this process until "you have enough information to decide whether you want to try the product or not, and then select the card which reflects your choice: Trial or No Trial."

Fourteen of these pieces of information (Trial/No Trial Deleted) represent combinations of commercial, non-commercial, personal and impersonal sources, as outlined by Robertson, Zielinski and Ward (1984, p. 89) and serve as the primary dependent variables of the study. Figure 1 presents the categorization of these cues.

After completion of the search task, subjects completed a questionnaire which gave them an opportunity to "order" units of the product at \$1.00 each, and contained the demographic and task environment variables which serve as the measures for this study. The homemakers were paid \$8.00 for their time and cooperation.

FIGURE 1
SOURCE TYPOLOGY OF AVAILABLE CUES

	Impersonal	Personal
Marketer Controlled	Package Front Manufacturer Reputation Product Ingredients Print Advertisement Nutritional Panel Cooking Instructions	Sales Representative
Non-Marketer Controlled	Government Report (flavor) Government Report (color) Government Report (TVP) <u>Consumer Reports</u> <u>Good Housekeeping</u>	Family Comment Friend's Comment

Results

Data Reduction

To infer the underlying structural character of information usage, counts were made on whether each of the fourteen cues was selected by the subjects. As advocated by Schaninger and Sciglimpaglia (1980), Rao's canonical factoring was applied to these fourteen types of information to infer subjects' taxonomy of information source. Rao's factoring with varimax rotation is appropriate in instances characterized by scale-free variables and where the elimination of multicollinearity is desired. Four factors with eigenvalues greater than 1 were found, explaining 59% of the original variance. Table 1 presents the factor pattern matrix, with decimals and loadings less than .3 omitted.

TABLE 1
FACTOR ANALYSIS OF THE SEARCH VARIABLES

Variable	Factor pattern matrix ^a			
	Factor 1	Factor 2	Factor 3	Factor 4
Package front		72894		
Family comment				65288
Sales representative			-.84146	
Mfr. reputation			33802	
Govt. report (flavor)	78990			
Product ingredients		57956		
<u>Consumer Reports</u>	45327			
Print advertisement		31141	60140	
Nutritional panel	42428	39687		
<u>Good Housekeeping</u>	42258			
Cooking instructions		52150		
Govt. report (color)	76830			
Govt. report (TVP)	64844			
Friend's comment				64800

^aDecimal points omitted, factor loadings <.3 omitted.

With some exceptions which will be discussed later, the results of factor analysis appear to have considerable correspondence with the expected typology. Factor 1 (31% of the variance) can be labeled Nonmarketer Controlled/Impersonal, with information from government, independent, and non-manufacturer testing sources being sought. Notice that Nutritional Panel has mixed loadings with Factor 2 and that it as well as Consumer Reports and Good Housekeeping have comparatively low loadings on Factor 1. The level of these three loadings suggests that these cues do not fit well into this typology. The format and contents of Nutritional Panel may have been seen as somewhat objective and "scientific" despite being from a commercial source (albeit non-manufacturer), while Good Housekeeping and Consumer Reports may have been viewed as "nonmarketer," but not as much as the government reports.

Factor 2 (12%) is a Marketer Controlled/Impersonal factor, as seen by search from Package Front, Product Ingredients and Cooking Instructions. Note again the Nutritional Panel mixed loadings with Factor 1 and those of Print-Ad with Factor 3. The mixed loadings of Nutritional Panel across Factors 1 and 2 reaffirms the argument that this cue is less clearly seen as either marketer controlled or nonmarketer controlled, while the mixed loadings of Print-Ad make interpretation of Factor 3 problematic.

Factor 3 (8% of the variance) is a Marketer Controlled factor with both Personal (Sales Representative) and Impersonal (Print-Ad) information cues having high loadings. The low loadings of Manufacturer's Reputation reflects

further lack of subject clarity as to how to classify this cue. Factor 3 may be best labeled, therefore, as a Marketer controlled-Advocate factor. Last, Factor 4 (8%) offers clearer interpretation. The high loadings of Family Comment and Friend's Comment support the conclusion that Factor 4 is a Nonmarketer controlled/Personal source of information.

The results of this analysis reasonably well confirm the proposition that consumers view information across two dimensions: marketer and nonmarketer controlled and personal and impersonal. What remains to be examined are the ways in which these factors are combined into patterns of use while subjects learned about the food innovation in the study.

Search Patterns

To examine search patterns, the factor analysis described above was used to guide a follow-up cluster analysis in a fashion similar to that taken by Kiel and Layton (1981). Counts of the information cues comprising each of the four factors determined by the analysis presented in Table 1 were calculated for each subject and divided by the number of cues identified in each factor to lessen the effect of different numbers of cues comprising each factor (Nutritional Panel was assigned to Factor 1 and Print-Ad was assigned to Factor 3). Therefore, four new variables (indexes) were created for each subject which represented the percentage of information selected, represented by each of the four factors, ranging from 0 to 100. These search indexes were used as the input to K-Means clustering of cases, BMDPKM (Dixon 1983). Euclidean distances of the unstandardized data was used as the grouping criterion. A five cluster solution was chosen based on spreads of centroids, cluster size and parsimony. The F-ratios for the four search indexes within each cluster, ranged from 13 to 133 (df=4,119;p=.000). Pooled within cluster correlations ranged from |.03| to |.17|. A summary of this analysis is reported in Table 2.

TABLE 2
CLUSTER ANALYSIS RESULTS

	Low Search		Selective Searchers			High Search	Mean
	Cluster:	Search	(a) 23%	(b) 27%	(c) 20%	11%	
	Size:	19%	(Cluster centroids)				
Total search		3.0	6.9	7.9	9.9	13.9	7.8
Govt. report (flavor)		.17	.52	.50	.50	.86	.48
<u>Consumers Reports</u>		.26	.79	.76	.71	1.00	.69
Nutritional label		.43	.76	.88	.79	1.00	.77
<u>Good Housekeeping</u>		.09	.38	.38	.67	1.00	.45
Govt. report (color)		.22	.52	.53	.46	.71	.48
Govt. report (TVP)		.22	.41	.47	.67	.93	.50
NONMARKETER/IMPERSONAL (.2322)			(.5514)	(.5852)	(.6332)	(.9164)	
Package front		.00	.10	.79	.92	.86	.52
Product Ingredients		.22	.38	.91	.88	1.00	.66
Cooking instructions		.04	.10	.68	.75	1.00	.48
MARKETER/IMPERSONAL (.0861)			(.1934)	(.7894)	(.8548)	(.9529)	
Sales representative		.00	.03	.00	.00	.86	.10
Manufacturer's reputation		.09	.17	.24	.25	.86	.27
Print advertisement		.00	.03	.12	.25	.93	.19
ADVOCATE (.0287)			(.0797)	(.1203)	(.1584)	(.8821)	
Family Comment		.04	.93	.26	1.00	.86	.59
Friend's comment		.04	.79	.32	1.00	1.00	.59
NONMARKETER/PERSONAL (.0435)			(.8448)	(.2727)	(1.000)	(.9286)	

Cluster analysis reveals that searchers can be classified into three groups according to their magnitude of search: low (19% of the sample), high (11%) and "selective" (70% of the sample). Further, the composition of search, especially between the selective searchers appears to be quite different. Low searchers undertook little search from any source. These subjects were, however, most interested in cues from the Nonmarketer/Impersonal factor; the

Nutritional Panel was the most frequently selected piece of information. High searchers made extensive use of most of the available sources, with six of the fourteen cues being selected by all subjects in this cluster. Cues from the Advocate factor were least selected by this group, while a government report on the product's artificial color received the least attention.

Examination of "selective searchers" reveals three distinct patterns of search, despite increasing magnitude across these groups. The low magnitude, selective searchers (23% of the sample) took most of the information sought from the Nonmarketer/Personal factor and secondly from the Nonmarketer/Impersonal group of cues. These people chose the least information from the Advocate group of cues, while the cue most frequently chosen was Family Comment, and the least was Sales Representative and Print-Ad. Using the language of adoption theory, this segment of searchers can be best labeled "Legitimizers" (Lionberger 1960), because of their reliance on nonmarketer information from impersonal and personal sources.

Sensitivity to Marketer/Impersonal and Nonmarketer/Impersonal information characterizes the search patterns of the intermediate selective searchers (27% of the sample). This group selected very little information from either the Advocate or Nonmarketer/Personal categories. Product Ingredients was most frequently selected while none of these searchers picked the Sales Representative cue. This group of people can best be labeled "Problem Solvers" because of their propensity to search for information mostly from Marketer/Impersonal sources, secondly from objective, testing sources of data and their avoidance of advocate and normative influence.

The final group of selective searchers (20% of the sample) is one which sought information mostly from Nonmarketer/Personal sources, secondly from the Marketer/Impersonal group and a substantial amount from the Nonmarketer/Impersonal cues. This segment of searchers chose very little information from the Advocate group of cues, while every member of this group selected both the Family Comment and Friend's Comment information. Conversely, none of these decision makers selected the Sales Representative card. This segment of searchers can be best labeled "Normative/Problem-Solvers," due to their "balanced" sensitivity to nonmarketer/personal, marketer/impersonal and nonmarketer/impersonal types of information, coupled with their avoidance of advocate sources.

Correlates of Search

To contribute to improved understanding of these patterns of search, correlates of source use with three categories of variables were examined: demographics, task environment measures, and a behavioral measure (see Table 3). While the demographic variables are self-explanatory, the task environment and behavioral measures require brief discussion. The task environment group contains twelve items which measure selected aspects of the decision process to adopt. These include subjects' self-reported measures regarding their care and ease of food preparation, general nutritional information use, bacon use and liking, brand switching, direct and indirect experience with TVP products and two measures of innovation proneness. The behavioral measure was based on the number of units purchased by the subjects.

The criteria for selecting these variables were (1) to include those commonly reported in other diffusion and information search studies which are reported to mediate magnitude and composition of search and (2) to also select those which were suited to the specifics of the product class (i.e., bacon) and the innovation (i.e., TVP). This exploratory, correlational analysis is useful in identifying for future research, those variables which have the greatest apparent mediating effect, as well as determining whether these effects may differ between the four information sources.

TABLE 3
CORRELATIONS OF SEARCH WITH INDEPENDENT VARIABLES

Correlates	Nonmarketer/ Impersonal Search	Marketer/ Impersonal Search	Advocate Search	Nonmarketer/ Personal Search	Total Search
Demographics					
Age	-.1320*	-.1391*	NS	-.2626	-.1626
Income	NS	NS	NS	1868	NS
Education	NS	1611	NS	NS	NS
Spouse education	NS	-.1536	NS	NS	NS
Number of children	NS	NS	NS	NS	NS
Domicile value	-.1477*	NS	-.1362*	NS	-.1231*
Social class	NS	1655	NS	NS	NS
Spouse social class	1384*	NS	NS	NS	NS
Marital status	1170*	-.1609	NS	NS	1161*
Task environment measures					
Cooking care	NS	NS	1196*	NS	NS
Cooking ease	NS	NS	NS	NS	NS
Nutritional use in general	1196*	NS	1574	-.1296*	1268*
Product category use (bacon)	NS	NS	NS	NS	NS
Product category liking (bacon)	1218*	1708	NS	NS	1392*
Brand switching	NS	-.1470*	NS	NS	NS
Not familiar with TVP	NS	NS	NS	NS	NS
Not tasted TVP	1456*	NS	2515	1620	1195
Not talked to others about TVP	1921	NS	3055	NS	2157
Others liked TVP	NS	1277*	NS	-.1680	NS
Awareness of innovations	1463*	1169*	1401*	NS	1602
Purchase new food products before my friends	NS	NS	NS	NS	NS
Behavioral measure					
Number products purchased	1307*	NS	NS	NS	NS

* p-value <.10; all others <.05; decimals omitted; NS = not significant.

To document overall effects for this analysis, a one-way MANOVA was performed, using the five clusters as levels of an independent variable (search magnitude) with the 22 correlates as multiple dependent variables. Because of the exploratory nature of this analysis, p<.10 will be considered trends, while p<.05 will be considered significant. A multivariate main effect of cluster was obtained (F=1.372, df=88,404; p=.0228) using the more conservative Pillai test. Follow-up univariate F-tests revealed that age and speaking to others who liked TVP had p<.01, while five other measures yielded p<.10. Following this overall test, zero-order correlations between the four indexes of search, total search, and the 22 variables were determined.

Demographic Correlates

Younger subjects selected more total information, as well as more from nonmarketer/impersonal sources, marketer/impersonal information, and nonmarketer/personal sources, while higher income was associated with greater levels of nonmarketer/personal search. Higher educational achievement lead to higher marketer/impersonal search, but a negative relationship with this type of information was found with higher spousal education. Higher home values correlated negatively with total search, as well as advocate and nonmarketer/impersonal source search. The subject's social class had a positive relationship with marketer/impersonal search while spousal social class had a positive association with nonmarketer/impersonal source search. Finally, while married women searched for more information in total and from nonmarketer/impersonal sources but single women selected more marketer/impersonal information.

Task Environment and Behavior Correlates

Subjects who reported greater concern for cooking used more advocate sources, while those who claimed generally to use nutritional information sought more total information, more from nonmarketer/impersonal and advocate sources, but less from nonmarketer/personal sources. Women who stated a greater liking for bacon sought more information, comprised of more nonmarketer/impersonal source and marketer/impersonal information. The more different brands of bacon used (an indication of brand loyalty), subjects sought less marketer/impersonal information. Direct and conversational experience with TVP products had a negative relationship with total search, nonmarketer/impersonal, advocate, and nonmarketer/personal sources. Having talked with others who liked TVP products lead to more marketer/impersonal search, but less nonmarketer/personal search. Those who claimed to be more generally aware of innovations sought more total information, more from nonmarketer/impersonal sources, more from the marketer/impersonal category, more advocate source information, but none with nonmarketer/personal sources. Women who purchased more of the TVP bacon used slightly more nonmarketer/impersonal source information. Surprisingly, bacon use, TVP familiarity and proneness to purchase food innovations before ones' friends had no

effect on either pattern or magnitude of search.

Summary

These correlational results reveal the importance of both demographic and task environment variables in understanding search magnitude and composition. This can be seen in that the percentage of significant findings (39% demographics - 58% task environment) closely parallels the percentage of variables tested (41% demographics - 55% task environment). This conclusion argues for the necessity of diffusion theory researchers to carefully specify a broad range of relevant effects in their inquiries.

Another way to present the demographic and task environment findings presented above, is to examine the largest magnitude of effect for each of the four sources of information and total search. The Nonmarketer/Impersonal factor is best predicted with the extent to which individuals had talked to others about this class of innovations; this sociometric effect also had the largest relationship with two other issues: selecting advocate sources and total search. These findings underscore the importance of the role of sociometric effects in adoption of innovations. Finally, marketer/impersonal search is best explained by the extent of liking for the product category, while nonmarketer/personal search has the highest correlations with age.

Discussion

To achieve the research goals of this study, especially insight into process, control of decision setting, and freedom from reliance on retrospection, sacrifices were made. Lack of mundane realism and possible threats to external validity are two which warrant discussion. Despite these sacrifices, the results generally mirror those found in studies using instrumentation other than the IDB technology. For example, despite a "cost free" information search environment, considerable variance in search magnitude occurred. Second, definitive search patterns emerged which generally parallel those reported in the adoption theory literature. Last, subjects' perceptions of information source developed into a typology closely approximating that which was expected. Consequently, these findings support the continued efficacy of IDB findings as argued by Lehmann and Moore (1980) and provide additional convergent validity to what is known of external search for innovations.

The findings of this study also underscore issues of continuing interest to adoption theory researchers, marketers, consumer educators and those concerned with public policy. For example, Robertson (1984) points to the need for increased use of market segmentation in improving understanding of the adoption process. The results of this analysis reveal clear distinctions across segments of searchers. Further study to more fully describe and determine the underlying reasons for these search segments would advance understanding of this aspect of adoption theory and confirm the value of examining the process using segmentation analysis.

These findings also confirm the wisdom of the marketer to use segmentation analysis. Marketers concerned with information sources under their control take great care to create formats, quantity and types of information to attract and persuade customers. The findings of this study affirm that different segments of decision makers display variable interest in the types of information controlled by marketers. Further, these results reveal that sociometric experience and product category liking are comparatively important mediators of search for marketer controlled types of information. This underscores the significance of task environment considerations to the marketer when developing communications strategies.

Consumer educators and those concerned with public policy need to continue their efforts to understand external search dynamics. Despite the low cost of search in this study, considerable magnitude variability was found.

Those who view search from a cost/benefit perspective, should be encouraged to shift their efforts toward the "benefit" side of this equation. The value of strategies developed to increase consumers willingness to search for more information becomes clear since this study confirms that many decision makers are not willing to search even in very low cost situations.

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COMMUNICATING INNOVATIONS: CONVINCING COMPUTER PHOBICS
TO ADOPT INNOVATIVE TECHNOLOGIES

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Abstract

In a recent paper, Lepper (1985) has pointed out that the rapid development of microcomputer technology has provided a unique opportunity to investigate, *in vivo*, the process of technology adoption. This paper summarizes the results of two experiments that were concerned with the responses of "high-tech phobics" to innovative technologies. Previous research has demonstrated that personal efficacy with respect to computers is a strong predictor of subsequent adoption of computer technology. The results of the present research show (a) that the more technologically advanced a product, the more important a factor is personal efficacy in the decision to adopt the technology, and (b) that people low in personal efficacy (as compared to people high in personal efficacy) with regard to computers tend to be more easily persuaded by expert communicators to try an advanced software product.

Introduction

A new business was recently described in a local newspaper of a midsized midwestern town (The Tulsa World, February 8, 1985). For a reasonable fee, a technician will come to your home, connect your VCR (video cassette recorder), stereo, or other "sophisticated" appliance, set all switches and options, and show you how to operate your electronic gadget. As the manager of the business put it, "technology has just gotten away from people." Business is booming.

"Computer phobic" has become the common term for describing a person who avoids computers, regardless of how useful they might be. Considering the success of the business offering the service described above, it appears that many people are afraid not only of computers but of "high-tech" electronic consumer goods in general. "High-tech" phobia is probably a better, more general term for describing the anxiety and uncertainty that many of us experience when dealing with a technologically advanced product for the first time.

Most consumer research concerned with the adoption of new technology has focused almost exclusively on the identification of the life style and personality of early adopters (Danko and MacLachlan 1983, Dickerson and Gentry 1983). The results of these studies have shown that, as one would expect, the early adopter of, for example, computers is not at all afraid of new technology; on the contrary, the early adopter perceives these innovations as a challenge (Danko and MacLachlan 1983).

Other recent research (Hill, Smith, Mann, and Roberson in press; Hill and Smith 1985; Smith and Hill 1985) has applied Bandura and his associates' theoretical framework (Bandura 1977, Bandura and Schunk 1981, Bandura, Adams and Beyer 1977). According to this view, phobias can be explained in terms of lack of personal efficacy, i.e., the belief that a particular behavior cannot successfully be performed. If an individual thinks that he or she is unable ever to successfully interact with a computer, then it is likely that he or she will avoid such interactions, regardless of how useful it might be to learn about or use computers.

In their research, Hill and his associates (Hill et al. in press, Hill and Smith 1985) used pathanalytic methods to show that, in three independent samples of college students, computer efficacy (a) uniquely contributes to the prediction of behavioral intentions to purchase a microcomputer, (b) is independent of (not correlated with) people's beliefs about the instrumental value of learning about computers, and (c) is positively related to people's previous experience with computers. Further, Hill et al. (in press) showed that personal efficacy in general, but not interpersonal efficacy (i.e., efficacy with respect to interpersonal relationships), as measured with Paulhus' sphere specific measures of control (Paulhus 1983), is related to the use of various technologically advanced products (e.g., programmable pocket calculators, automated bank teller machines, automatic garage door openers).

Phenomenologically, personal efficacy with respect to technological innovations can be construed both as a characteristic of the person perceiving an innovation (e.g., "I can make this machine work") and as a characteristic of the innovation ("I can make this machine work"). In the research described above, personal efficacy with respect to computers was treated as a characteristic of people, i.e., as a personality variable: Some people report less efficacy with respect to computers and they are less likely to learn about or use them; others report more efficacy and are more likely to learn about or use them. However, the person who lacks efficacy with respect to an innovation will not perceive him or herself as "low in efficacy," but will perceive the innovation as complicated or complex. The more complex the innovation actually is the more likely it is that people will lack efficacy with respect to the innovation. As Rogers and Shoemaker (1971) have pointed out, complexity of an innovation - a characteristic of the innovation itself - is an important factor determining the rate of its adoption.

Study 1

Study 1 was designed to explore the importance of efficacy in the decision to adopt new products of varying complexity. It was expected (H1) that the more complex a product is, the more likely it is that people will feel little personal efficacy with respect to the product, and, hence, the less likely it is that they will purchase it, and (H2) that the more complex a product is, the more important a role will personal efficacy play in the decision to purchase it.

Method

Eighty-three male and female college students participated for extra credit in their courses. Data were collected in ten experimental sessions with between six and ten participants each. The study was introduced as an advertising evaluation study. Subjects were asked to evaluate three new products based on "rough drafts" of advertisements. These products were an electric typewriter (presumably low in complexity), an electronic typewriter (presumably of moderate complexity), and a personal computer with wordprocessing capabilities (presumably of high complexity). Subjects were asked to complete a set of questionnaires containing a scale designed to measure efficacy with respect to each product, a scale designed to measure perceived instrumentality of each product, and a scale designed to measure liking of each product. All scales pertaining to

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a particular product were preceded by the description of the product; the order in which the products were presented was carefully counterbalanced.

Product descriptions. All product descriptions began with the following sentence: "Consider the following advertising copy describing the features of a new [personal computer with wordprocessing/electronic typewriter/electric typewriter] about to be put on the market. This product is designed to assist in the preparation of professional-looking manuscripts and term papers." This introduction was followed by a list of six features appropriate for the respective product (e.g., personal computer: 64k of memory, screen editing, etc.; electronic typewriter: one-step error correction, format memory, etc.; electric typewriter: adjustable tabs, power carrier return, etc.).

Questionnaire. The questionnaire contained seven items designed to measure personal efficacy with respect to each product. These items were worded similarly to those of the computer efficacy scale developed by Hill et al. (in press) (e.g., I will never understand how to use this product [reversely coded], I could reliably control the functioning of this product, This product would be easy to use). Eight items were designed to measure perceived instrumentality of the respective product (e.g., I could do a better job with this product, I could accomplish more by using this product, Time savings from using this product would be minimal [reversed]). Each item was accompanied by a 6-point Likert type scale, labeled "strongly disagree" or "strongly agree" at its extremes.

The items for both scales were chosen from a larger pool of items based on the criterion that the items from each subscale correlate fairly highly among themselves for each of the three products. It should be stressed that the scales were constructed before the analyses to test the hypotheses of this research were performed. This procedure resulted in reliability coefficients (Cronbach's α) for each scale within each product in excess of $\alpha = .88$. Although this procedure ensured the reliability of scales, it, of course, does not ensure validity. The items comprising the efficacy scale, however, are, as mentioned above, very similar to those comprising the computer efficacy scale used in a previous study by Hill et al. (in press). In that study scores on the computer efficacy scale were shown to validly predict students' subsequent enrollment in university computing courses, a finding which supports the validity of the efficacy scale in the current context. Nevertheless, it should be pointed out that the primary reliance on the face validity of items in the present study poses limitations to the confidence with which conclusion may be drawn.

The questionnaire also contained four items designed to measure liking of the product. The items were formulated so that they asked for the likelihood that the respondent would behave in a way indicative of product adoption (Would you recommend this product to a friend? If money were not a consideration, would you purchase this product? Would you like to learn more about this product? Would you like to own this product?). The reliability of this scale for each product was always greater than $\alpha = .90$.

Results

In order to test whether the three product descriptions elicited differential perceptions of efficacy, a repeated measures analysis of variance was performed on the personal efficacy scores across the three products. As expected, subjects' ratings of personal efficacy with respect to the three products were significantly different, $F(2,164) = 42.24$, $p < .0001$. Subjects reported greater efficacy with respect to the electric typewriter than with respect to the electronic typewriter (means were $M = 31.02$ and $M = 33.29$, respectively, $t[82] = 8.46$, $p < .001$), and greater efficacy for the

electronic typewriter than for the personal computer with wordprocessing ($M = 36.34$, $t[82] = 5.99$, $p < .001$). It can be concluded from this analysis that the different products, designed to vary in complexity, led to differences in subjects' ratings of personal efficacy.

In order to test whether differential personal efficacy with respect to the three products is related to differential liking of these products, a repeated measures analysis of variance was performed, treating expressed liking of the three products as three levels of the dependent variable, and treating personal efficacy and instrumentality with respect to the three products as two covariates that were repeated for each level of the repeated measure (this analysis was performed with the MANOVA routine in SPSSX). This analysis revealed that, overall, only perceived instrumentality was related to the average liking of all three products, $F(1, 80) = 51.16$, $p < .001$. This effect probably reflects the extent to which students perceive any machine that facilitates the writing of manuscripts as instrumental for facilitating their everyday life. Overall, personal efficacy with regard to the three products was not related to average liking of the products, $F(1, 80) = 1.46$, $p > .20$. However, differential personal efficacy (i.e., the difference in personal efficacy across the three products) was related to differential liking of the products, $F(2, 154) = 6.02$, $p < .01$.

Finally, in order to assess the importance of efficacy in the prediction of liking, separate zero order correlation coefficients between scales within each product were calculated. As expected, the zero order correlation between efficacy and liking increased as the product became more complex. The correlations were $r(81) = .05$, n.s., for the electric typewriter; $r(81) = .43$, $p < .001$, for the electronic typewriter; and $r(81) = .64$, for the personal computer with wordprocessing. It should be noted that the standard deviations for each of the scales for each product were virtually identical (efficacy: 5.3, 5.6, and 6.2, for the electric typewriter, the electronic typewriter, and the personal computer with wordprocessing, respectively; liking: 5.3, 4.3, 3.8, respectively), and that all correlations between instrumentality beliefs and liking were in the range from $r(81) = .67$ to $r(81) = .72$. Because the reliabilities for the efficacy scale across products were virtually identical as well, it appears unlikely that the change in correlations for efficacy with liking across products was an artifact due to differences in variances or reliability of measurement.

The results of Study 1 support the hypothesis that greater complexity of a product implies less efficacy with respect to the product, and, further, that differential efficacy with respect to different products is a predictor of differential liking (or, as measured in this study, of expressed likelihood to perform behaviors indicative of product adoption). Finally, it appears that the more complex a product, the more important a factor is efficacy with respect to product adoption.

Study 2

Study 1 provided further support for the notion that personal efficacy plays an important role in the adoption of innovative technology, particularly when it is complex. The question arises as to how to change personal efficacy with respect to a specific technological innovation. For example, how can one convince a "computer phobic" that he or she is capable of learning how to successfully interact with a computer? One straightforward approach to solving this issue would be simply to tell the person that it is indeed quite easy to make computers work. Of course, the trick is to get the person to believe the communicator.

The classic Yale communication studies on persuasion (Hovland, Janis and Kelley 1953) have pointed to the importance of source credibility in determining the effectiveness of a persuasive communication. With

respect to innovative technologies in general, and computers in particular, the question is whether computer phobics are more likely to trust the opinion of an expert or the opinion of a relative novice, who perhaps used to be a phobic him or herself.

Actually, both predictions could be derived from different theoretical positions: On the one hand, the findings of the Yale communication group suggest that the opinion of a computer expert should carry more weight than that of a computer novice. Furthermore, previous research on locus of control and persuadability has demonstrated that people with an external locus of control (i.e., people who believe that they are being controlled rather than in control themselves) are more easily persuaded by high prestige, expert sources (Ritchie and Phares 1969, Ryckman, Rodda and Sherman 1972). Following this logic it may be argued that people who think that they are incapable of successfully interacting with computers are more likely persuaded to purchase a computer (or computer related product) by "experts who know what they are doing" than are people who feel that they are in control and quite capable of learning to use computers.

On the other hand, social comparison theory (Festinger 1954) predicts that computer phobics are more likely to trust and be influenced by the judgement of people who are similar to themselves, while people who feel confident about interacting with computers are less likely to trust the judgment of such individuals, because they are different from themselves. In practice, the issue for advertising is whether to present a computer novice attesting to the ease of use of a new computer or new computer software, or whether to introduce an expert who assures potential customers of the "userfriendliness" of the new system or software. Study 2 addresses this issue.

Method

A questionnaire designed to measure computer-specific efficacy (the same scale used by Hill et al. in press) was administered to a sample of 87 female college students. Subjects for the present study were recruited from among those who had completed this questionnaire. Because the questionnaire was administered along with various other questionnaires (in a mass testing session), subjects were not aware that the current research was concerned with computer related efficacy.

A total of 54 subjects volunteered to participate. However, of these subjects, ten (five in each experimental condition) had actually not completed the computer efficacy scale during mass testing. The data for these subjects were excluded from all analyses involving this measure.

Procedure. The entire study was conducted in 12 sessions with four to six participants per session. The experiment was conducted in the preview room of the media services department in the library of a midsized private midwestern university.

Upon arrival, the experimenter explained that the study was concerned with the evaluation of an innovative software package specifically designed for college students, called the "College Advisor." All subjects were then handed the same brief description of this program. To foster the credibility of the cover story, the description was printed on the stationary of a midwestern research firm.

The program was described as an integrated wordprocessing and database management program with special subprograms for college students to assist in the planning of classes, writing of papers, and monitoring of grade-point averages. After all subjects had read the description of the program, the experimenter explained that the sponsoring research firm was interested in college students' evaluation of the program. The experimenter

then started a slide show which was presented as a "rough draft" of a potential advertisement for the program.

Manipulation of source expertness. There were two different versions of the slide show. The actual slides, which depicted four different females working at a personal computer, were the same in each condition. The slide show was synchronized with one of two different tape recording (recorded by the same individuals) of testimonials of the four women. The four women described themselves as either a computer science major, an MBA student specializing in Management Information Systems, a mathematics major, and an engineering major (expert sources), or as a fine arts major, a language major, a music major, and an English literature major (non-expert sources). In both conditions, the individuals presented in the slide show commented on the ease with which the program could be learned. Subjects (groups of subjects) were randomly assigned to one of the two conditions (slide shows).

Dependent measure. At the conclusion of the slide show, subjects were asked to complete a set of questionnaires evaluating the computer expertise of the individuals presented in the slide show (manipulation check). Also, subjects were given the opportunity to sign up (and put down their address) for a six-month trial period of the College Advisor. It was explained that the program would be provided with a special microcomputer, the rental of which would cost approximately \$10.00 per month. This amount was determined in pretesting to be sufficient to prevent approximately 50% of all college students from signing up for the trial period. This measure constituted the dependent measure of adoption of this new product.

In order to reduce potential experimental demand (i.e., the experimenter's being perceived as interested in subjects' signing up), subjects were handed, along with the questionnaire, an envelope addressed directly to the sponsoring research organization. Subjects were told that they should put the completed questionnaire in the envelope, seal it, and drop it in a mail box when leaving.

At the end of the experimental session, subjects were asked to complete the computer efficacy questionnaire which most had previously completed during the mass-testing session. They were then thoroughly debriefed and thanked for their participation.

Results

Overall, the manipulation of source expertness was successful. One item on the advertising evaluation questionnaire asked for subjects' rating of the computer expertise of the individuals depicted in the slide show (1 = none at all, 9 = very much). Subjects who had watched the slide show depicting the expert sources rated the expertise of these individuals significantly higher than subjects who were exposed to the non-expert sources, $t(51) = 7.59$, $p < .0001$. The means in the expert and non-expert condition were 2.70 and 6.08, respectively. However, subjects' ratings of the individuals presented in the slide show did not differ with regard to overall appeal (all F 's < 2.00).

The major dependent variable of interest was whether or not subjects signed up for the trial period of the College Advisor. Overall, of the 27 subjects who watched the non-expert sources, 19 signed up for the trial period; of the 27 subjects who watched the expert sources, only 11 signed up. This difference is significant, $\chi^2(1) = 4.90$, $p < .05$. In order to assess the potentially differential effect of the slide shows on subjects high or low on computer efficacy, the biserial correlation coefficient between computer efficacy (both the initial measure and the measure that subjects completed after the experiment) and subjects' choices regarding the trial period was calculated within each experimental condition. In the non-expert condition,

computer efficacy was not related to subjects' choices, $r(25) = .05$ for the premeasure of computer efficacy, and $r(25) = -.03$ for the postmeasure. However, in the expert source condition, both measures appeared to be related to subjects' choices, $r(22) = -.38$, $p < .10$, and $r(25) = -.52$, $p < .01$, respectively. Performing a median split on the computer efficacy scale shows that subjects who were low on computer efficacy were more likely persuaded by the expert sources than subjects high in computer efficacy; 67% of the subjects in the former group signed up for the trial period with the College Advisor as compared to 20% of the subjects who scored high in computer efficacy. The non-expert sources did not differentially influence low and high computer efficacy subjects (67% and 75%, respectively, signed up for the trial period).

The results of Study 2 support the prediction derived from the research on locus of control and persuasion. Although, given the particular scripts used in this study, the non-expert sources were more successful in persuading subjects to sign up for the trial period, it appears that the less computer efficacy subjects reported, the more likely were they to trust an expert's opinion.

Conclusion

The results of the current research support the notion that personal efficacy, i.e., the extent to which a potential consumer thinks that he or she will be able to successfully "master" a "high-tech" product, is an important variable contributing to or inhibiting technology adoption. Personal efficacy with respect to a particular product is a joint function of the "objective" complexity of the product and of the psychological characteristics of the potential consumer. Study 1 was concerned with products of varying complexity. The results suggest that the more complex a product is in actuality, the more important personal efficacy is in the decision whether or not to adopt the product. Study 2 was concerned with the effectiveness of expert and non-expert sources in influencing individuals who possessed varying degrees of personal efficacy with respect to a particular product. The results of Study 2 suggest that experts attesting to the "userfriendliness" of a new product are more likely to convince individuals low in efficacy with respect to the product than individuals high in efficacy with respect to the product.

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WHAT SHOULD ACR WANT TO BE WHEN IT GROWS UP?

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Abstract

It is argued that ACR is facing an adolescent identity crisis and that its search for a meaningful identity would be aided by a rich vision of a future in which it emerges as an independent social science. It is further argued that to do so requires first broadening ACR's aspirations and perspectives rather than narrowing them.

Birth to the Present

Once upon a time a fledgling discipline was born and given the name Consumer Research--the bastard child of Marketing and an unknown father variously alleged to be Economics, Psychology, Sociology, Anthropology, Home Economics, or occasionally others as well. Despite these humble and ignoble beginnings, the infant developed precociously and was admired, housed, and nurtured by Mother Marketing. It found it had occasionally kind uncles named Business and Government, but the former did not always appreciate the child's talents and the latter tended to favor more legitimate nephews and nieces with names like Art, Science, and Medicine. Society tried to withhold judgment about the child, but made no secret of its prejudices toward the mother and was critical of the uncles as well (the supposed fathers seemed above reproach).

The child grew and learned. It tried to be a good child and did many things to please its mother. But in moments of pensive reflection it felt there was something more to life. It knew that society expected more from it, but knew too that Mother Marketing was likely to disapprove of activities that withdrew the interests of Consumer Research from her. Thinking that it might have more to learn from its alleged and distant fathers than from its mother, Consumer Research turned to them often and assimilated much of their world views, and Psychology's world view in particular. Still there was a part of the child that yearned to be free to think and do as it pleased and to make its own mark on and contribution to the world. This part felt that it was too much its mother's child and increasingly found even the venerable Psychology's world view to be unfilling.

The child was suffering what one of Psychology's legitimate children, Erik Erikson, called an identity crisis. In addition to not having a sense of identity, the child was searching for life and career goals that might lead it to a more promising future. It appreciated that Mother Marketing had thus far provided nurturance and paid the bills and it felt pulled to be loyal to that up-bringing and be a true Marketing person. But, it had also learned from its real or surrogate fathers that there was a whole big exciting world out there if it could stop doing everything just to please its mother. Each of these surrogates provided a different career model, although it sensed that mother liked Psychology best since it had a more practical bent than the others who often seemed to be either impractical altruists or philosophers. A third type of option was to strike out on its own and forge a career without the benefit of a role model or mentor. This seemed to be a difficult and risky course, and it was possible that mother would not foot the bill for such venture indefinitely.

Present Into Future

At this point the child is confused, torn, and frightened. Its more conservative friends urge filial loyalty and remind that it has a good thing going and that Uncle Business will likely help to make a marketing career path a lucrative one. Its more rebellious friends urge revolution and suggest that anything that would be admired by Mother Marketing or Uncles Business and Government is to be deplored as hopelessly wrong-minded. A third peer group recently

encountered consists of some of the acknowledged children of Anthropology and Sociology as well as some other bastard children of Mother Marketing. This group urges a path of individual freedom and creativity; follow your own muses and don't be too concerned about pleasing or displeasing anyone but yourself. If there is a reference group for this latter perspective it is society at large and the societal benefits of the career path are an important criterion for evaluation of its worth. Uncle Business might not be as pleased with such a career, but Uncle Government might ultimately be convinced of its merit. And the child Consumer Research might with such a career even hope to gain the status of its more mature father figures some day.

Appealing as the latter alternative seems, it is not the obvious solution to all concerned. Consumer Research feels both internal and external conflict in evaluating the choice. None of these solutions will jointly please it, its friends, its mother, its uncles, and its surrogate fathers. As the advocacy groups become more polarized they tend to blame any real or imagined weakness of Consumer Research on what they see as its inclination toward any position other than its own. Clearly the time is ripe for a choice. What should Consumer Research want to be when it grows up?

Myth Into Reality

Inasmuch as ACR is the preeminent organization concerned with consumer behavior, it is essentially true that as ACR goes, so goes consumer behavior. While I believe that ACR should continue to represent a broad and diverse membership, and should in fact seek to further broaden, diversify, and balance its membership. I also believe that the status of the field of consumer behavior depends upon the richness of its visions of that which it aspires to be.

My own vision is one of consumer behavior as a discipline unto itself, with a variety of constituent groups, but with no overriding loyalty to any existing discipline or interest group. That is, consumer behavior should not be a subdiscipline of marketing, advertising, psychology, sociology, or anthropology, nor the handmaiden of business, government, or consumers. It should instead be a viable field of study, just as these other disciplines are, with some potential relevance to each of these constituent groups.

In order to achieve this mature and independent status, in the short-run consumer behavior should seek to divorce itself from the parochial interests of any single constituent group. Given the dominant allegiance to marketing in the past, a counter effort of clearly non-marketing-inspired theory and research efforts seems needed. This should also encourage a needed macro orientation within the field and lend credibility to the sincerity of the field's aspirations to be more than an engineering discipline serving a narrow scope of interests. It also seems necessary that meaningful and neglected macro issues be addressed such as the effects of various types of consumption on consumer and societal well-being, the political economy of consumption, tradeoffs between experiential and material consumption, historical, biological, and motivational bases for acquisition, possession, and collection, and consumption's interaction with self-definition. These foci should help to establish consumer behavior as a behavioral and social science of relevance to understanding an important domain of human behavior.

It is significant that occasionally, and especially recently, some prominent scholars from other behavioral and social sciences have begun to turn their attention to consumer behavior phenomena. They include for instance anthropologists Mary Douglas and Marshall Sahlins, sociologists Michael Schudson and Eugene Rochberg-Halton, historians

Neil McKendrick and T. J. Jackson Lears, literary critics Lewis Hyde and Marc Shell, psychologists Lita Furby and Mihaly Csikszentmihalyi, communication theorists William Leiss and Stephen Kline, and economists Richard Easterlin and Albert Hirschman. It is also significant that none of these except Lita Furby has ever participated in ACR. The forces that tend to keep these consumer behavior scholars within their original disciplines may well be the same forces that cause Rich Lutz to urge that we keep our focus within marketing as a parent discipline. This is unfortunate since it fractionates and dissipates the efforts of what could otherwise be a cohesive and meaningful discipline of consumer behavior. There is much that we might say to one another, and ACR is the most logical organization to bring about such a dialogue.

It is for this reason that the 1985 ACR Conference Call for Papers' plea for a back-to-the-basics-of-marketing focus was so upsetting. Although it seems to have had little impact on the excellent program at this year's conference, such a call for narrowing the scope of ACR is the opposite of what I feel is needed. We should be seeking ways to broaden our membership rather than send cues to those trained in disciplines other than marketing, or interested in consumer behavior phenomena of interest to someone other than marketers, that they are unwelcome.

I do not mean to send the counter message that I do not welcome those trained in and interested in marketing-related consumer behavior phenomena in ACR--I do welcome them. As Rich Lutz correctly points out, they are largely responsible for making ACR the strong and viable organization that it is today. I come from such a background. But I think we need to welcome other types of consumer researchers even more warmly, both because we need the non-marketing perspectives they can bring to the discipline and because it is they who are currently most likely to feel that they are entering an alien world in coming to an ACR conference. We need to seek them out, cultivate their involvement in ACR, and talk and listen to them when they arrive. We all have much to learn and share.

In the long-run I believe that the academic discipline of consumer behavior should seek a status outside of current departmental boundaries as a social science department on a par with other social sciences. In order for this to happen we first need to establish a critical mass of serious scholarship. ACR can play a pivotal role in developing such scholarship by seeking to redress imbalances in membership across existing disciplines and constituencies, encouraging a broader agenda of research and research methods, and fostering a common member identity of mutual, if diverse, interest in pursuing consumer behavior for the sake of learning more about an important, neglected, and fascinating aspect of our existence.

If we instead turn inward, set up boundaries, and follow what De Tocqueville called "the tyranny of the majority," we will be condemning the child of Marketing to never know of or contribute to the world outside its backyard--the ground that it has walked over for all of its infancy and childhood with few if any original pathways to show for it. This may win mother's praise, but it is unlikely to make much of a contribution to the human condition. And while it may be temporarily difficult and frightening to first cross the street, as Consumer Research matures I believe it will be much the better and more satisfied for having done so.

RESEARCH AS A VOYAGE OF DISCOVERY

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Abstract

The proper leadership role for ACR in the field of consumer behavior research is being re-examined. A position is taken, and supported, that ACR should encourage a broad rather than narrow vista for research, that innovation and creativity should be encouraged, and that the practice of marketing needs continual nourishment from multi-disciplinary research of the type distinctively associated with ACR. It is also proposed that encouragement of multiple streams of inquiry is in the best interest of researchers (to follow their natural interests) and marketing practitioners (who can selectively utilize the new knowledge that emerges from these varied streams).

ACR has invited reflection on its current state and its future direction. It has been suggested that "the pendulum has perhaps swung too far in the direction of broadening consumer research" and that because the domain of consumer behavior rests both empirically and definitionally on the effects of marketing activities on consumers, "special sessions and workshops devoted to the study of the effects of marketing variables on consumer behavior" should be encouraged. This point of view implies that the proper field of inquiry for ACR research should be narrowed and focused on issues of direct application to practitioners.

This position paper will argue that the proper domain of consumer behavior research is broad rather than narrow, that marketing has been historically an eclectic discipline that benefits from a flow of ideas, concepts, and theories from outside of its traditional boundaries, and that multi-disciplinary research on all aspects of consumer behavior should be encouraged for its own sake and as a source of applied research for marketing management, thus satisfying both innovators who do not wish to be constrained and practitioners who need fresh insights and new understanding of consumer behavior. Finally, it will be stated that the Association for Consumer Research is the appropriate, in fact the desired agent for encouraging broad inquiry on consumers.

This perspective with respect to research is consistent with a broad view of marketing itself, as expressed by Corey (1983) "Marketing is the function that relates the organization creatively and profitably to its customer environment." If marketing is to fulfill this function in a dynamic and continually changing environment it must also be dynamic and flexible in response. Thus, "marketing variables" identified as of 1985 may not be permanent, and if research attention is paid only to these, important new variables may not be identified and studied.

What are the reasons for taking this position? We will examine some key factors.

1. Marketing is an eclectic discipline

The dates and contributions shown in Table 1 have been selected from "The History of Modern Marketing: A Time Line," Evans and Berman (1981). Only those individuals who were clearly from disciplines outside of the traditional academic fields of marketing are listed.

TABLE 1

1857	Ernst Engel: Engle's Law of Consumption
1929	L.L. Thurstone: Thurstone Attitude Measurement Scale
1932	Rensis Likert: Likert Attitude Measurement Scale
1941	W. Lloyd Warner and Paul Lunt: Social Class Structure
1943	Abraham Maslow: Theory of Human Motivation
1948	Paul F. Lazarsfeld, Bernard B. Berelson, Hazel Gaudet: Two-step Flow of Communication
1951	George Katsona: <u>Psychological Analysis of Economic Behavior</u>
1955	Wilbur Schramm: Communications Process Model
1957	Charles Osgood, George J. Suci, Percy Tannenbaum: Semantic Differential
1957	Leon Festinger: Cognitive Dissonance
1958	Fritz Heider: Attribution Theory
1962	Everett Rogers: Diffusion of Innovative Concept Sources

Other contributions to the field of marketing would include the work on multi-attribute scaling by Fishbein and Rosenberg; "brain-wave" research, originally associated with the study of psychophysiological phenomena (e.g., 'phantom limbs') but recently applied to measurement of advertising response; and the concept of 'corporate culture' from cultural anthropology, originally developed in conjunction with the study of 'primitive' societies now applied to the study of corporate (and individual) behavior. In addition, the many contributions from mathematics have been enormously important and should be recognized.

2. There is a continuing need to enrich and expand marketing knowledge

Top managers have high expectations for marketing. In his study of how top management executives view the marketing function in their firms, Webster (1980) quotes some of the CEO's he interviewed.

"Marketing is the greatest leverage factor in the management mix. It is the mainstream of our business and always has been."

"Marketing is becoming more important due to the rapidly changing environment facing this industry."

"I expect marketing to be the cutting edge of our business. Without it, nothing happens."

"We have taken a very aggressive growth position in our industry. Marketing is the key in the planning system. The undergirding of our resolve to move aggressively was a marketing judgment. Marketing is the key input."

"Marketing is change. Good marketing strategy brings out good technology, good manufacturing facilities, and so on. Good marketing is the glue that holds things together. Marketing is the key to the whole business."

"When I talk about marketing planning, I am talking about the very fundamentals of business and strategic planning, the basic selection of markets and products which is the fundamental strategic choice the firm makes."

"To me 80 percent of corporate strategy is marketing strategy and that is the guts of any business plan — how you win or lose in the marketplace based on your marketing decisions."

High expectations, of course, carry a large down-side risk if expectations are not achieved. Thus, some CEOs expressed concerns to Webster about the actual performance of marketing.

"The marketing function has had an inability to readily change direction and to accept new developments."

"Marketing has not provided the proper stimulus for R&D. I'm looking for guys who can find ideas."

"The marketing people have lacked foresight and have not been able to read what the market is going to be. So they run a product right into the ground. Marketing has not been supplying R&D with new product ideas."

"They haven't been as creative or innovative as they should be. For example, R&D and engineering have given them new products but they have not been terribly creative in developing marketing approaches for those new products."

"They haven't shown leadership in changing product orientation and product positioning. There is a real need to break out of the box and come up with fundamentally more challenging approaches. In general terms, marketing people are not risk-takers, not entrepreneurial enough in their approach."

"There is a real tendency for marketing to become ingrained. They are not open-minded, not able to anticipate change in the marketplace and to adjust accordingly, to develop and refine new approaches. They try to solve new problems with traditional marketing approaches."

Clearly, marketing managers need help. They need new ideas, new concepts, new insights about their markets, their consumers, and the changing world around them. These do not normally come from more exhaustive study of existing ideas nor from repeated iteration of conventional analyses. Practitioners need a continuous stream of innovative and creative research in all aspects of consumer behavior from which they can select those which have applications to marketing management. Thus researchers can do "their thing" without feeling pressure that it be "practitioner oriented." The trade-off that such researchers must accept, of course, is the risk that their work may be ignored by practitioners.

3. ACR is the appropriate agent for a broad research agenda on consumer behavior

ACR is one of the few multidisciplinary groups that does serious, high quality research. As science in all fields grows more complex, there is a corresponding need to pool resources and learn together. As stated by Lewis Branscomb (1985), vice-president and chief scientist of the IBM Corporation, "successful science is becoming much more heavily multi- and cross-disciplinary, with the role of separate disciplines becoming that of 'gatekeepers' for quality-standards," ACR should continue and, in fact, nourish this tradition. If attention were focused on "marketing variables" much of the interaction and synergy of its multidisciplinary nature could be lost, thus reducing the distinctive value of the Association.

One final observation. The position expressed in this paper with respect to the domains of academic research and practitioner interest — and their areas of overlap — are consistent with the mission of MSI. This has been restated by the Executive and Research Policy Committee of the Board of Trustees (1983) as follows:

"The MSI position at the intersection of the business and academic research worlds embodies several important ideas about the MSI research philosophy.

- o We very clearly intend to exclude from the MSI research domain many kinds of business research projects that may well have great value to individual companies as well as great intellectual or technical merit — on the grounds that they do not contribute to the development of theory, basic knowledge, or techniques that have a reasonable prospect of being applied (over some

reasonable time horizon) to understanding and/or solving marketing problems affecting more than one company or improving marketing education.

- o We equally clearly intend to exclude from the MSI research domain many kinds of academic projects that may well have great intellectual or technical merit — on the grounds that there is not a clear connection between the subject of the research and its eventual marketing application.
- o Since there is no precise definition of the boundary of the MSI research domain on either side, periodic questioning is necessary to test our sense of where the boundaries ought to be. Hence the need and value of priority setting, steering committees, mini-conferences, advisory councils, etc., to provide vehicles for collaborative decision making about where the boundaries ought to be for a particular zone of research.

MSI occupies a very special niche in the world of business and academic research. We will always need to reaffirm and to refine our understanding of that niche."

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Geraldine Fennell, Consultant

Abstract

Representing users to producers is the subject of this paper -- the essential yet, outside of marketing practice, most overlooked aspect of marketing. It requires basic science that breaks new ground. As appropriate conceptualizations become available, chances improve that the producer's question: What shall we produce? will be answered more efficiently than heretofore. Consumer researchers are invited to create the behavioral science that marketing needs.

Introduction

A conference session devoted to our topic, "Whither ACR?," has to be an occasion for speakers to state their personal beliefs, wishes, dreams, perhaps, for the domain of scholarship that we share. Certainly, no panelist's answer to the question the topic poses can dictate the answer that actually unfolds over time. Collectively, the varied interests of individual members will see to that. Nor can the answer of any member predict the answer that unfolds over time. If it could, that would imply that we know now the full scope of our subject matter and much of the fun of our pursuit would have been taken from us. We might as well seek other lands to conquer. Our session is surely intended as background briefing, to promote communication that goes beyond the usual scope of scholarly papers. The call for papers for this conference noted that roughly 20% of the membership of the Association for Consumer Research is not affiliated with marketing. It gave me the idea that it might be in line with the our topic's spirit of communication if, as one who shares affiliation with the majority, I were to try to clarify for nonmarketers what it means to do consumer research for marketing practice.

Let me start by stating where I stand. There is no assignment anywhere in world of scholarship or science that I would choose over that of behavioral scientist in the service of the practice of marketing. My reasons reflect the janus-like feature of that assignment -- one face is turned to the world of everyday action in real time and the other to the world of representation, reflection, scientific understanding, and action-in-the-laboratory. Whichever face one considers, the work is important and not easy. There are urgent problems begging to be addressed and, everywhere, new ground to explore. My plan for this paper is to describe some of the tasks on each side of the gate but first I must review, for nonpractitioners, the nature of marketing as a business and societal function.

The Marketing Function

What it means to do consumer research for the practice of marketing flows from two features of producing goods/services: the need for an intermediary between users and producers, and for a survival strategy in a free market.

User-Producer Intermediary

When society opted for division of labor, it created the need for a function that would represent user-perspectives to producers. Adam Smith (1776/1961) brilliantly analyzed the reasons why division of labor enhances productive efficiency but he neglected to discuss an attendant problem. If I make coats for you and me, and you make bread for both of us, we may each become efficient at our tasks. But if I do not make for you the coat you would want to make for yourself, and you do not make for me the bread I would want to make for myself, then each of us is less well served than we would wish to be. As long as users and producers live in close proximity to each other, face-to-face communication may mitigate the disadvantages that flow from assigning the roles of user and producer to separate individuals. But in an era of mass manufacturing and mass communications

with its impersonal exchange-at-a-distance between producer and user, society needs an institution that is charged with regaining for users access to control over what is made in their name, which they forfeit to division of labor.

In assigning the task to marketing, society requires that marketers stand in the shoes of users, understand the influences that users experience, and act for the user. It follows directly from the notion of division of labor that goods/services have no claim on existence except as a response to the circumstances, psychological and nonpsychological, of prospective users. It is the marketer's role to ensure that the productive enterprise is brought in touch with the influences that users experience and is made to be, in effect, an extension of the user's mind and body.

Surviving Free Competition

The logic of viewing marketing as a societal function that division of labor makes necessary is independent of the nature of the economic system. Whether one has in mind a centrally planned economy or one that espouses free enterprise, division of labor means that individuals other than prospective users make the decisions about what is produced. In either case, the conditions that allocate people's energies to doing the things they do are the same conditions to which producers must be responsive if they are to assist people in achieving their ends. A centrally planned economy seems to lack a built-in mechanism for giving effect to user-perspectives. People may choose not to use some or all of the output that central planners provide but, in a closed economy, they have only two means of recourse -- become their own producers or go without. Neither option is likely to bring pressure to bear that would make planners more responsive to users' wishes. In a closed system, to ensure a productive output that is responsive to users' wants, it would be necessary deliberately to design a mechanism that leads to unpleasant consequences for planners when users remain unsatisfied. In a free enterprise economy, the marketplace performs precisely such a function by penalizing producers whose offerings users find to be less than desirable or useful, relative to the competition. Who is more likely to succeed -- producers who try to make people buy what the producer "happens" to make or their competitors who first find out what is wanted and then make that available? Accordingly, what reflection finds to be implicit in division of labor namely, that output ought to mirror users' wants becomes, under conditions of competition, a means of survival for producers. The argument from division of labor suggests that logic requires society to find a way to reestablish user-producer communication, which division of labor severs. The argument from competition sees reestablishing that communicative link as the producer's strategy for survival. Both arguments give similar direction to the behavioral scientist: Marketers need a model of the naturally-occurring process of want-satisfaction i.e., of an interrole exchange that occurs within an individual who is both user and producer (Fennell 1985c).

What Do Marketers Do?

From the preceding view of its nature, it follows that marketing is the function that is primarily responsible for what is produced. Marketing works collaboratively with other specialties on aspects of how the firm's offerings are produced, in the sense of which technology, raw materials, and costs, but it is for marketing to answer producers' substantive question: Within the general domain of our expertise, to which real-world circumstances, psychological and nonpsychological, shall we respond with a productive output? Indeed, to be responsible for that decision is marketing's unique contribution to the firm. No other department may legitimately claim to compete for that turf. No other department is charged with, or equipped for, the

responsibility of representing the perspectives of users. Or, more accurately stated, the characteristics of contexts of use. It follows that much of the content of the humanly designed environment is marketing's responsibility. It is there because marketing reported that contexts of use existed in the lives of some people that required the production of a certain kind of good/service. Or, if marketing did not so report, it allowed others so to claim, without offering effective challenge, thus yielding the marketing function to individuals outside the marketing profession. In either event, what exists is marketing's responsibility.

Accordingly, on the one hand marketing claims credit for: relief from fatigue, pain, drudgery, monotony, discomfort, anxiety, dirt, hunger, thirst, body odors, cold, heat, decay, mold, mildew, and ravages of the elements; provision of fun, intellectual stimulation, fascination, and play; provision of pleasures for every sense; in other words, for all the easements and enjoyments that flow from the availability of goods/services; and, on the other hand, accepts blame for the potential for irritation, hurt, and harm that inheres in any capability that is provided for human use.

Producers must also have an eye to the background conditions of today's productive arrangements. Mass manufacturing and mass media of communication lead to a user-producer transaction that is conducted largely in public and, willy nilly, people become exposed to wants beyond those that had arisen in the circumstances of their own lives. Not only physical contact with goods/services may help or hurt people but also the information contained in the public display, or announcements of availability for sale, of goods/services. Producers need the marketing function to guide their response to the wants of prospective users. They also need it to assess likely side effects of exposure to goods/services and to information about their availability. Included here are effects on people other than those whom the producer intends to serve, e.g., effects on nontargets and nonprospects who, without seeking it, may be exposed to the firm's offerings, directly or symbolically, as well as effects of using the goods/services in nontargeted ways.

Let me be specific about the nature of the marketing function. When the government uses society's resources to introduce a new coin that it must later withdraw from circulation because of popular rejection, that is an example of a failure to employ the marketing function. When goods/services are transplanted from one culture where they have been safely used to another where the frequency of misuse and harmful consequences rises dramatically, that is an example of a failure to employ the marketing function. When a new generation of computer software is promoted as "user friendly," that is an example of failure to employ the marketing function initially. When medicines are sold in non-tamperproof packaging so that a capsule for treating minor pain may be used as a lethal weapon, that is an example of a failure to employ the marketing function. In all these cases, the problem traces to a failure to ensure that top management understands the nature of marketing's task and uses its contribution. In the previous examples, where were the representations of and empirical data on: (1) The relevant behavioral domains for which the various offerings were intended, and (2) The wider context in which the offerings' availability would be announced and their use would occur? These questions touch on what is both the least visible side of marketing and its essence. Marketing's essential function involves three stages of communicative flow between users and producers (Fennell 1985b), starting with information flowing (1) from prospects to producers, then (2) from producers to targets, in the possible presence of nontargets and nonprospects, and (3) from targets and triers to producers. The first stage comprises the core assignment of representing users' circumstances to producers. It is largely concerned with describing users' worlds i.e., the psychological and nonpsychological contexts in which goods/services will be used. As regards conceptual development, it is the most neglected of the three, understandably, since it implicates hitherto intractable issues that touch the very essence of human nature. The rest of this paper deals with some aspects of the task of representing users to producers: A. Describing lived worlds;

B. Models for marketing's descriptive task; and C. Interdisciplinary collaboration. In each case, I first describe marketing's needs; then the opportunities that await researchers who would break new ground, in the real world no less than in the world of scholarship and science.

A. Describing Lived Worlds

As intermediary between user and producer, marketers make decisions about what to produce for whom in which contexts, and what to communicate, when and where. The task involves describing aspects of peoples' lives in certain regions of space (e.g., United States), and time (e.g., twelve month period). To grasp marketing's difficulty, one need only recall that marketers are attempting to answer the monumental question: What do people want? and to do so with specificity sufficient to permit a producer to choose the physical and psychological attributes of a good/service.

Over the years, marketers have relied heavily on common sense, intuition, and professional experience in approaching the task of describing the world of prospective users. They usually gain entry to that world by first defining a focal behavioral domain (e.g., doing household chores), and then interviewing people who perform one or more activities in that domain. Many years ago, marketing practitioners discovered that asking people to describe the kind of goods/services that they would like to see available rarely produces good information. It is more productive to ask people to describe the internal and external context for an activity in which the marketer is interested. With regard to a focal activity, the marketer tries to obtain information such as: what people believe, know from experience, and feel (i.e., like and dislike), the sensations they experience, the information they possess, the behavioral routines they follow in which contexts of space and time. Depending on the exigencies of a particular project, researchers may obtain qualitative information only or, sometimes in surveys of considerable scope, may quantify the information that they had obtained through qualitative research. At the present time, the resulting descriptions of everyday activities are primarily in the proprietary domain. The time is long past due for the significance of this aspect of the practitioner's task to be appreciated outside of marketing, to the benefit of practice and science both.

Description is one of the classic components of scientific method along with explanation, prediction, and control. Yet, in the mainstream of philosophic reflection on scientific method, it has been largely overlooked, in comparison with the attention philosophers of science have accorded to the other three. Similarly, or perhaps as a consequence, in the disciplines of psychology and marketing, some of us seem to equate "doing science" with explaining, predicting, and controlling. In the case of the various natural sciences, scientists in well-established fields see to it that needed description gets done, with or without critical reflection. Not so, in mainstream psychology and marketing where absence of reflective commentary on description goes hand in hand with neglecting to describe the discipline's subject matter. Marketing practice has suffered in a number of ways, which I have described elsewhere (Fennell 1985a). My focus here is on opportunities, of which I mention three: (1) With the interest and support of consumer researchers, we may look to the accumulation of systematic information, in the public arena, about the major behavioral domains of everyday lives, and we shall thus begin to remedy behavioral science's longstanding failure to undertake the systematic description of its subject matter. Imagine how much more we should know about behavior if, for a universe of individuals in some region of space and time, we were to describe and publish the internal and external contexts for all occasions of one activity. And then, of one more, and then another. Consumer researchers who may be interested in embarking on such a descriptive task, would be well-advised to first become acquainted with the major scholarly tradition that has offered critical reflection on the subject of description, namely phenomenology, which brings me to the second opportunity: (2) Let us develop a well-rounded portrayal of the nature of science that includes description as a full member deserving of phi-

losophic reflection, textbook space, and respectability, along with explanation, prediction, and control. The third opportunity (3) is for marketing practice to benefit from the infusion of insights, which are to be found in phenomenological psychology, on many specific aspects of the task of describing lived worlds.

Is Help Available in Phenomenological Psychology?

Have we considered what phenomenological insights may mean in facilitating communication from users to producers? As just one example, phenomenological psychologists alert us to the presence in self-report of self-deceptive justification. What makes self-reports "inauthentic" is that they result in and, in fact, are found to be motivated by, a "disclaiming of agency" (Schafer 1982). Self-deception is judged to be present whenever a description lapses into pseudo-scientific explanation: "my unconscious made me do something against my will." The assessment of self-reports as deceptive is grounded in the phenomenologist's appreciation of what constitutes valid description namely, a description that reveals, whether implicitly or explicitly, the subject's own participation (agency) in the situation being described. Such description is referred to as naive or prescientific, insofar as it faithfully captures the phenomenal realm i.e., the realm of experience as it is lived spontaneously, or "prereflectively," in everyday situations (Churchill & Wertz 1985). As marketers communicate user-perspectives to producers it may be important to strive to have prospective users report "naively," that is, without imposing their own, often deceptive, efforts to explain and justify. There is an opportunity here for consumer researchers to take the initiative in integrating the phenomenological with our other traditions so that we may assess its implications for helping marketers do the job that society assigns.

B. Models for Marketing's Descriptive Task

Models have a special contribution to make to the task of describing the user's world. They help marketers to decide what to look at in the natural world, and how to look at it, in other words, to be systematic both in defining the domain to investigate and in surveying that domain. If the models are appropriately detailed, marketers may be reasonably confident of not neglecting any major aspect of the relevant universe. Marketers need at least three kinds of models: Class I models to represent the antecedents of individual action; Class II to represent the universe of interest in a naturally-occurring population; Class III, roughly the obverse of Class II, to represent the nonfocal universe i.e., the world of nontargets, and nonprospects, and nontargeted use-contexts in which marketers, perforce, place their offerings and messages about their offerings. Classes II and III differ from models of Class I in that they are intended to classify elements in the natural world in order to help marketers to distinguish figure (Class II) and ground (Class III). Class I models are intended to suggest order -- what goes with what -- in the figural domain. They represent the antecedents of marketing's major dependent variables (e.g., actions of interest within the focal behavioral domain, brand information/choice/use). In sum, models of the focal universe (II) help marketers to define the universe they select for study, models of individual action (I) organize their search for strategic options within that universe, and models of the nonfocal universe (III) help them to review the possible side effects of their planned offerings.

Later in this paper I discuss the extent to which work that has been done in mainstream psychology lends itself to use in connection with marketing's tasks. In order to prepare the ground for that discussion, I must describe some key features of the three kinds of models that marketing needs.

Modeling Individual Action

An individual wants to achieve some result. A producer wants to participate in bringing about that result. Marketing's task is to help them both. If marketers are to compensate for the fact that division of labor separates users

and producers, they need to understand the naturally-occurring process of want-satisfaction, which is the domain of instrumental action. Most obviously, an action effects some change in the relationship between individual and environment. Why is the individual making that particular kind of change and, more difficult to answer with any degree of certainty, what exactly is the nature of the change the individual is trying to make? Why is the individual trying to make any change at all? The last question may be the most helpful because it opens the door to the notion that change had first occurred in the relationship between the individual and the environment, and that what we see as action is not change, but counterchange. Action is a compensating adjustment that tries to bring about some reference condition

Figure 1 BEHAVIORAL EPISODE

CHANGE COUNTERCHANGE-----? LEARNING

One way of thinking about action is the three-part behavioral episode that is depicted in Figure 1. The episode begins with a change in the relationship between the individual and the environment i.e., change in Figure 1, the result of which is unpleasant to the extent that the individual allocates resources to effecting counterchange. In Figure 1, counterchange is followed by a question mark to indicate that what is at issue here is attempted counterchange, which may or may not be successful. In either event, learning is envisaged i.e., some record of the episode remains in the individual. For example, I find myself feeling uncomfortably cold. Thought and action are two kinds of resources I can draw upon to deal with this state of affairs. I may, initially, reexamine my feeling of discomfort and conclude that I am not seriously uncomfortable after all. The episode may end right there. More likely than not, in about ten minutes I shall again feel uncomfortably cold and this time I may take some action to restore a comfortable state. My attempted counterchange may or may not be successful. In either case, I shall add the outcome to whatever else I may previously have experienced in association with the particular means of counterchange I used.

To understand action, then, we need to make the following distinctions, at least: a. An initial ("prechange") state; b. The occurrence of "activating change" i.e., change in Figure 1, which instates a reference condition -- a desirable state of affairs present only in imagination; c. Allocation of resources to effecting counterchange i.e., to bringing about the desired state; d. Action; e. Evaluation of outcomes; f. Learning. It is important to note that these are analytic distinctions that may not correspond to an individual's experience. For example, while individuals are experiencing a "prechange state," they may not be focusing on the qualities that become salient following "activating change." If asked, they would probably have described the prechange state along many dimensions, only a few -- or even none -- of which may now have become salient due to the occurrence of activating change. The question of practical import then becomes: What kind of change occurred to interrupt experience, differentiating a present state from what went before, and putting in place a reference condition? Understanding what changed is going to help effect an appropriate counterchange, which is marketing's task. It is for marketing to understand action and the process of which action is a part in order to help producers provide the means for taking action. The mechanism underlying the process of change-counterchange may not be particularly complex. Complexity arises because of the sheer number of environmental and personal variables that may be involved, and the difficulty of identifying the operative variables in any instance.

Fortunately, the complexity of the task that marketers face is limited in two respects: (1) Because of specialization in production, at any one time marketers do not have to confront the full range of possible environmental influences but may restrict their focus to fairly narrowly-defined domains of human activity that correspond to different products -- feeding a family, treating minor ailments, taking care of pets, and (2) Marketers do not need to be right for any particular individual at any particular moment but may

strive for probabilistic accuracy at the level of incidence within a universe of interest.

Modeling the Focal Universe

In basic research, when scientists study a general process i.e., one assumed to exist in a wide variety of contexts, the act of selecting the particular substantive domain in which the process is studied may receive scant attention, possibly on the assumption that substantive domains are interchangeable. In the real world of marketing practice, the choice of substantive domain is a major facet of any planning assignment.

There are a number of distinct aspects to the definition of a domain of substantive interest. The first is the domain of environmental impact -- the particular kind of change one intends to effect e.g., remove soil from clothes, or beard from face, or administer a fast-acting, lethal injury (e.g., to pests or sport animals). Typically, there are multiple ways for achieving such effects and producers tend to specialize in a small number of the relevant technologies (e.g., laundry detergents or dry cleaning; electric or wet shave; fire arms, or archery equipment, or chemicals). Second, there is what I have called elsewhere the focal behavioral domain -- a domain of experience and action that corresponds to the producer's domain of expertise. Since actions are performed by individuals and take place in space and time, it becomes necessary to specify a universe of person-activity occasions -- which actions performed by which individuals in which space/time environments are of interest to the producer (Fennell 1982). Space, time, and human beings are multidimensional, and the task of specification is complex.

Modeling the Nonfocal Universe

At any one time the producer's response to the circumstances of prospective users is highly selective and narrowly-focused. It is directed not only to a limited number of people in a naturally-occurring population but to a narrow band of the activities of those individuals. Producers do not, however, make available their productive output and information about that output in a vacuum but place their output, actually and symbolically, in public view in a world that consists of nontargets, and nonprospects, as well as targets. To help assess likelihood of unintended harm, producers need models of the nonfocal universe.

The task is relatively straightforward, to the extent that the nonfocal universe is specified by exclusion in the course of defining the focal universe. In principle, marketing planners can review the nature of proposed goods/services and accompanying messages in the context of the various kinds of activity, individuals, occasions of use, and periods of time that planners excluded when they defined the focal universe (Fennell, in press). The sheer enormity of such an undertaking is intimidating, but we must not allow the task's dimensions to get in the way of acknowledging that the kind of background conditions in which marketing operates today implicates such a task. Remote transactions between users and producers that are conducted largely in public involve, of necessity, people other than the immediate parties to the user-producer transaction.

Is Help Available for Marketing's Modeling Needs?

When we turn to behavioral science for help, we do not find models of the kind just described -- of the antecedents of individual action and of the focal and nonfocal universes. For example, mainstream psychology has not produced a major body of work, conceptual or empirical, that addresses the modeling of action. Indeed, it is philosophers rather than psychologists who are responsible for the bulk of scholarly work in the domain of conceptualizing action.

Considering a behavioral episode of change-counterchange as in Figure 1, much of psychology's work has been concerned with events in the realm of counterchange. One example is the large body of work that addresses the act of choosing -- among objects or alternative courses of action. Existing

models of choice belong in the realm of counterchange. In the typical research paradigm, individuals are presented with a set of options among which they are asked to choose. Usually, the researcher attempts to explain choice as a function of what are referred to as cognitive and affective variables e.g., expectations and utilities, or beliefs and importances. Because researchers do not establish a systematic connection between the presented options and conditions that affect the subjects, the paradigm is not relevant to the essential marketing assignment. By excluding consideration of the domain upstream from utility i.e., the conditions that imbue objects/courses of action with value in specific instances ("change" in Figure 1), researchers are unable to examine the extent to which their options reflect conditions that are operative for the subjects.

In much of mainstream psychology, researchers study the reactions of humans to stimuli, with little attention given to establishing the systematic status of the attributes of the stimulus. Consider the classic stimulus-response (S-R) paradigm. In the literatures of marketing and consumer behavior, authors sometimes speak of a brand, or an advertisement, as S, and purchase or use of a brand as R, which is a construction of S-R events as elements of counterchange. By excluding the context that gives meaning to S and R i.e., activating change, the practice is doomed to vacuity from the start. Events that are relevant to counterchange are understandable only in the context of activating change, which is also the context in light of which marketers would want to choose the attributes of their brands and the corresponding claims that they make in their ads.

The interests of many psychologists appear to lie in research domains where the attributes of stimuli are determined by variables that are outside the system of interest. The attitude-change literature is a prime example in this vein. Its thrust is to study possibilities for changing some aspect of human response to given "stimulus objects." The task of marketing is exactly the opposite. It is to create "stimulus objects" with attributes that are adapted to conditions that humans experience. For marketers, the attributes of such conditions are given, and the attributes of the stimulus -- the brand or "attitude object" -- are variable. Such is the behavioral meaning of the marketing concept: "Don't sell what you happen to make; make what the customer wants to buy." Or, to put it in terms of a behavioral episode: Marketers accept the attributes of activating change as given. They must identify such attributes to help producers to devise means for effecting counterchange.

A similar comment applies to the domain of information processing, much heralded for its supposed rejection of the mantle of stimulus-response psychology. In cognitive psychology, the dependent variable may have changed from overt response to various kinds of cognitive response but, from the present perspective, the essential stimulus-response paradigm remains in place. The conceptual sway of the stimulus-response paradigm will be broken only when researchers dislodge the influence of reflex arc thinking by substituting a behavioral episode of change-counterchange, and attempt to show a systematic link between attributes of activating change and subsequent S-R events.

It is of interest to ask why it should be that the needs of marketing practice focus attention on a view of human behavior that appears to have been neglected in mainstream psychology. Or, why is it that psychologists appear to have focused on events having to do with counterchange while neglecting to conceptualize activating change, perhaps failing to realize that what they have been focusing on is counterchange? "Personality" and "motivational" considerations are two among possibly numerous reasons.

Personality. In western culture, the tradition is well-entrenched of focusing on the person as an entity of intellectual and moral interest. Psychologists do not escape sharing in that tradition. Interest in persons as objects of study seems to have been antithetical to focusing on action. Describing persons implies summarizing across all of the different activities an individual engages in, with accompanying variation in the individual's role, environ-

mental context, and task or hobby orientation. Given an interest in action, theorists sample the behavioral universe in a different way. They focus on one or a few activities and, in a given region of space, summarize across individuals, with accompanying variation in the external and internal context for action. Focusing on persons: (1) Leads to using concepts whose scope is too wide for the reach of individual products, and (2) Gets in the way of seeing behavioral determinants that are specific to individual acts -- the focus marketers need in order to try to participate in the ongoing actions of prospective users. If one's primary interest is studying persons -- certainly a significant pursuit on many grounds -- one is likely to seek and find behavioral explanations in attributes of persons e.g., traits, values, needs. In scope, such concepts are poorly adapted to the marketer's task and they distract one from looking where marketers need to look.

Motivation. In the case of personality, marketing's problem traces to the presence of a long-standing fascination with a particular concept. In the case of motivation, absence is the problem. In western culture the concept of motivation, as marketers need to construe motivation, has been singularly underdeveloped. Since Aristotle distinguished final from other kinds of cause, neither science nor philosophy has made much progress in understanding motivation. In this respect, psychology has been no more successful than has philosophy, where motivation arises for discussion in the context of philosophers' work on action, and where its scant treatment is, at least, lamented (e.g., Von Cranach & Harre 1982 p. 393).

The reasons for motivation's neglect are likely profound. They may implicate the boundary conditions of self-awareness that affect scholars and scientists, no less than other humans and most acutely, perhaps, in regard to the process that directs the allocation of one's resources. Consider the previous discussion of activating change -- a change in the relationship between the person and the environment that may bring to the fore some feature of the pre-change state that had not been salient. Individuals may, of course, deliberately reflect on the conditions that have just redirected their attention but the more usual pattern may be to proceed immediately to taking corrective action or, when the individual is in fairly unfamiliar circumstances, to constructing and reflecting on possible courses of action. From the standpoint of survival, it seems to make sense that the human capacity for reflection and analysis should come into play after, rather than during, the time when individuals are experiencing conditions that allocate their resources to effecting counterchange. A resource-allocating mechanism that errs on the side of taking countermeasures more often than is necessary is preferable to one that errs by subjecting every hint of possible danger to self-monitoring reflection.

The reason for motivation's neglect may be yet more subtle. It may lie in the notion that the "standpoint from which commentary is made must always be one remove from experience, and cannot have attention focussed upon it" (Harre & Secord 1972 p. 91). We cannot scrutinize that with which scrutiny is performed. In the case of motivation, the operative "scrutinizer" is the standard by which we judge whether what we are experiencing can be allowed to continue without our taking countermeasures, or whether things have reached a point where we must allocate resources to making adjustment.* But what is the nature of this scrutinizer? To be able to interrupt whatever is receiving our focal attention, the scrutinizer must be set to operate automatically. Since the most we can hope for is to learn about our scrutinizers inferentially, it may be no wonder that motivation is the aspect of our being that is most mysterious. There may, then, be very good reasons, intimately bound up

*In using the word "scrutinizer" to refer to affective reactions, as I am doing here, I depart from the cognitive context in which the authors used it (Harre & Secord 1972, p. 91). Thinking of affective reactions as a form of commentary adds a significant dimension to discussion of the limits to self-awareness.

with the limits of our capacities as conscious self-monitors, why insight into the conditions of our activation is hard to come by, whether at the level of everyday experience or of formal study. Monitoring others of our species is one way we may try to compensate for these limits, an interesting extension of which is the special case of monitoring what psychologists do when they want to allocate the resources of their animal subjects. For example, students of instrumental learning may arrange things so that the resources of some rats are allocated to escaping from a source of aversive stimulation, or to avoiding its likely occurrence. They may then proceed to study change, over time, in the rats' escaping or avoiding actions. If we assemble the major kinds of conditions that students of instrumental learning use to allocate the resources of their experimental animals, we may have at least the rudiments of a model of basic kinds of motivating conditions (Fennell 1980; Michael 1982, in preparation). Collectively, these conditions help us to appreciate how environmental and personal variables combine to allocate resources and to specify the domain of action. They may begin to give us a new perspective on the mystery of our scrutinizers.

C. Collaborating for Marketing's Descriptive Task

When individuals are both producer and user, they may adjust what they produce until it yields results approaching those that their personal scrutinizers demand. People may do this without being able to communicate much about their personal scrutinizers. When the user and producer roles no longer reside in the same individual, producers are being asked to create goods/services that are responsive to those most intimate scrutinizers of prospective users. Accordingly, while we should push to its limits whatever help marketing may find in prospective users' descriptions of the context for their actions, there is good reason for not relying solely on that source of information. Minimally, researchers should use comprehensive models to guide prospective users' through the full range of possibly relevant terrain. But, for marketers to do their job, the obvious limits to what the layperson knows about the environmental conditions of one's activation must be overcome. In trying to understand the nature of activating conditions i.e., of events that both raise the question of taking action and shed light on what needs to be done, marketers seek information that experts in the human environment can provide.

Consider a well-established product such as dentifrice, and the behavioral domain of oral hygiene routines. Over time, the range of brands that has come on the market represents a growing understanding, on the part of producers collectively, of the personal and environmental conditions that may allocate people's resources to oral hygiene in the form of teeth brushing. The range of brands points to the variety of considerations that may be found in a universe of adult men and women, comprising beliefs about: the process of dental decay (e.g., food particles remaining in the mouth, bacteria, plaque, tartar), and staining (e.g., tobacco); the consideration we owe to each other in avoiding mouth odor; what is, or what is regarded as, beautiful (e.g., white teeth, or pearl-like teeth); and many others.

Eventually, marketing planners will use models of action to generate a comprehensive set of such personal and environmental elements. For interested consumer researchers, the field is wide open to develop the models marketing needs. The models have to be stated at a level of abstraction that permits marketing planners to use them in any domain of substantive interest. Considering activating change, for example, personal and environmental variables combine to allocate an individual's resources to effecting counterchange. A general model of action must allow for any aspect of the person e.g., sensation, feeling, belief, rules, information, imagination, to combine with environmental events in producing behavioral activation. (Which class of environmental events a researcher should consider is a difficult question to answer in principle. Fortunately, it need not detain us in the context of marketing practice, where it is answered on a pragmatic basis. Marketers select a substantive domain that roughly corresponds to one or more existing products within the range of the producer's

expertise e.g., products for cleansing teeth and gums). It is marketing's responsibility to obtain the collaboration of experts in appropriate realms of nonpsychological knowledge so that together they may spell out, for subsequent investigation, the real-world conditions that prospective users may be experiencing.

Collaboration between marketing and production management, including R&D, is fostered by enlightened producers of goods/services but, in the absence of models of the kind to which I refer, it does not, and cannot, proceed systematically nor can marketing readily assume leadership in such collaboration. For example, (1) Excessive attention may accrue to a candidate brand concept due to the political status of its source, to the total disregard of the idea's objective worth as measured by relevance to any existing aspect of prospects' worlds. Comprehensive models are, perhaps, the only effective means of ensuring that such privileged ideas are placed in the context of numerous competing alternatives. (2) Models would make it easier than it now is for marketing to communicate the nature of its function to production management, and within the firm generally. Nominally, top management understands that marketing represents user-wants, but what does a user-want look like? What do marketers have to bring to the conference table that gives flesh and substance to their role? If marketers were able to be articulate about the conditions that allocate prospects' resources, to which it is production management's job to be responsive, they would have something to say that top management is waiting to hear. They would be seen to give effect to their mission as users' emissaries to producers. (3) More specifically, at meetings with production management, marketers would assume their proper leadership role. They would be equipped to: a. Outline a comprehensive range of conditions that may be operative within the focal universe; b. Ask production management to specify in detail the possibly operative kinds of nonpsychological conditions corresponding to categories that marketing's general models specify; c. Initiate collaboration with production management in specifying the kinds of conditions that may result from the combined operation of psychological and nonpsychological elements; d. Proceed to study each of these theoretically specified options, identifying whether gaps exist in the firm's information about the physical or the behavioral realm, and directing investigations accordingly. Comprehensive models permit planning such as I describe which, in turn, permits the role of each of marketing's diverse kinds of research project to be clearly visible. As members of the planning team grasp the big picture, and the potential contribution of each piece of empirical work in the context of the big picture, the actual yield of relevant information improves.

Consumer Research at the Frontier

Given today's technological sophistication, there is nothing easier than producing vast quantities of goods/services. The first milestone on the way to a new frontier is recognizing that mere production warrants no accolades. The contribution that society demands from its productive enterprise is not simply to produce but to produce the right goods/services. Therein lie problems and opportunities aplenty. First, the fact that producers may not know what the "right" productive decisions are does not prevent goods from being produced. Second, all of us have an interest in the kinds of things that get produced, announced in our communications media, displayed in our stores, used by our neighbors and ourselves, and disposed of in our dumps. As individual consumers, many of us feel, perhaps wrongly, that there is little we can do to influence the kinds of things that get produced. As marketing practitioners, the kinds of things that get produced are our responsibility. Within law and ethics, it is our assignment to see to it that what gets produced is what users of goods/services would make for themselves. Third, as consumer researchers, we could have much more to say than we do now, if we would take the action that is ours to take namely, develop the conceptual tools that help marketers effectively represent user-circumstances to producers. Fourth, as marketers and as consumer researchers, if we do not do our job, others will do it, and are doing it. Decisions are made and goods

services are produced, with or without our input.

So, there is a job that needs to be done, that is being done, that many people would like to have a say in doing, that is marketing's responsibility, that consumer researchers may take as their interest and responsibility. It is located at the frontier of the realm that science and scholarship have made their own. What more could anyone ask for, measured by yardsticks of intellectual challenge and importance to society? In the decade of the 1920s, "rationalization of production" was much in vogue. The phrase referred to introducing more efficient, streamlined, methods of production and to the replacement of human labor by machines. The process of deciding what shall be produced has not yet benefited from rationalization. Instead, it is characterized by bumbling, chaos, and colossal waste that make the era of prerationalized methods of production seem serenely ordered. It does not have to be this way. But the best hope for order are consumer researchers ready to study the essential marketing task. Those who do will not only serve marketing, and the public at large. They will extend the boundaries of what is thinkable, both for the nature of our productive enterprise and for behavioral science. If ever a task needed the help of basic science, it is society's charge to marketing to represent users to producers. If ever a task was at the frontier of knowledge, close to human hearts, and at the center of human mystery, it is that of consumer researcher for marketing practice.

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MARKETING, INTELLECTUAL CREATIVITY, AND CONSUMER RESEARCH

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Introduction

Marketing has suffered from a schizophrenia of purpose since its inception. As a field of intellectual inquiry, its purpose should be to generate knowledge about its central phenomena -- i.e., the elements and processes of exchange. However, as an applied discipline its primary purpose has frequently been to generate knowledge of value to marketing practice--and more specifically, to benefit marketing management. These two goals were recognized early on by MacInnes (1965) who stated (p. 57) that "marketing in its widest sense, therefore, is any activity which actualizes the potential market [i.e., exchange] relationship between the makers and users of goods and services. A science of marketing would attempt to analyze and form testable hypotheses about this actualization; the practice of marketing would exploit the actualization process to generate sales."

However, despite MacInnes' explicit recognition of the distinction between marketing science and marketing practice, many leading scholars of the era felt that marketing science should be subservient to marketing practice. That is, that any intellectual inquiry into marketing phenomena must be ultimately judged according to its contribution to marketing practice. For example, Alderson (1957, p. 24) stated, "More generally, this question as to where science should start raises the fundamental issue of the relation of science to action. On the one side is the pragmatic view that a science should begin as quickly as possible to handle its data in such a way as to produce practical results. On the other side is what might be called the 'existential' view, that science is concerned first of all with the nature of reality and that questions of human purpose are secondary. [My] present view is that marketing would not exist as a separate field of study except to promote practical objectives, and that any theory that will provide a useful perspective for this field is necessarily pragmatic..." Despite Alderson's misapplication of the term 'existential', his statement quite clearly advocates the position that marketing science exists to serve marketing practice.

This normative positioning of marketing science to further the goals of marketing practice was recently reiterated in an editorial in the Journal of Marketing. Writing on reviewing criteria for articles submitted on marketing programs, Cunningham and Enis (1983, p. 6) state, "It is particularly important in the Marketing Programs section to discuss the managerial implications of research. In short (sic) contrast to the analytical rigor characterizing the research design of many papers, the discussion of managerial implications is often nothing more than speculation. Too few researchers discuss their research with practitioners and even fewer involve them in the project, for example, as 'feasibility advisers'..."

Even more recently (August 1984) the AMA Education Council was asked by the American Marketing Association to formulate an official definition of marketing. Initially a Council subcommittee proposed a definition that would have effectively equated marketing with marketing management; their original definition was: "Marketing involves the integrated analysis, planning, and execution of a set of activities concerning pricing, promoting, and distributing ideas, goods, and services intended to bring about exchanges to satisfy human or organizational objectives." When this definition was presented to the full Council, a minority segment (including the present author) argued strongly against the equating of marketing--as a field of intellectual inquiry--with the practice of marketing management.

Eventually, this notion prevailed and two definitions were forwarded by the Council to the AMA Board of Directors. Marketing was to be defined as the process intended to bring about exchanges to satisfy human or organizational objectives. In contrast, marketing management was defined as the integrated analysis, planning, and execution of a set of activities concerning the pricing, promoting, and distributing of ideas, goods, and services.

Unfortunately, when these two definitions were reviewed by the AMA Board of Directors for approval, the Board, which is representing a constituency that is 15% academicians and 85% practitioners, reverted back to the earlier "marketing management" version as the official definition for marketing. To wit: "Marketing is the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational objectives" (Marketing News, March 1, 1985, AMA Board).

This definition of marketing is derived in large part from what practitioners (and some academicians) think marketing is and it leads to the expectation, on their part, that academic research should serve the interests of or at least be useful to marketing management. Research which has no practical application or, worse yet, is conducted just because the academician thought it might be interesting is viewed by them as a wasteful use of academic resources that should be directed toward solving their problems. This view is expressed so eloquently by marketing practitioner, Robert MacLaren Lawrence, in the July 19, 1985 issue of Marketing News that I will simply excerpt portions of his article (p. 2):

The Gap Widens Between Educators, Practitioners

"I recently attended a regional marketing conference to present a paper on direct marketing in current curricula. While waiting for my time to come, I went to several presentations on sales management research and marketing strategy. Once again, I sat and shook my head and wondered: Where is the field going? We're not talking [about] better marketing or even [better] research. We're talking about a bunch of people writing papers for publication and no one is addressing the issues of the people on the firing line -- the managers.

When I asked one of the speakers how his research information translated to the managers for dissemination, the question drew blank stares. It didn't seem to be important...Perhaps part of the problem lies with the efforts of marketing academics to practice scholarship and behavioral science research and not attend to the distribution of the information to the marketing community at large. I do not know why.

Pure research in the field may be chasing windmills. Applied research seems to be limited to persons with consulting practices, and the two seldom appear in the same journals. My only conclusion is that the two segments are addressing mutually exclusive audiences.

In general, the current challenges facing managers in terms of operating the marketing organization are being ignored by the academicians...Indeed, the authors have shrouded themselves in a private language and call it marketing. Some of the professors have no experience at all. They have never run a budget, introduced a new product, managed a product, or done any advertising. They have no idea that doctoral tools represent a small portion of the marketing situation. In the mad scramble for schools to hire professors with the proper credentials--the PhD, which certifies the holder's ability to do research--issues such as experience and the ability to

communicate marketing to students and managers are ignored, and sometimes given negative points. This entire situation angers me.

Perhaps the problem lies in the doctoral programs where the emphasis is thrown too much on one area. Perhaps the availability of teaching jobs in marketing has attracted people who ordinarily would have gone into some branch of the social sciences. I would like to see some direct impact on management policy. Modify the current format of marketing conferences to include managers, and invite papers and special sessions. So often I've even seen the most elementary of presentations by managers draw the audience of professors into an almost awestruck state.

My purpose is not to say that all current research is without merit. [However], I do believe that much of the research is geared towards getting published rather than disseminating information throughout the marketing community. After all, we should be, practitioner and professor alike, members of the same body politic. In fact, we are not...The scholars seem content to study and develop models of behavior, many of which are seldom used in the private sector. They argue about the incessant measurement of meaningless minutiae and ignore the plights of management in operating the process."

After reading Mr. Lawrence's indictment of scholarship and the absurdity of marketing academicians pursuing 'social science' research for its own sake, I was in a state of depression until I came upon the following article by Herbert Rotfeld, an Assistant Professor of Advertising at Penn State, in the same issue of Marketing News, albeit 'buried' at the bottom of the next-to-last page:

Marketing Educators Must Become More 'Scholarly'

" Marketing teachers often lament their lack of academic respectability. There are grounds for it, and educators have only themselves to blame.

Marketing is not respected as an academic discipline for the very good reason that it isn't. Merely being taught at a university does not make something an academic discipline. No one would dare assert that typing, swimming, and videotape editing should be so considered. Simply being called "professor" does not make one a scholar.

How many [marketing academicians] can say they objectively view marketing activities with the same disinterested, scholarly curiosity with which the anthropologist studies a primitive tribe, or with which the biologist watches the microbes squirming under a microscope? More directly, if marketing educators were scholars, they would not discuss the value of their education programs solely in reference to their ability (or inability) to train students for entry-level jobs.

Although the liberal arts form the basis for the vast bulk of our college and high school programs, it is rarely claimed that their importance to education is based on the course materials being necessary for future employment...Education for its own sake is an important ingredient for the working of our popular democracy; the people best able to adapt to the world around them are those with the greatest (and broadest) exposure to variation of that world.

If all that marketing education is capable of accomplishing is training students to be practitioners, there should be serious doubt about its value to the university campus.

The point is that the study of business practices could become an important body of scholarship, and the assistance such programs might provide to people in entry-level [positions] should serve a secondary role. However, if all that were offered were job skills and training, such programs would belong in vocational train-

ing schools and not in universities.

It should be intuitively obvious that when a group gathers to discuss how to train people for jobs, they clearly abandon any pretense of scholarship. They confess to being propagandists. Now, there is nothing intrinsically evil about propagandists, but their place is in the public relations office, not in the classroom. And that is the key to what is fundamentally wrong with marketing education; why it lacks an academic discipline and why many of its teachers are not scholars. This problem limits marketing education's social worth as well as its academic respectability.

How many marketing or advertising teachers worry not about improving the reputation of business, but rather try to provide the detached, penetrating criticism that is needed? How many of our programs require courses on the history of business organizations, ethical issues, or law, not in an effort to turn out "better" managers, but rather to criticize common business practices? How many courses on marketing and society are simply case studies of management problems instead of analysis of marketing's dysfunctions as a social force?

A scholar cannot share goals, viewpoints, and values with practitioners. An educator should not be the businesses' representative on campus, nor their recruiting officer or defense counsel. Educators should work for society, not industry, based upon the belief that they serve society by serving truth."

Professor Rotfeld's letter expresses with great clarity why it is that the interests of marketing managers should not drive academic marketing research and why, by extension, marketing management variables are not the 'core' of consumer research. Such a focus acts to stifle intellectual creativity, to limit our horizons, and to compromise our integrity as scholars and social scientists.

This misguided norm, which I term the Doctrine of Managerial Utility, threatens inquiry in two ways. First, and probably most importantly, it narrows and distorts the field of potential research issues considered by marketing and consumer researchers. When an academician begins any inquiry with the notion that its results must be beneficial to marketing practitioners, s/he starts out with a pair of intellectual blinders on. The researcher's field of vision becomes necessarily restricted to those areas where practical results are believed to be forthcoming.

Further, the scientist's view of even these practical areas will be distorted because s/he will tend to see them from the perspective of the marketing manager and not from the viewpoint of other participants in the exchange (Anderson 1983). Marketing and consumer behavior can make little progress as sciences unless and until these restrictions and distortions are removed and the researcher feels free to investigate any aspect of relevant phenomena, regardless of the potential pragmatic payoff.

A second--and probably quite frequent--threat to marketing and consumer behavior as sciences resulting from the Doctrine of Managerial Utility is that it forces researchers to engage in hypocritical attempts to dream-up managerial implications for their research before submission to a journal or academic conference. I suspect that there is probably a certain segment of researchers who do investigate 'non-practical' topics of interest to them, but who then must exert great effort to think of some managerial implications when writing up the investigation as an article. In fact, the most creative thinking done in some articles is probably concocting a discussion of managerial utility, when the research contains none.

What is quite unfortunate about this scenario, however, is that the researcher may have made a major conceptual or empirical breakthrough in the study, one that could contribute greatly to our understanding of consumption phenomena, but is forced to submerge the intellectual value of this finding beneath a weak and worthless discussion of

its 'managerial utility'. What is even more unfortunate is that a reviewer of the article may respond by noting that the finding is quite interesting theoretically, but since it is of little or no use managerially, the article should be rejected. Doubtless this scenario has been enacted in reality on too many occasions.

If marketing and consumer behavior are to achieve their best as fields of intellectual inquiry, then marketing and consumer researchers must be permitted to act as artists and not as craftsmen, to use Becker's (1978) terminology. An artist is one who creates out of an inner desire for personal expression; whereas a craftsman is one who creates to serve the will of the client. Marketing and consumer researchers should be free, as artists, to follow their intellectual curiosity wherever it takes them--even if those areas are impractical, nonutilitarian, or even anti-business. Research which places managerial utility ahead of intellectual curiosity subverts marketing and consumer behavior as sciences; it makes a craftsman of the researcher and degrades the intrinsic value of the knowledge produced.

Marketing Inquiry and Consumer Research

One reason why I, as a professor of marketing, (and I suspect many other marketing professors) chose to specialize in consumer behavior research is because it was relatively less restricted by the Doctrine of Managerial Utility. There is a widely-shared perception among consumer researchers that they are less hemmed-in intellectually by the necessity of producing practical results, than are marketing academicians as a whole. There has been an excitement and comradeship at the ACR Conferences throughout the 1970's and early 1980's that derives from the fact that the participants believe they are 'getting away' with something. That they are in some sense a secret society, thinking about and talking about things 'forbidden' in a traditional marketing academic setting. In short, they are having fun; they are enjoying themselves, because they are investigating what they are intellectually curious about, and not what they are 'supposed' to be studying -- i.e., phenomena of interest to marketing management.

Because of its intellectual freedom, consumer research is considered by many to be as the most rapidly progressing aspect of marketing inquiry. It is generally perceived as the most intellectually rigorous and theoretically advanced area of our discipline. And revealingly, the majority of AMA Consortium PhD students in the past several years have chosen dissertation topics focused upon consumer behavior and not marketing management.

Perhaps the greatest intellectual discovery we have made in consumer research is that scientists do their very best work when they are investigating topics they are naturally curious about; when they are acting as artists and not as craftsmen. Far from 'reining ourselves in' and getting 'back to basics', I believe every encouragement should be given to intellectual diversity and topical heterogeneity in consumer research.

This course of action cannot be pursued without a cost, however. I must report to you that in the general marketing management community and among some marketing academicians, ACR-affiliated consumer researchers are now widely viewed as eggheads, impractical oddballs, and even -- in the case of the experiential-hedonic fringe elements such as Holbrook and Hirschman -- as certifiably insane. If we continue to pursue our errant ways, this perception will no doubt increase. So be it.

Beneath this overt derision lies a sneaking suspicion that maybe ACR researchers are onto something that the others are missing. That something secret, exotic, and probably sinful must be going on at those ACR Conferences, because (unlike AMA) people are actually attending sessions; they are actually arguing over research ideas; they actually care about what they are doing.

So, my position is this:

--if a consumer researcher wants to apply neo-Marxist thought to consumption practices in industrialized countries and comes to the conclusion that capitalism is a failure, that effort should not only be tolerated but encouraged.

If a consumer researcher wants to spend a year investigating the home production of handicrafts in the Appalachian mountains, that effort should not only be tolerated but encouraged.

If a consumer researcher wants to systematically examine the meanings of aesthetic objects using humanistic methodologies, that effort should not only be tolerated but encouraged.

And if a consumer researcher wants to examine the material culture of Neanderthal man using archaeological inference, that effort should not only be tolerated but encouraged.

All of these phenomena constitute consumer behavior; all are intellectually challenging; and although none of them has any direct utility to marketing management, they are nonetheless appropriate and important topics for consumer research.

As scientists it is critical that we have the freedom to investigate the phenomena of our field with a minimum of normative restrictions. Our research should be bounded only by our curiosity and our innate abilities to discover and to comprehend. We owe no allegiance to managerial pragmatics, nor should we be bound to further them.

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WHITHER ACR?
SOME PASTORAL REFLECTIONS ON BEARS, BALTIMORE, BASEBALL, AND RESURRECTING CONSUMER RESEARCH

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Yet once more, O ye laurels, and once more,
Ye myrtles brown, with ivy never sere,
I come to pluck your berries harsh and crude,
And with forced fingers rude
Shatter your leaves before the mellowing year.
Bitter constraint, and sad occasion dear,
Compels me to disturb your season due
("Lycidas," John Milton 1637, ll. 1-7).

I'd be pretty dumb if all of a sudden
I started being something I'm not
(Yogi Berra, quoted by Clark 1984, p. 6).

Against the rules, yes, Boo Boo. But I am a
nonconformist bear (Yogi Bear, quoted by Clark
1984, p. 6).

We have the obligation of pressing the unpleasant
questions...the embarrassing questions, the taboo
questions. Being so privileged as we are, it is
almost our damn job not to ask the nice questions,
not to ask the comfortable questions (George
Steiner, quoted by the New York Times 1985, p. 22E).

Abstract

The Bad News Bears return. Hattie pays for the Baltimore Sun. The buyer goes downtown. The consumer researcher plays left field. Sweet Lou comes home. The shepherds weep no more.

The Bad News Bears Return

The Bad News Bears are back! Only this time, they are wearing baseball uniforms, reading poetry, and playing on our team.

Last year, in an ACR session entitled "The Vices and Virtues of Being Relevant: Perspectives on Consulting," I prompted some debate by examining the forces that push consumer research toward managerial relevance, comparing these pressures to the Three Bears, likening our discipline to Goldilocks, and retelling the ancient tale in a new version that bore deadly consequences for our fair-haired heroine:

When the bears returned to the cottage from their day in the woods, they found Goldilocks peacefully asleep.... They immediately did what any self-respecting bears would do. They killed her on the spot (Holbrook 1985b, p. 154).

In his presentation, Jack Jacoby took exception to my distortion of this beloved fable and generously supplied me with a children's book that contains what he regards as the appropriate ending:

Goldilocks woke up with a start. She ran to the window and jumped out. And the three bears never ever saw her again (Lothrop, Lee and Shepard Books 1982, p. 23).

Though I doubt that whether Goldilocks is "killed on the spot" (my account) or simply "never seen again" (the authentic version) makes much difference to those who

loved her dearly, I have learned one thing--namely that, as a metaphor for the fate of consumer research, my Three Bears story fails to do the trick. Besides, I've always liked bears and mean them no harm.

Lycidas Is Dead

So what we now need is a story that really is sad--by anyone's standards--but, to preserve our optimism, one that has a hopeful resolution. I can think of no sadder but ultimately more hopeful tale than John Milton's elegy on the death of Lycidas in which the poet "bemoans a learned Friend, unfortunately drowned...on the Irish Seas":

Bitter constraint, and sad occasion dear,
Compels me to disturb your season due,
For Lycidas is dead, dead ere his prime,
Young Lycidas, and hath not left his peer.
Who would not sing for Lycidas? He knew
himself to sing, and build the lofty rhyme.
He must not float upon his watery bier
Unwept, and welter to the parching wind,
Without the meed of some melodious tear
("Lycidas," Milton 1637, ll. 6-14).

I shall therefore take "Lycidas" as my symbol for the potential premature demise of consumer research--Lycidas, the fair-haired and beautiful shepherd boy who has drowned beneath the sea and "sunk... beneath the watery floor" (l. 167). This oceanic image recalls last year's comparison of commercialization and overzealous managerial relevance to sinking like a stone in water:

We can pursue knowledge like beauty for its own sake...or we can wrap our feet in utilitarian slippers of lead and perform soggy pirouettes beneath a sea of managerial practicalities. As Charlie the Tuna found out to his dismay, the pursuit of Truth and Beauty gets nowhere on the ocean floor. Sorry, Charlie. Practitioners don't want tunas with good taste. They want tunas that taste good (Holbrook 1985a, p. 30).

As soon as business intrudes into science, one hears complaints from scientists about loss of academic freedom and interference with scholarly integrity. Yet, in my experience, one seldom hears such complaints voiced in the context of business schools or among consumer researchers. Apparently, we are like fish in water. We have so long been submerged under the influence of business sponsorship that we don't even notice it any more Usually, we swim in the tide of corporate sponsorship without really noticing the ebb and flow of the invisible currents that steer us (Holbrook 1985b, p. 153).

Milton's poem contains numerous cases of water-and-light, sea-and-sun imagery. In this spirit, then, let me begin with a story about the sun--in this case, the Baltimore Sun, that town's daily newspaper.

Hattie Pays for the Baltimore Sun

Once upon a time, in a story told and retold by my mother-in-law, one of her friends named Miss Lee moved from her home on a plantation near Charlottesville to the city of Baltimore. Miss Lee had grown up in the patrician luxury of the Virginian countryside, surrounded by crops, servants, and the good things in life. In her later years, Miss Lee took her loyal and devoted housekeeper called Hattie and went to a small apartment to be near her doctor

¹The author thanks Russ Belk, Geraldine Fennell, Beth Hirschman, Rich Lutz, and Rich Yalch for their helpful comments on an earlier draft of this paper. He also gratefully acknowledges the financial support provided by the Columbia Business School's Faculty Research Fund.

in the big city. Miss Lee enjoyed the cultural stimulation of the urban environment; but Hattie, who was less well-educated, found it difficult to adapt. Finally, one day, the arrival of the newspaper boy asking to be paid for delivery of the paper pushed Hattie over the edge. She came bursting into Miss Lee's bedroom in tears and cried:

"O, Miss Lee, I can't stand it no more. Back home, when I needed eggs, I just went to the hen house and grabbed up a few; now I need to place an order with the delivery man and wait two days. Back home, when I wanted milk, I could just go out to the barn and get me some from the cow; now I have to call the dairy company and pay them to come and bring it. Back home, when I had to fix vegetables for supper, I could just go out to the garden and pull some up right out of the ground; now I have to carry a shopping basket and a pocketbook full of money all the way down to the grocery store. And now--Lord, Lord --there's a boy down there at the front door who says he's here to collect for the sun."

At one level, Hattie had missed the point. She had failed to recognize that the "Sun" in question was a newspaper and not the big star that sits at the center of our solar system. But, at a much more profound level, Hattie had grasped one key issue better than do many of us who call ourselves consumer researchers, attend ACR conferences, and ponder the future direction of the Association.

Hattie understood, metaphorically, that consumers want to enjoy the sunshine and that marketers want to collect for the sun--that marketers want to charge them money for their consumption experiences. In other words, Hattie recognized that there is a fundamental difference in perspective between consumers and marketing managers and by extension, therefore, between marketing and consumer research. The consumer's perspective, Hattie knew, centers in consuming and in phenomena related to the consumption experience; presumably, consumer research should reflect those interests. By contrast, marketing research does and definitely should reflect the marketing manager's concern for buying behavior and for phenomena related to purchase decisions and their impact on profitability. Hence, as Hattie instinctively recognized, consumer research and marketing research differ fundamentally in orientation.

I like marketing. I spend many of my waking hours worrying about marketing and trying to teach MBA's what I know about the formulation of marketing strategy and the solution of marketing problems. But still, even though I deeply believe that marketing is a worthwhile (probably the most worthwhile) business activity, many of us in marketing are in the position of trying to collect for the sun. Therefore, our concerns as marketers may differ from the concerns that inform the activities of consumers. It follows that marketing research and consumer research are and should be different sorts of things.

To repeat, I regard marketing as a noble profession. If I did not, I could not stand up and teach it for a living. I want the companies whose stocks I own to practice good marketing management and make lots of money. I want my students to go out and become good marketers and succeed on the job. I would even let my son marry a marketing woman. Further, as Levitt (1960, 1962) has taught us so well, I recognize that marketing often involves a large component of customer orientation and, therefore, that any decent piece of consumer research may eventually be relevant to some marketer somewhere, some way, some time. But, as Levitt's critics have insistently pointed out, customer orientation must be tempered by some concern for the firm's skills, strengths, capabilities, resources, costs, and other internal constraints so that, ultimately, we arrive at what is sometimes called the profit orientation, the survival orientation, or the "marketing orientation" (in the truer sense of that abused term).

This marketing orientation, by focusing on internal considerations of the firm's profitability, differs fundamentally from the perspective of the consumer. Accordingly, the research intended to serve it does and should differ fundamentally from consumer research. Thus, in my view, consumer research emerges from the perspective of the (value-seeking) consumer and marketing research adopts the orientation of the (profit-seeking) marketing manager.

But, already, I have used such terms as "consumer," "consumption," "buying," "business," and "marketing"--words that have served as endless sources of confusion in our discipline and that occasionally have even led to the abandonment of consumers by some of their erstwhile most devoted friends and to the redefinition of consumer research by some of its most illustrious spokesmen.

Where were ye, Nymphs, when the remorseless deep
Closed o'er the head of your loved Lycidas?
("Lycidas," ll. 50-51).

The Buyer Goes Downtown

A spectacular case in point appeared in a recent statement by Ralph Nader, surely one of the consumer's most passionate advocates:

"I don't want to use 'consumer' anymore," Mr. Nader said. "I want to use 'buyer.' You don't go downtown to consume--you go downtown to buy" (Molotsky 1985, p. 44).

Nader's claim was "that people ought to use their buying power to bring them to parity in dealing with large corporations and government" (p. 44). But, however well-intentioned, his treatment of "consumers" as people who "go downtown to buy" endangers the recognition that consumers are not just buyers and that our research should reflect this fact. Besides purchasing, consumers also engage in other forms of consumption involved in the acquisition, usage, and disposition of the products they consume:

consumer behavior is the acquisition, consumption, and disposition of goods, services, time, and ideas by living units.... It encompasses much more than just the purchase of products and/or services by humans (Jacoby 1975, p. 979).

Most definitions of consumer behavior shackle us by confining attention to purchase.... purchase is only one form of acquisition.... Consumption must be given greater salience.... disposition...appears to have been completely neglected. This neglect should be rectified (Jacoby 1978, p. 94).

in addition to choice behavior, we must encourage research on procurement behavior..., on consumption behavior...and on disposal behavior (Sheth 1985, p. 1).

Hence, as these warnings suggest, the use of "buyers" to signify "consumers" encourages dangerous misunderstandings, some of which have afflicted our own literature.

But the confusion between "buying" and "consuming" is not the only terminological problem that threatens us. Another concerns the meaning of the word "marketing" itself. On the wall outside my office, I have an old *New Yorker* cartoon. It shows a door labelled "Vice-President of Marketing" with a man coming out of the door, carrying a shopping basket, and clearly heading toward some nearby grocery store. This cartoon serves to remind us that our language carries at least three meanings of the word "marketing." The first, "marketing" in the sense of "going to market" or "shopping," belongs to the discourse of housewives or househusbands and focuses entirely on the activities of the customer. The second, "marketing" as a set of managerial responsibilities concerned with exchange

processes (Kotler 1972) or with the removal of gaps between producers and end-users (McInnes 1964), adopts the perspective of practitioners and corresponds most closely to the usage that prevails in both academic and management circles (Marketing News 1985). The third, "marketing" as a very broad set of phenomena involving interactions between customers and managers (with an equal emphasis on the viewpoints of each), would better be called "business" or "commerce" and constitutes a vaguely delimited area in which we all participate to some degree.

A similar confusion surrounds the natures of "marketing research" and "consumer research." Some of the smartest people I know insist that the two are essentially the same thing. For example, John Farley (current Executive Director of the Marketing Science Institute) walked into my office the other day and assured me that there is no difference between consumer research and marketing research. Their union minus their intersection is the null set. As we shall see, the 1985 ACR Call For Papers by Rich Lutz (this year's Conference Chairman) conflates the two. Again, one might interpret Jack Jacoby's (1985a, b) position as blurring the distinction somewhat. Geraldine Fennell (1982), another friend from the world of consulting, also seems to suggest that marketing research and consumer research are (or at least should be) indistinguishable insofar as "marketing's central assignment" involves "responding to consumer wants in a competitive environment" (p. 1). Thus, in their comprehensive review of marketing R & D, Myers, Massy, and Greyser (1980) suggest that

in the early 1960's...marketing research became, in effect, "consumer research," and the emphasis was placed on developing theories of consumer motivation and behavior or consumer decision processes (p. 4).

These examples reflect a prevalent conception based on considerable common sense. Indeed, compared to the difference between marketing research and, say, biophysics, marketing and consumer research do seem almost identical. Further, the tendency to equate the two may exhibit nothing more than one side of the age-old debate between those inclined to see the One and those drawn instead to a view of the Many.

Almost 2500 years ago, two Greek philosophers named Heraclitus and Parmenides represented opposite sides of a controversy that most of us still grapple with millennia later. This controversy concerns what Hare (1982) calls the problem of the One and the Many and stems from the fact that people adopt contrasting world views. Some see everything as different and changing. Others see everything as constant and the same:

Two great philosophers...took up opposite points of view on the problem of 'The One and the Many.' The first was Heraclitus...emphasizing the diversity and changeability of the Many at the expense of the One; Parmenides, by contrast... went to the opposite extreme, denying the reality of appearances altogether...and...concluded that, in spite of appearances, the universe is really solid throughout and immobile (pp. 12-13).

Clearly, those who insist that "buyers" and "consumers," "marketing management" and "business," or "marketing research" and "consumer research" are the same things adopt a Parmenidean view of our discipline. They receive support from a 2500-year-old philosophical tradition. Yet I believe that they blur some important distinctions, fudge some key contrasts, and thereby encourage confusion. Accordingly, I wish to revive the spirit of Heraclitus and to argue for a more Heraclitean temperament at ACR.

In an effort to remain as consistent as possible with common usage (and with myself), I shall adopt the following terminology. I shall define "business research" as investigations pertaining to customer-manager interactions broadly considered. For example, business research would

include work on public policy or on social welfare. In accord with the official AMA viewpoint (Marketing News 1985, p. 1) and the book by Myers, Massy, and Greyser (1980), I shall define "marketing research" as investigations intended to address managerial problems and to provide practical solutions or applications for marketing managers:

A basic assumption adopted by the ERDMM Commission... was that the broad purpose of knowledge development in marketing should be to improve, or make more effective, marketing management. Marketing's R & D system, it can be argued, has this as its fundamental goal (pp. 143-144).

Finally, I shall define "consumer research" as investigations that address issues dictated by their relevance to consumption phenomena (e.g., acquiring, using, disposing, etc.) and that contribute managerial applications, if at all, only incidentally or even by accident. Notice that, as just defined, business research encompasses all or most marketing research and some consumer research, while consumer and marketing research may overlap in content but differ fundamentally in purpose.

I cannot insist strongly enough on two points: (1) that I agree with the generally prevailing articulation of the purpose for marketing research and (2) that I view consumer research as having a different objective--namely, to understand consumption behavior in the acquisition, usage, and disposition of products (goods, services, and other consumable events). Here, I freely admit that there is some tendency for much consumer research to be or to become relevant to the decisions of marketing managers. I only wish to claim that, whatever its relevance to practitioners, managerial applicability does not serve as its primary motivation nor its main intention. The fundamental purpose for consumer research (in my definition) is to understand the nature of consumption behavior broadly conceived. From my perspective, this view should serve as our window on the world. It is like the contact lens through which we observe reality. But, like a contact lens, it easily gets misplaced. We must guard it carefully. And if, perchance, we drop it, we must bend and search for it before we lose it or someone else tramples it under foot.

Anyone who has agreed, even partially, with my comments to this point must surely have reacted with alarm to ACR's 1985 Call For Papers (Lutz 1985).

But, oh! the heavy change, now thou art gone,
Now thou art gone and never must return!....
As killing as the canker to the rose,
Or taint-worm to the weanling herds that graze,
Or frost to flowers, that their gay wardrobe wear,
When first the white-thorn blows;
Such, Lycidas, thy loss to shepherd's ear
("Lycidas," 11. 38-49).

In the 1985 ACR Call For Papers, Rich Lutz (1985) offered "some thoughts on the 'state of the association,'" echoed Sheth's (1985) concern that "ACR has lost some of the 'excitement' which was characteristic of the organization during the 1970's," suggested that "the pendulum has perhaps swung too far in the direction of broadening consumer research," argued that "what the field needs is more systematic attention to the 'core' of the domain rather than its fringes," specified that "the core of the domain of consumer behavior rests both empirically and definitionally on the effects of marketing activities on consumers," and concluded:

Accordingly, I would like to offer another potential remedy to those which have been discussed in the past and hereby actively solicit papers, special sessions and workshops devoted to the study of the effects of marketing variables on consumer behavior (p. 5).

This hard-core theme (including an apparently pejorative use of the term "fringe") was soon picked up and echoed by Rich Yalch (1985) in his departing editorial for the ACR Newsletter:

It seems to me that ACR has gone through phases that basically correspond to the interests of the members who have formed the heart of the Association since its beginning. At present, these individuals (and hence the association) seem lost.... The need for variety characteristic of cognitively complex individuals seems to be motivating radical proposals for how the discipline should approach consumer research and what constitutes important areas of interest.... In addition to being skeptical of the contribution of this endeavor, my concern is that younger, impressionable members of the discipline might mistake the leaders' temporary disinterest with the discipline's core areas of research and fascination with the fringe areas as evidence of a major paradigm shift.... However,...the focus will remain on the purchase behavior of the "shopper" in the household for common consumer goods and services (p. 2).

Surely, these polemics by Lutz and Yalch constitute an "Embarrassment of Riches." It seems clear (from my own biased position) that these two scholars have been listening to the same muse--one that issues bad advice. How can this have happened?

But now my oat proceeds,
And listens to the Herald of the Sea,
That came in Neptune's plea.
He asked the waves, and asked the felon winds,
What hard mishap hath doomed this gentle swain?
("Lycidas," 11. 88-92).

In my admittedly idiosyncratic view, three sirens of the deep have been calling to the two ACR leaders. Lutz (1985) describes these three siren songs quite specifically as his three major assumptions:

- (1) ACR was conceived of, founded by, and continues to be dominated by marketing academics (approximately 80% of the current membership);
- (2) Consumers would have little to "consume" were it not for the activities of marketers....
- (3) It is entirely possible to conduct scholarly, scientific research on the effects of marketing variables on consumers (p. 5).

All three assumptions strike me as either untenable or irrelevant to the issue at hand. First, while the perspective of marketing management may once have dominated ACR, I doubt that it continues to do so. One's title as a marketing professor does not necessarily determine the content of one's thought processes. Further, many of us think that the participation of ACR members from other disciplines deserves expansion, not contraction. Seeking a hard-core marketing focus for the organization hardly seems likely to foster that end.

Second, as vividly articulated by Hattie, we should avoid the assumption that consumption depends exclusively or even largely on the activities of marketers. I doubt that Lutz really believes consumers would have little to consume without marketing. Only someone trying, like Polaroid, to sell us "a piece of the sun" would make that claim seriously.

Third, though scholarly work on marketing variables is indubitably "possible," it does not necessarily follow that it is "fundamental" to consumer research nor that such a focus should be proclaimed as our guiding light at ACR. Indeed, good reasons exist for thinking that scientific progress often moves fastest when it remains relatively independent from the pressures of various interest groups (Holbrook 1985b). Perhaps I may clarify this last

point by turning to an analogy drawn from another pastoral source--namely, baseball.

For we were nursed upon the self-same hill,
Fed the same flock, by fountain, shade, and rill;
Together both, ere the high lawns appeared
Under the opening eyelids of the Morn,
We drove a-field....
("Lycidas," 11. 23-27).

The Consumer Researcher Plays Left Field

In a classic comedy sketch, George Carlin contrasts the sports of football and baseball. The first emerges as pragmatic, tough-minded, and rapacious, the second as fun, tender-hearted, and gentle:

Baseball and football. Baseball is pastoral. Football is technological. Baseball is played in a park. Football is played in a stadium. Baseball... (pause)...has no time limit; we don't know when it's gonna end. Football is rigidly timed; and it will end, even if we have to go to sudden death. Baseball has the bunt. Football has the punt. Baseball's object is to go home.... In football, we are down in enemy territory, reaching for the end zone. In football, we have the block, the clip, the kick, the blitz, the bomb, the offense, the defense. In baseball, we have the sacrifice. And, in baseball, you make an error. In football, you pay a penalty. Woody Hayes wears a baseball hat during the football game. Can you imagine if Walter Alston wore a football helmet during the baseball game? They would truck him away, man (Carlin 1975).

Carlin's contrast vividly undercuts the analogy frequently drawn between business and football. Business does not resemble a football game, where the purpose is to bash, battle, and bruise the opponent into oblivion:

What is football...except eleven people who line up, beat the shit out of the other guys, and take their land? It's a ground-acquisition game (Carlin 1975).

Clearly, football--with its intent on destruction--resembles war, not business. Hence, the business strategists who dwell excessively on football and military analogies pursue the wrong metaphor. Rather, business is like a baseball game in which the sphere of action at any moment includes a batter, a pitcher, a catcher, some other fielders, and maybe some base-runners. In football, there is no meaningful analogy to the customer. In baseball, the batter corresponds to the business customer. The pitcher parallels the salesman. The catcher resembles the marketing manager. And the consumer researcher plays left field.

Consider, first, the batter. The batter stands at home plate and waits for his pitch. He is a discriminating customer. He does not want to expend his resources on a bad product. But, when he sees an offering he likes, he swings with it--or at least at it.

Meanwhile, the pitcher is a salesman--in the worst sense of that term, as embodied by Levitt's (1960, 1962) merciless critique of the selling orientation. The pitcher wants to persuade the batter to swing at a bad pitch. His art is deception, misrepresentation, and chicanery. As the consumer of pitches, the batter's best interests are directly antithetical to those of the pitcher. This tension was beautifully captured in a poem by Robert Francis (1976) called "Pitcher":

His art is eccentricity, his aim
How not to hit the mark he seems to aim at,

His passion how to avoid the obvious,
His technique how to vary the avoidance.

The others throw to be comprehended.
He throws to be a moment misunderstood.

Yet not too much. Not errant, arrant, wild,
But every seeming aberration willed.

Not to, yet still, still to communicate
Making the batter understand too late
(Gillman 1985, p. 32).

I do not wish to suggest that all or even most salesmen behave in the product-oriented manner of Levitt's selling orientation nor with the deception of Francis' baseball pitcher. But some do. And we should not blind ourselves to that fact either. Nor should we blithely assume that, as marketing manager, the catcher always strives to keep the pitcher honest. Often the catcher does ask the pitcher to throw strikes. But even the most artful spitballer needs a little help from his backstop. However, that is not the important point.

The important point is that the consumer researcher resembles an outfielder. As a scientist interested in explanation (why or how might the batter swing at the next pitch) and prediction (when and where will a fly ball come floating into the outfield), he focuses primarily on the customer. Watching the batter--his stance, his swing, how the ball leaves his bat, where the ball travels--becomes his chief preoccupation.

The outfielder is also an artist. He plays the key role in one of the most beautiful and awe-inspiring moments in all sports. I refer to the towering fly ball--the high arching trajectory--majestic in its soaring freedom, seemingly unfettered in its flight, apparently capable of a path that might take it anywhere but that just happens to take it, as if by magic, into the tiny crevice of the fielder's outstretched glove. Thus, the outfielder participates in a visual phenomenon that seems at once entirely surprising, yet somehow completely inevitable. Just as an artist creates unity-in-variety or resolution of departure from structure or order out of chaos (Holbrook and Zirlin 1985), the outfielder turns deviation into reconciliation and tension into resolution. In this capacity, he again resembles the consumer researcher engaged in theory development, who in turn resembles the artist engaged in creation (Holbrook 1984). And his motivation is essentially similar: joyful exploration of a phenomenon found fascinating, namely the batter's manner of consuming the product delivered by the pitcher or even the fungo hitter's manner of swatting fly balls when there is no pitcher at all. As Robert Redford said from his hospital bed in *The Natural*, "God, I love baseball." As Ernie Banks used to say nearly every time he came to the ball park, "It looks like a good day for a game; let's play two." In the unforgettable words of Roy Campanella, "To play baseball, you gotta have a lot of little boy in you."

So, when we say colloquially that an idea or a suggestion "comes out of left field," we may subconsciously mean something very closely linked to this image of the outfielder. We refer to something unexpected, divergent, or even wildly improbable that somehow magically fits. We refer to the liberating sense of fun suggested by the old Von Tilzer and Norworth song:

Take me out to the ball game;
Take me out to the crowd.
Buy me some peanuts and Crackerjacks;
I don't care if I never come back.

We refer to the vantage point of playfulness that informs all truly creative activity.

One example of these playful roots to creativity was brilliantly encapsulated in the following brief dialogue between Leopold, Adrian, and Andrew in Woody Allen's *Midsummer's Sex Comedy*:

Leopold: So, you're an inventor, eh?

Andrew: Hmm, a crackpot inventor. I help people with their investments until there's nothing left....

Adrian: You know, Andrew's invented a wedding present for you and Ariel.... Tell them about that.

Andrew: It's nothing.... It's a silly apparatus that takes the bones out of fish, you know. That's all. Or, if you prefer, you know, although there's no point to it, it puts bones into fish.

What a perfect nonconformist working of the mind on display! What a clear example of a thought from left field! Let's turn the handle backwards and see what happens. Ah, yes, it puts bones into fish, though this serves no useful purpose. What a marvelous evocation of the artist's ability to take intellectual risks, almost as if by faith or duty:

The responsibility...of the intellectual...(is) to try as best we can to live our convictions. I think the person who lives the risks of his conviction, of his passion...won't sizzle at the last judgment.... you leave any city rather than sacrifice to it what bit of truth possesses you or what you believe to be the truth (George Steiner, quoted by the *New York Times* 1985, p. 22E).

Many people have found--and sometimes lost--the same feeling in baseball:

I lost interest in spectator sports the day the Dodgers left Brooklyn, which was also the day I became a cynic. As a kid, I spent nearly every weekend--and almost all of my allowance--in the second tier at Ebbets Field cheering Gil Hodges, Roy Campanella, Jackie Robinson, Pee Wee Reese, Duke Snider and the rest of the great team. The Dodgers were the good guys in the terrible fight against hate and racism, and they seemed to say, somehow, that Brooklyn was a more humane, liberal and moral place than, say, St. Louis. They deserved our loyalty. Then one day they moved to Los Angeles for something as trivial as money. I have never again been to a professional sports event (Reinhold 1984, p. 38).

Reinhold's description of the disillusionment he felt when the Dodgers left New York for California reminds me of the way the Yankee fans responded to Reggie Jackson twenty years later. Jackson was a power slugger from Babe Ruth's hit-a-home-run-or-strike-out school of batsmanship. But Reggie would shy away from running into the fence when chasing a fly ball, would complain if asked to play the role of designated hitter so as to let a more talented fielder occupy right field, and would still demand ever higher salaries. Reggie finished by getting traded to the California Angels and by leaving the Yankee fans in a state of disenchantment.

Ay me! whilst thee the shores and sounding seas
Wash far away, where'er thy bones are hurled;
Whether beyond the stormy Hebrides,
Where thou perhaps under the whelming tide
Visit'st the bottom of the monstrous world....
Look homeward, Angel, now, and melt with ruth
And, O ye dolphins, waft the hapless youth
("Lycidas," ll. 154-164).

Sweet Lou Comes Home

Perhaps instructively, my own greatest baseball hero has been--not Willie Mays, Mickey Mantle, Hank Aaron, or Dave Winfield--but rather Sweet Lou Piniella, left-fielder for the New York Yankees during the last ten years

of his career. Other players have been fleet of foot (Mays), stronger in muscle power (Mantle), higher in batting average (Aaron), and much better paid (Winfield). But Sweet Lou was the quintessential ballplayer. Whereas his teammates resembled college professors (Reggie Jackson), TV comedians (Mickey Rivers), movie stars (Bucky Dent), gangsters (Goose Gosage), truck drivers (Don Mattingly), politicians (Tommy John), or dentists (Ron Davis), Lou Piniella looked like a baseball player and nothing else. With his square jaw, steady gaze, and incredibly smooth swing, he resembled the prototype; but, in spirit and love for the game, he approached the Platonic Ideal.

Lou would play in pain. Lou would cheerfully crash into the fence in pursuit of a fly ball. Lou would line a clutch single over the shortstop's head, time after time. Lou never hassled anybody about his salary. He simply took all the risks and tried with all his heart because he loved to play the game. As he approached the plate, the fans would begin a chorus of "Looo-oooo-oooo-oooo!" The fans loved Lou because Lou loved baseball. In a radio interview just after his final game, he declared:

It's been a lot of fun. It really has.... It's been a thrill.... I enjoyed it. I had goosebumps out there the whole day.... I play the game with emotion.... The fun I've had playing baseball will be with me the rest of my life.

This moment did not mean the end of Sweet Lou Piniella's career with the Yankees. A short time later, on "Lou Piniella Day" at Yankee Stadium, he told his fans, "This is not a farewell, this is only a hello," and added, "The good thing is that I'm not going anywhere." Indeed, he has remained and has returned for another year as batting instructor and coach. During games, he has sat on the bench at the right hand, first, of Yogi Berra and, more recently, of Billy Martin. When Martin was injured in Texas, Piniella filled in as manager. He is widely regarded as Martin's likely and logical successor in that role. It appears that, far from fading into oblivion, Sweet Lou has come home.

Weep no more, woeful shepherds, weep no more,
For Lycidas, your sorrow, is not dead,
Sunk though he be beneath the watery floor.
So sinks the day-star in the ocean bed,
And yet anon repairs his drooping head,
And tricks his beams, and with new-spangled ore
Flames in the forehead of the morning sky
("Lycidas," ll. 165-171).

The Shepherds Weep No More

As I began by saying, my story needs a hopeful ending. We have talked about Hattie and the Baltimore Sun, about Sweet Lou Piniella in left field, and about the consumer researcher as Lycidas sunk beneath the watery floor of managerial relevance. All three metaphors permit optimistic resolutions. The sun sinks, but rises again tomorrow morning. Sweet Lou retires but comes home as the Yankees' batting coach. Similarly, Lycidas dies but can himself be brought back to life:

Now, Lycidas, the shepherds weep no more;
Henceforth thou art the Genius of the shore,
In thy large recompense, and shalt be good
To all that wander in that perilous flood
("Lycidas," ll. 182-185).

In response to the question "Whither ACR?," the members of this association have a choice. We can resurrect Lycidas, or we can bury him under the sea. We can celebrate the homecoming of Sweet Lou Piniella, or we can root for Reggie to hit another long one and milk the Angels for a few more points on his salary. We can strive to bring daylight back into the field, or we can simply announce that we are here to collect for the sun. Conversely, we can strive for managerial relevance in order to earn

some big consulting fees or to win some big research grants, or we can try hard merely because we love to play consumer research.

My own personal preferences lean heavily toward the latter possibility. I believe that consumer research must put the consumer at its center and that for us marketing is, at best, peripheral and parasitic on the role of consumer behavior. I believe that consumers are as central to business as are managers. I believe that both deserve study, but that some have chosen to put the former first, that those people call themselves consumer researchers, and that they live here--here at ACR, where we must always remember that our focus on the consumer takes precedence, that marketing variables attain importance only on that basis, and that, far from damaging or misleading our field of inquiry, this focus continues to serve as its main source of interest and inspiration, its spring of wonderment and delight.

Finally, I want to close by thanking the participants in this session entitled "Whither ACR?" Together, their efforts have shown: (1) that real differences still exist in the views of ACR members on the purpose(s) of the Association; (2) that answers to the question "Whither ACR?" will depend on how we approach and perhaps eventually reconcile these differences; (3) that our cooperative effort to make these differences clear may have moved us as far as we can presently go toward reaching a consensus; and (4) that it may therefore be time to put the issue back in mothballs for another ten years or so until we can more closely approach some kind of resolution.

Thus sang the uncouth swain to th' oaks and rills,
While the still morn went out with sandals grey:
He touched the tender stops of various quills,
With eager thought warbling his Doric lay;
And now the sun had stretched out all the hills,
And now was dropped into the western bay;
At last he rose, and twitched his mantle blue:
To-morrow to fresh woods, and pastures new
("Lycidas," ll. 186-193).

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THE EFFECTS OF ALCOHOLIC BEVERAGE ADVERTISING AND MARKETING PRACTICES:
THE CURRENT STATE OF AFFAIRS

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Abstract

This paper addresses the current controversy over the effects of alcoholic beverage advertising focusing on the need for valid research in the area. Based on a literature review that highlights the current lack of relevant research the paper discusses the methodological problems confronting researchers in this area and presents a series of research opportunities.

Introduction

On April 16, 1985 the Federal Trade Commission (FTC) rejected a petition from Center for Science in the Public Interest (CSPI) which had requested increased regulation of alcoholic beverage advertising. In rejecting the petition the FTC stated that they found "no reliable basis on which to conclude that advertising significantly affects alcohol abuse. Absent such evidence, there is no basis for concluding that rules banning or otherwise limiting alcohol advertising would offer significant protection to the public (Rock 1985)."

Obviously the FTC rejection of the CSPI petition is not the end of the alcoholic beverage advertising controversy. However, the basis for the rejection highlights a central issue facing all regulators (and legislators) in this area ---the near total lack of valid and reliable research on the effects of alcoholic beverage advertising. Until this research vacuum is filled the controversy is likely to be characterized by adversarial posturing rather than reasoned analysis.

The purpose of this paper is to stimulate research in an area that provides researchers with an opportunity to contribute to an issue of pressing public concern as well as to confront significant methodological challenges. In order to provide the context for the research issues, the paper will, first, briefly describe the current public policy debate (highlighting the role of research in the various proceedings). Next, the paper will review the current state of research in the area (including both consumer and economic research). Following the literature review will be a discussion of the methodological issues confronting researchers in this area. Finally, the paper will address some of the research needs and opportunities in the area of the effects of alcoholic beverage advertising.

The Current Controversy

The sales and advertising of alcoholic beverages have been controversial since the repeal of prohibition. However, the controversy had traditionally focused on the sale of the product rather than advertising and other marketing practices with the principal advertising control being the voluntary NAB ban on advertising for distilled spirits. In recent years this has changed as some states have limited or banned broadcast advertising of any alcohol beverages (i.e., Mississippi and Oklahoma) and other states limited certain promotional practices (for example, in 1984 Massachusetts banned happy hours).

On November 21, 1983 this controversy was brought to the FTC in the form of a petition from CSPI (and cosigned by approximately thirty other organizations and individuals) requesting that the FTC act against alcoholic beverage advertising. Among the requested actions were a ban of all alcoholic beverage advertising, promotional, and marketing practices that: were aimed at or reach large numbers of youth or heavy drinkers; use athletic, show business or music celebrities; depict alcohol use in connection with risky activities; use subliminal techniques; link consumption of alcoholic beverage consumption with social, sexual,

or business success or athletic prowess; encourage excessive consumption; and/or discourage the treatment of alcohol abuse. The petition also requested that any remaining print advertising for alcoholic beverages be required to include one of a series of rotational warnings (Jacobson *et al* 1983, pp. 21-24).

While the CSPI petition provided a limited amount of empirical support for its request it contended: "While the available literature does not demonstrate a causal connection between (alcoholic beverage) advertising and harm, the evidence is sufficient to justify a Commission action in light of the disastrous health and social consequences of alcoholic beverage consumption (Jacobson *et al* 1983, p. 20)." The petition went on to describe the allegedly unfair and deceptive techniques in great detail without providing empirical data on the effects (or even interpretation) of those techniques. The petitioners supplemented their argument by presenting a monograph, *The Booze Merchants*, prepared by CSPI which purported to analyze the advertising and marketing practices of the alcoholic beverage industry (Jacobson, Atkins and Hacker 1983). While the monograph provided a number of examples of alcoholic beverage advertising the interpretation of its effects appeared to be based solely on the authors' subjective judgments rather than any empirical research.

The FTC's initial response to the CSPI petition was to instruct its staff to undertake a careful review of the petition and its charges and to make a recommendation to the Commission. The report resulting from this investigation recommended that the petition be denied (Levine *et al* 1985). The Commission Staff took the position that given that alcoholic beverage consumption was legal and might even have some beneficial effects when consumed in moderation (c.f. Gordon and Gordon 1984) simply demonstrating a linkage between alcoholic advertising and consumption of alcoholic beverages would be insufficient. Rather, it would be necessary to demonstrate that the advertising resulted in alcohol abuse.

The FTC staff report (Levine *et al* 1985) included a detailed review of the literature (including that research cited in the CSPI petition) which concluded that there was insufficient reliable evidence linking alcoholic beverage advertising causally with consumption, much less abuse. Indeed the report cites a number of aggregate studies that actually fail to show any relationship between advertising and consumption (Levine *et al*, Appendix, A, p. 10).

While denying the industry wide bans and rules requested by CSPI, the Commission indicated that it would "continue its ongoing review of alcohol advertisement and marketing practices to identify any that warrant challenge as deceptive or unfair under Section 5 of the FTC Act (Rock 1985). It is clear that the Commission's need for research evidence linking the advertising practice to alcoholic beverage consumption and abuse will be as critical in the case of an individual advertiser as it was in considering industry-wide intervention. Thus it might be inferred that without such research future FTC action is unlikely.

At the same time as the FTC was considering CSPI petition, the anti-alcoholic beverage advertising forces were opening a second front. An organization called SMART (an acronym for Stop Marketing Alcohol on Radio and Television) was organizing a petition drive on Congress. Organized by many of the same groups who were co-signers of the CSPI petition to the FTC, SMART was attempting a major grass roots lobbying effort aimed at convincing Congress that their constituents wanted an end to broadcast alcoholic beverage advertising. As of this writing congressional hearings on the anti-alcohol advertising issues had not been scheduled but were clearly in the works.

Another Federal agency that is currently addressing issues of alcoholic beverage advertising is the Bureau of Alcohol Tobacco and Firearms (BATF). An arm of the US Department of the Treasury, the principal alcohol related task of BATF is the collection of alcohol taxes. The BATF also is the Federal agency with statutory authority to regulate alcoholic beverage advertising. In this role they issue Trade Rules and Regulations (for example, the long standing ban on active athletes in alcoholic beverage advertising is a BATF rule) and preclear all voluntarily submitted alcoholic beverage advertising (by way of contrast, the FTC will not preclear any advertising both as a matter of policy and in an effort to avoid prior restraint of speech).

The BATF has had an ongoing rulemaking proceeding, since 1978, examining essentially the same issues as those raised in the CSPI petition to the FTC. Indeed the BATF was the recipient of a nearly identical CSPI petition. In the seven years that the BATF has been engaged in their current rulemaking there has been little indication of progress towards arriving at a rule (with the exception of a 1984 ruling reaffirming the BATF's support of nonmisleading advertising and a proposed rule banning subliminal advertising). However, the agency has indicated that it intends to actively pursue a rulemaking incorporating industry self-regulatory codes into their rules (George 1984).

Although neither the US Congress nor the BATF faces the same evidentiary burdens as a law enforcement agency like the FTC it is unlikely that either legislative or regulatory action will be based on pure emotion. While both the Congress and the BATF will undoubtedly receive impassioned appeals from parties to all sides of the issue their conclusions will certainly be influenced by the quality of support furnished. Unfortunately, as the next section of this paper will summarize, neither side will have good support to offer.

The Present State of Research

Mirroring the policy questions this brief review will address the following issues: first, does alcoholic beverage advertising result in increased alcoholic beverage consumption (or attract new users)? Next, what is the relationship between alcoholic beverage consumption and abuse and what is the role of advertising in this process? Finally, the review will examine the relevance of other research into advertising effects.

In 1976 a Rand Corporation study concluded that there was a total lack of empirical evidence on the relationship between media advertising and alcoholic beverage consumption much less abuse (Comstock 1976). Unfortunately, as of 1985, there has been little change in this situation.

Since the methodological problems confronting researchers looking at the alcoholic beverage advertising - consumption link are less severe than those relating to the advertising - abuse link (see discussion in the next section) most of the existing research has addressed this question. In one of the few internal industry studies of the effects of alcoholic beverage advertising on consumption to be made public, Ackoff and Emshoff found that while a 50% increase in advertising for Anheuser-Busch resulted in a 7% sales increase a 25% decrease in advertising resulted in a 14% sales increase (1975).

Given the applicability of statistical analysis of aggregate industry data to the advertising-consumption question a number of researchers have pursued this approach. Most of these researchers have failed to find a positive relationship (Grabowski 1976; Bourgeois and Barnes 1979; Ashley et al 1980; McGuinness 1980; Duffy 1982; Hagen and Waterson 1983) between alcoholic beverage advertising and consumption. Unfortunately, many of these studies have limitations that, while in no way undermining their validity, reduce their applicability to the issues facing US policymakers. Many of the studies (e.g. Bourgeois and Barnes; Duffy; Hagen and McGuinness) draw their data from countries other than the US. Given the cultural variations in both the consumption of alcoholic beverages and the exposure to

advertising/media it is not possible to reject the hypothesis that the advertising/consumption relationships in another country are different than in the US without supporting data. These studies provide no such data. Further, all of the statistical studies examine the effects of incremental advertising expenditures. Given that policy makers are examining a total ban, incremental data have only marginal relevance. Finally, Ashley, et al, not only fail to find a causal relationship between advertising and consumption, they find evidence of a causal relationship between consumption and advertising (a not too surprising given the tendency of some advertisers to set advertising budgets as a percentage of sales).

Another research approach has been the small scale experiment in which a small number of subjects is exposed, under controlled conditions, to advertising for an alcoholic beverage and then their subsequent consumption is monitored (McCarty and Eging 1983; Kohn and Smart, 1984; Kohn et al 1984). Only Kohn and Smart found even a temporary effect on consumption and none found an enduring effect. Once again these findings can have only limited relevance to the policy issues (in spite of their internal validity) in that the brief exposure to advertising and the unnatural research environment cannot be readily generalized to the environment in which most advertising exposure and alcoholic beverage consumption occurs. Indeed, the McCarty and Ewing study uses a method so contrived that serious questions can be raised as to the validity of the study. Finally, as will be discussed in greater detail below, one must question the ethicality of experiments in which subjects are induced to consume alcoholic beverages.

A final stream of research into the effects of alcoholic beverage advertising on consumption, content analysis, will be discussed only in passing as it isn't directly relevant to any of the public policy issues. Some of the researchers in this stream appropriately use content analysis to objectively report what themes, illustrations, or situations appear in alcoholic beverage advertising (e.g. Strickland et al 1982). Others use this methodology far more cavalierly, inferring advertiser intent and advertising effect in the complete absence of data supporting such inferences (e.g. Defoe and Breed 1979; Marsteller and Karnchnapee 1980). An unfortunate consequence of this latter type of research is that it appears both superficial and adversarial, thus subjecting all research considered in public policy settings to higher levels of scrutiny (a result which, in the final analysis, might benefit both researchers and policymakers).

It is obvious that there is a relationship between alcoholic beverage consumption and alcohol abuse. Without consumption there can be no abuse. This is not to say, however, that there is a causal relationship between consumption and abuse. A majority of the people who drink alcoholic beverages in the United States could be termed moderate (or social) drinkers---not alcohol abusers (US Dept. of the Treasury and US Dept. of Health and Human Services 1980). Thus consumption leading to abuse is the exception---not the rule.

If alcoholic beverage consumption does not inexorably lead to alcohol abuse, than it is clearly insufficient (given the current public policy debate) for researchers to look only at the advertising-consumption question. Rather, researchers interested in supplying public policy makers with relevant data must examine the relationship between alcoholic beverage advertising and alcohol abuse. Unfortunately only a very few researchers have attempted to confront the methodological obstacles and complexities to work in this area.

One of the largest studies of the effects of alcoholic beverage advertising attempts to address some of the issues surrounding effects on alcohol abuse (Atkin and Block 1980) also is one of the most controversial. While the study indicates relationships between alcoholic beverage advertising and both consumption and abuse it has been criticized by the FTC staff report (Levine et al 1985), the researcher who was the government's technical officer

on the study (Mizerski 1980), and other researchers (Strickland *et al* 1982, pp. 659-660; Strickland 1984; Kohn *et al* 1984, p. 36). The criticisms of this report focus on sampling problems, the weaknesses of self-report data (particularly in the area of alcoholic beverage consumption), inadequate measures, inappropriate causal inferences, and statistical weaknesses. The FTC staff concluded: "it is impossible to make any meaningful statements about the effects of alcohol advertising on alcohol consumption based on Atkin and Block's results" (Levine *et al* 1985, Appendix A, p. 39). Strickland *et al* (1982) and Strickland (1984) are troubled by atkin and Block's use of content analysis, particularly when that use goes beyond content and attempts to infer advertiser intent.

It is particularly troublesome that in spite of Atkin and Block's clear statements of the limitations of their study (i.e. Vol. 1, p. 1) they frequently contradict these stated limitations and speak of effects in causal terms (i.e. Vol. 4, p. 2). Obviously, no study can be perfect. However, when authors go beyond the stated limitations of their research the objectivity of the work has to be questioned. Unfortunately, these questions undermine the otherwise valuable contributions of an important exploratory study.

A final study to be discussed (Strickland, 1981) found "advertising...to have meager effects on the level of consumption and these effects rarely translated into effects on alcohol problems" (p. 32). Unfortunately this study's total reliance on self report data undermines its results (particularly since its author not only neglects to mention any of the problems associated with self-report data but, instead, says that the strength of his findings are supported by the study's "methodological adequacy").

This brief review has demonstrated that researchers in the area of the effects of alcoholic beverage advertising are plagued by the methodological complexity of the area. The next section will focus on those methodological issues.

Methodological Issues

To provide data that is useful in a public policy forum presents methodological challenges more severe than those typically facing an academic researcher. Key among these is the need for maximizing external validity without destroying internal validity. Obviously there is a tradeoff between these two forms of validity. However, the policy maker require external validity to a greater extent than the theorist. At the same time the resulting reductions in internal validity can provide meaningless data. Clearly, researchers in this area need to make hard choices (as do all researchers). However, unlike other research settings, the policy arena requires that the researcher explicitly state the limitations of the study (both internal and external). Otherwise the less sophisticated policymaker may misapply the findings and the research may be labeled adversarial.

While there are a wide range of additional methodological issues that researchers in this area must address this paper will briefly touch on three of them: causal designs, ethical issues, and self report measures. The need for causal designs is a direct result of the policy issues. Obviously, it is inappropriate to apply correlational data to these issues since reverse causality is often a valid and viable explanation. Unfortunately, this eliminated many useful research methods including much of econometric analysis.

This area also raises serious ethical questions for the researcher. To what extent can researchers causally examine the advertising abuse (or even consumption) link without actually attempting to induce consumption? This problem becomes particularly acute for researchers attempting to investigate advertising effects on alcohol abusers. Clearly, in this area researchers must be particularly attuned to the effects of their research on their subjects.

A final methodological issue to be addressed is the use of self report measures. Many of the studies described above

have been widely criticized for their use of self-report measures of advertising exposure, alcoholic beverage consumption, and abuse. Given the well documented tendency for that method to systematically over and/or understate responses (e.g. Clancy *et.al.* 1979) it is clearly inappropriate when studying such sensitive issues as alcoholic beverage consumption and abuse. Unfortunately, few alternatives exist. Thus, an early issue for researchers to address is the development of more reliable measures.

Research Opportunities

As the review of the literature in the area of effects of alcoholic beverage advertising has demonstrated, there exists little credible research evidence regarding these effects. This is not to say that there are no effects. Rather, the current state of research in this area is so poor, it is not possible to ascertain what effect this advertising has.

As various government agencies consider a range of rules that would govern alcoholic beverage advertising it is possible that consumer research could provide valuable inputs to the proceedings. This potential research falls into two categories: general and specific.

Underlying all regulatory considerations in the area of alcoholic beverage advertising is the fact that alcoholic beverages can be (and frequently are) abused. Thus, requests for the banning of certain advertising and/or promotional practices are often based on the allegation that the practice leads to alcohol abuse. As the literature review demonstrated, there currently exists no research support for this allegation. Therefore, the general research question of whether alcoholic beverage advertising has an effect on alcohol abuse is an appropriate question for consumer researchers to address.

The question of what effects alcoholic beverage advertising has on alcohol abuse is remarkable complex and will require considerable research effort. It is not even clear that existing research methodologies are appropriate for addressing this question. Thus, an early stage in the research process would be to have researchers address the methodological question itself. One avenue for this might be an interdisciplinary research conference bringing researchers together (including researchers who had never worked in this area), updating them on the state of current research, and exposing them to the methodological problems and concerns in the area. The output of such a conference could be twofold: first, new methodological options and approaches could be considered; second, the conference could be expected to stimulate researchers to begin working in the area.

Before the question of the potential abuse related effects of alcoholic beverage advertising can be considered, a preliminary question must be addressed: whether alcoholic beverage advertising leads to alcoholic beverage consumption. Obviously, if alcoholic beverage advertising does not lead to consumption (or increase existing levels of consumption) it cannot lead to abuse. This could be an important distinction, since research on the question of consumption effects may be less formidable, methodologically, than research on abuse effects. While a finding that alcoholic beverage advertising resulted in (or could result in) increased alcoholic beverage consumption would be insufficient to conclude that such advertising led to abuse, a finding that no consumption effect existed would imply the lack of an abuse effect. Thus, the general research question that might be addressed first is what effect alcoholic beverage advertising has on consumption of alcoholic beverages. Only if that research indicated the existence of a consumption effect would research into the abuse related effects of alcoholic beverage advertising be necessary.

The general research projects described above can be expected to be long term efforts, spanning a number of years, and, because of the complexity of the research, it is likely that any results will be controversial and require

replication by a number of researchers. Because of the currency of regulatory interest on issues relating to alcoholic beverage advertising, it would be useful if research were conducted that might shed light on specific issues even if some of the general questions were left unanswered. Carefully conducted copy research might provide a useful source of more readily accessible information on those narrower issues.

Copy research cannot address the broad issues of the effects of advertising on alcoholic beverage abuse and/or consumption. These issues are behavioral and copy research (with the exception of quite complex research systems) is not an appropriate source of behavioral data. However, copy research is appropriate for examining the the communications effects of an advertisement (or an advertising campaign). Further, copy research can provide a surrogate measure of behavior by measuring whether one of the communications effects of an advertisement is to change behavioral intent. Finally, copy research can provide causal data. That is, it can demonstrate that the communication effect that was observed was actually caused by the ad.

The copy research that is suggested here can also aid in the pursuit of the general research questions described above. Without a measure of what is communicated by an advertisement it is impossible to measure the behavioral effects (i.e., consumption and/or abuse of alcoholic beverages) that might result from that advertising. Finally, the copy research may provide researchers with the opportunity to test the methodological approaches they are developing.

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FREQUENCY INFORMATION AS A DIMENSION OF
CONSUMER KNOWLEDGE

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Abstract

An often ignored aspect of knowledge -- knowledge about event frequency -- is discussed in terms of consumer decision making. A brief description of frequency theory is provided and some speculations about how frequency knowledge might affect judgment and choice are offered. Finally, a preliminary experiment is presented which demonstrates that frequency knowledge can dominate more important information when consumers form price images of retail stores.

Introduction

Until recently, researchers had been more concerned with the effects of consumer knowledge on consumer behavior than on the nature of consumer knowledge itself. Though such an orientation directly addresses the questions that are most relevant to real-world behavior, it carries with it the inherent danger of fostering simplistic conceptualizations and measures of consumer knowledge (e.g., product familiarity, product ownership). Not surprisingly, attempts to explore the nature of consumer knowledge have revealed it to be complex and multidimensional (Alba and Hutchinson 1985; Kanwar, Olson and Sims 1981). Moreover, recent research that has incorporated a multidimensional perspective has shown that the effects of consumer knowledge on consumer behavior are a function of how that knowledge is operationalized (Brucks 1985; Brucks, Mitchell and Staelin 1984; Punj and Staelin 1983).

An analogous situation exists with regard to the learning of new information. That is, traditional measures of consumer learning constitute a fairly narrow set. Though numerous variations exist, most measures consist of some form of aided or unaided recall. The focus of these recall tests often is on memory for the substantive facts presented in a promotional message or information display board. In many cases, these measures are the most appropriate and informative ones available. Judgment and choice often are based on the specific facts one can recall about alternative brands, and recall and recognition of brand-attribute facts represent reasonable measures of what a consumer has learned about them. However, problems lie in the exhaustiveness and sensitivity of these measures.

In this paper we wish to make the point that there are aspects of knowledge that contain little semantic detail about the characteristics of a brand or the content of a message, but nonetheless contain information relevant to consumers' decisions. We will discuss one such aspect, namely, the knowledge consumers have about brand and attribute frequency.

Frequency Knowledge

The notion that people are attentive to the frequency with which events occur in the world is not new. There now exists a considerable amount of research demonstrating that people are highly sensitive to the frequency with which even very mundane and innocuous events occur, both in real-world and laboratory settings. Moreover, this research has identified some peculiar characteristics of frequency knowledge which suggest that the learning of frequency information is an automatic process. Within the context of the Hasher and Zacks (1979, 1984) theory of automaticity, this implies that the process of encoding frequency information (a) operates continually, (b) cannot be improved by practice, (c) cannot be willfully inhibited, (d) does not require

conscious awareness, and (e) drains minimal amounts of cognitive resources. As Hasher and Zacks report, empirical support for each of these assertions has been found. It has also been shown that, due to its unique mental representation, once frequency information is encoded it may be less susceptible to interference than other types of knowledge (Hintzman, Nozawa and Irmscher 1982). These traits suggest that frequency knowledge may represent a particularly important aspect of memory when information is presented under conditions characterized by low involvement or high information load.

Frequency knowledge is important also from a measurement perspective. As noted, people may learn and remember information concerning the frequency of events without being able to recall the exact nature of those events (cf. Pitz 1976). Inasmuch as one major goal of marketing research is to assess what consumers know about products, a significant underestimation of consumer knowledge may obtain if a researcher measures only recall for specific brand and attribute information. Sounding a similar theme, Singh and Rothschild (1983) have argued that simple recall measures understate memory for an advertisement; they call instead for greater use of recognition measures. It is our contention that tests of frequency memory may tap an additional and unique aspect of knowledge.

What Might Consumers Count?

Assuming that people are sensitive to event frequency, the next issue concerns the nature of an event. That is, what can and what do people count? Below, we speculate about events that are pertinent to consumer behavior.

Individual Objects. The majority of research demonstrating frequency knowledge has dealt with the frequency of single sterile events such as individual words in a longer list of words. Typically, subjects are shown a word list, in which some words are repeated various numbers of times, and are asked to estimate the number of times each critical word appeared. However, extensions of this paradigm to less sterile situations have proven successful. For example, people's sensitivity to the true relative frequencies of real-world occupations and lethal events has been shown to be surprisingly accurate (Lichtenstein, Slovic, Fischhoff, Layman, and Combs 1978).

In a marketing context, there are numerous events that, if counted, could influence perceptions of a product, even if the details of the product cannot be retained. For example, consumers may be sensitive to the relative frequencies of different brands they observe. Such knowledge might lead to beliefs about the relative popularity of different market offerings. These beliefs about market share, in turn, might lead to further beliefs concerning quality (cf. Duncan and Olshavsky 1982). And, for consumers who have a high need for conformity, frequency knowledge might lead directly to purchase.

Similarly, consumers may have an implicit understanding of the frequency with which advertisements for different brands appear. Such knowledge could lead to inferences about market share, company size, and company stability. Moreover, if research can establish the accuracy of such knowledge, frequency estimation could be used as a direct measure of advertising exposure and impact.

Frequency counting, however, may not be limited to mere objects or events such as brands and advertisements. It

may also apply to attributes associated with those objects or events. For example, a consumer's price image of a store might be influenced by the consumer's perception of the number of sale items and/or sale periods promoted by that store. The consumer's rankings of competing stores along a price dimension might then be determined by inter-store comparisons of the aforementioned frequencies. Such impressions may be formed without effort or conscious counting and may exist independently of the details of each store's prices.

This is not to say that details cannot be counted. Attributes are objects and, as such, may be subject to counting. Consider a recent study by Malmi and Samson (1983). They presented to subjects a range of numbers and asked for an estimate of the mean value. Results showed remarkable accuracy regardless of the skewness and mode of the distribution of the numbers. Further investigation suggested that subjects had constructed in memory a frequency distribution and had derived the mean by estimating the balance point. Generalizing this finding to knowledge of prices, it may be the case that, without conscious intention to do so, consumers learn the price distribution of a brand across stores or over time; the price distribution of different products within a store; or the price distribution of all brands within a product category. Distribution information could then lead to beliefs about the central tendency of a category and the deviation of particular brands.

Semantic Categories. In addition to a sensitivity to the frequency and distribution of individual items within a category, a small amount of evidence suggests that people directly tally the number of times a category has been encountered when they have been exposed only to exemplars of that category (Alba, Chromiak, Hasher, and Attig 1980; Barsalou and Ross, forthcoming). For example, after being presented with particular names of animals, trees, etc., people can state with accuracy the number of times each category was encountered without appealing to memory for the individual instances. Though we would expect this result to generalize fairly well to product categories, a more interesting but unexplored question concerns the case of attribute categories. For example, the abstract category of "comfort" in the context of an automobile can be instantiated by such attributes as bucket seats, plush carpeting, leg room, and so on. When presented with such features, do consumers automatically encode and tally them as comfort features? The answer may depend on the degree of association between the features and their category. To the extent that consumers do tally such information, they may automatically form impressions of how a product rates on its major dimensions. And, such knowledge may endure while specific information decays.

Evaluative Categories. With respect to decision making, one of the most important types of frequency counts a consumer can make involves evaluative categories. Here the issue is whether consumers tally the number of desirable and undesirable attributes associated with a product, irrespective of the exact meaning of those attributes. Research on this question is sparse, but at least one set of studies suggests that consumers may be sensitive to such information (Alba 1985). More importantly, there is a recent but growing body of evidence demonstrating that, once encoded, such information can drive judgment and choice even in the presence of more relevant and important information.

Consider, for example, research on message persuasiveness. Chaiken (1980) has demonstrated that when subjects are highly involved and the message arguments are relevant, persuasion is positively related to the number of arguments favoring a particular position (cf. Assam and Bucklin 1973). This finding by itself is not unexpected, inasmuch as message recipients should be more persuaded by many good arguments than by a few good arguments. However, Petty and Cacioppo (1984) demonstrated that argument number can dominate argument importance if subject involvement is sufficiently low. That is, many irrele-

vant arguments may be more persuasive than a few relevant ones if people do not process the information deeply. Thus, argument frequency may be considered a peripheral route to persuasion.

The importance of frequency has also been shown in choice contexts, as first suggested by Bettman and Park (1980). In their protocol analyses they noted that some subjects were prone to use a "counting" strategy, by which decisions were based in part on the number of good and bad attributes associated with each brand. Similarly, Russo and Doshier (1983) showed that binary choice decisions are sometimes based on a "majority-of-confirming-dimensions" heuristic. People who employ this heuristic choose the alternative that dominates the other one on the greater number of dimensions, sometimes at the expense of dimensional importance and the size of the interbrand differences on those dimensions. Further, the likelihood of adopting this heuristic seems to increase as the number of dimensions increases, and may also be related directly to the involvement and fatigue levels of the subjects.

Finally, consider the role of evaluative frequency in predictive judgment. The judgments consumers make about a product often involve predictions of its efficacy. Evidence suggests that when previous judgments have not been made and the outcome is uncertain, predictions about the likely occurrence of an event may be based partially on a comparison of the sheer number of reasons that can be generated for and against its occurrence (Hoch 1984).

Moreover, when a prior history of success and failure exists, it appears that prior event frequency greatly influences perceptions of future event probability (Estes 1976). That is, when making judgments of probability, people rely on the frequency rather than the proportion of times an event has occurred in the past. Though investigated in other domains, Estes notes the applicability of this finding to consumer situations. For example, when evaluating the preferability of two medicinal remedies, consumers may choose the one that has worked most often in the past, even though the two brands may have had an unequal trial rate. Estes suggests that the brand with the most successes will be chosen, even if its proportion of successes is lower than that of the competing brand.

Experiment

Though we believe that the encoding and use of frequency information is prevalent, much of what we have said heretofore with respect to consumer behavior has been speculative. Below, we present a preliminary study of the effect of frequency information on decision making. In particular, we examine evaluative category frequency in the context of memory-based consumer decisions. Further, we examine judgments that might be highly influenced by frequency information, i.e., judgments consumers make about the relative expensiveness of competing retail stores.

Briefly, subjects were presented with a list of grocery items along with the price of each item at several hypothetical stores. The critical comparison involved two of the stores, one of which was more expensive overall but cheaper on a greater number of items than the other one. To the extent that consumers use a frequency heuristic, they should describe the more expensive store as being the less expensive of the two.

Method

Stimulus. The stimulus was a two-page price advertisement which compared three supermarkets (A, B, and C) on 60 items. The price of each item at Store A was always nine cents lower than the price at the cheaper of the remaining two stores.

Of focal interest were the differences between Stores B and C. In 36 of the 60 cases (i.e., 60% of the items), Store C was cheaper than Store B. The mean advantage of

Store C on these items was eight cents. These price differences were distributed approximately symmetrically and varied from two cents to 16 cents. Store B was less expensive than Store C on the remaining 24 items. However, the mean difference in these instances was 33 cents. Moreover, when Store B was the cheaper of the two, the price difference ranged from 28 to 38 cents. Thus, the two distributions of price differences were nonoverlapping, making the differences maximally observable.

Overall, the 60 items cost approximately \$5 (or about 5%) more at Store C than at Store B, but it was more frequently the case that Store C was cheaper than Store B. The items were arranged in the list such that within each group of fifteen, Store C was cheaper on a random subset of nine of them. The specific price difference attached to each item was also randomly determined.

Procedure. Subjects were asked to imagine that they had recently moved to a new city and that price was important when choosing a supermarket. They were provided with the comparative ad and were told that they would have 90 seconds to examine each page of it. The experimenter emphasized that they should examine the information about all three stores carefully in preparation for some questions about the stores' prices.

At the end of the 3-minute study phase, subjects were asked to rank the stores in order of their relative expensiveness. They also were asked to estimate the total cost of the 60 items at each store. Finally, they were asked to explain how they had decided whether Store B or Store C was the more expensive of the two. At no time during this test phase were subjects able to re-examine the stimulus.

Subjects. A group of 30 undergraduate marketing students volunteered to participate in the study. Two of them failed to follow instructions and were eliminated from the analysis.

Results

Normatively, all subjects should identify Store B as being less expensive than Store C. Note that a correct response could result from either an accurate tally of the total price of each store or from reliance on the nearly four-fold difference in the average price difference between Stores B and C.

To the contrary, a significant proportion of subjects behaved in a counter-normative fashion. That is, 57% of the subjects identified Store C as the less expensive store. This figure is significantly different from zero ($p < .001$). Because subjects were almost equally split, the mean estimates of the total cost of items at each store did not differ, though both differed from the estimate for Store A.

It could be argued that subjects randomly chose between Stores B and C, resulting in a significant amount of counter-normative behavior. However, an examination of the reasons subjects gave for their choices does not support such a claim. Subjects were classified according to whether or not they employed a frequency heuristic. Of the 16 subjects who made the counter-normative choice, 10 clearly relied on frequency information; the remaining subjects did not articulate their rationale in a clear enough way to allow classification. Of the 12 subjects who correctly chose Store B, only 4 made reference to frequency. These 4 subjects either confused Stores B and C, leading us to underestimate significantly the effect frequency had in this study, or they used frequency as a rationalization for their choices. It is not possible to identify the true explanation at this time. Regardless, the results indicate that frequency information was a significant factor in the decisions made by a number of our subjects.

Discussion

The purpose of this paper has been to emphasize an aspect of knowledge that has been virtually ignored in consumer research. It is our contention that under many circumstances, particularly those that adversely affect information processing such as low involvement and high information load, knowledge of event frequency will play a significant role in consumer decision making. In cases in which other information is lacking, frequency knowledge will enable consumers to make decisions that are not completely arbitrary. In other cases, as in the present experiment or when advertisers intentionally manipulate frequency to overstate the advantages of their brand, frequency information may lead to suboptimal decisions.

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PRODUCT FAMILIARITY AND THE STRENGTHS OF BRAND-ATTRIBUTE ASSOCIATIONS:
A SIGNAL DETECTION THEORY APPROACH

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Abstract

The theory of signal detectability (TSD) is applied to pick-any data for brand/attribute associations. It is argued that the pick-any methodology introduces a desirable form of item selection bias and the TSD method of analysis removes undesirable response biases. The assumptions of the methodology are presented and tested with exploratory data from the domain of non-prescription cold remedies.

Introduction

It is commonly assumed that there is a strong relationship between product familiarity and consumer knowledge (e.g., Bettman and Park 1980; Brucks 1985; Johnson and Russo 1984; Kanwar, Olson and Sims 1981; Punj and Staelin 1983). That is, one result of numerous encounters with product information (including purchase, usage and advertising) should be that consumers will learn more facts about the various competing brands. These facts are presumably represented in memory by corresponding associations between brands and attributes (Anderson 1983; McClelland and Rumelhart 1985). Under perfect conditions valid facts would be represented by strong associations and invalid facts would be represented by weak (or non-existent) associations.

In actuality, however, there is good reason to suspect that validity and strength of association will sometimes be at odds with each other. That is, through lack of involvement, lack of education, and/or misleading advertising, consumers may become confused about which brands have which attributes. Since associative strength is likely to be a major determinant of which facts will be accessed during decision making, it is important to know the extent to which validity and strength are correlated.

Measurement Issues

In cases which are designed to test general properties about consumer information processing, the specific brands and attributes investigated are typically either hypothetical or some small convenience sample of all possible brand/attribute associations in an existing market. The problem of whether such a sample will generalize to the total population of brands and attributes is often not given serious attention. One reason for this is that this population is extraordinarily large. For instance, consider non-prescription drug products (which will be discussed in greater detail later). The FDA has estimated that there are approximately 500 active ingredients distributed among approximately 300,000 brands. Thus, there are 150 million possible brand/attribute associations that may exist in consumer memory. Of course, only a small fraction of these are valid associations and an even smaller fraction are likely to be represented in memory for most consumers. In this sense, measuring consumer knowledge is rather like searching for the proverbial needle in a haystack. Therefore, it is of considerable theoretical and pragmatic value to be able to estimate, at an aggregate level, the amount and validity of consumer knowledge about various product domains. The remainder of this paper presents one methodological approach to this problem and illustrates its use in an exploratory study of the relationship between product familiarity and the strengths of brand/attribute associations for cold remedy products.

Using Pick-Any Data

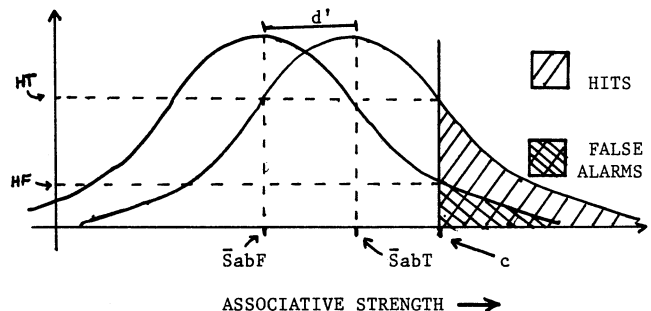
The most straightforward approach to estimating consumer knowledge might be a test instrument such as a simple true/false test covering brand/attribute associations. This approach would require preselecting a subset of items that was somehow representative of the product domain. Great care would be needed in order to ensure that experimenter bias was not introduced by the selection procedure. An alternative approach that has been suggested for situations such as this is the use of pick-any data (Holbrook, Moore and Winer 1982). In particular, respondents might be allowed to choose the brands that they are most familiar with and then indicate the attributes they believe are possessed by those brands. This approach is especially appropriate for descriptive studies, such as the one reported later, because the respondents choices focus the data on the brands that are most likely to be in the realm of consideration during purchase. Thus, the use of pick-any data converts item selection bias from a liability to an asset.

Signal Detection Theory Analysis

In addition to the problem of item selection bias, there is great potential for response biases of various sorts to affect the measurement of brand/attribute associations. It seems likely that some attributes may be more frequently chosen or avoided in general, regardless of the strength of the association between that attribute and any particular brand. One methodology that has proven extremely useful in eliminating such biases is the theory of signal detectability (TSD; Baird and Noma 1978; Combs, Dawes and Tversky 1970; Green and Swets 1966; McNicol 1972). This approach assumes that respondents are trying to discriminate two types of events. The most developed domain for this method is psychophysics where the events are typically trials in which a stimulus was presented and trials in which no stimulus was presented. The goal of the methodology is to measure the sensitivity of the respondent to the presence of the stimulus unbiased by the respondents beliefs about the likelihood of such events or their predispositions to respond one way or another. This methodology is not limited to psychophysics, however, and has been recommended as a preferred method for measuring recognition memory as well (Murdock 1982; Srull 1984).

In the present context, the goal of the analysis is to measure consumer sensitivity to true vs. false brand/attribute associations. This application of TSD is illustrated in Figure 1.

FIGURE 1
An Illustration of the Theory of Signal Detectability as Applied to Brand/Attribute Associations



The associative strength of a given brand, a, and a given attribute, b, is assumed to be normally distributed random variable, Sab. Figure 1 depicts the probability distribution functions for a true association (SabT) and a false one (SabF). The TSD model assumes that people use associative strength to judge the validity of a brand/attribute association. There is considerable psychological evidence for the plausibility of this assumption in memory-based decision making (Atkinson and Juola 1974; Murdock 1982; Smith, Shoben and Rips 1974).

For pick-any data, it is natural to assume that an attribute is chosen for a given brand whenever its strength exceeds some criterion, or threshold (c in Figure 1). The probability that a given valid attribute will be chosen (referred to as a "hit") is given by the area to the right of the criterion under the p.d.f. for SabT. The area under the curve to the left of the criterion corresponds to the probability that a valid attribute will not be chosen (referred to as a "miss"). Similarly, the probability that a given invalid attribute will be chosen (referred to as a "false alarm") is given by the area to the right of the criterion under the p.d.f. for SabF, and the area under that curve to the left of the criterion corresponds to the probability that an invalid attribute will not be chosen (referred to as a "correct rejection").

The TSD model assumes that response bias results in raising or lowering the criterion, but does not alter the strength distributions for the two types of associations. Therefore, the difference between the means of the two distributions (referred to as d') is an unbiased estimate of sensitivity. If the two distributions are assumed to have equal variances, then d' can be estimated as follows:

$$d' = ZH - ZF = \bar{S}abT - \bar{S}abF \quad (1)$$

where ZH and ZF are the z-score transforms of percent hits and percent false alarms, respectively. Moreover, correct choices will be maximized when the likelihood ratio, $\beta = HT/HF$, of the two distributions at the criterion is such that

$$\beta = p(F)/p(T) \quad (2)$$

where p(F) and p(T) are the base rate probabilities associated with false and true associations, respectively. The subjective value of hits (VH) and correct rejections (VCR) and the subjective costs of false alarms (CFA) and misses (CM) may vary depending on the situation, however. Under such circumstances, optimal β is given by

$$\beta = \frac{p(F) \times (VCR + CFA)}{p(T) \times (VH + CM)} \quad (3)$$

In summary, TSD makes three basic assumptions.

- A1 Associative strength is normally distributed.
- A2 The distributions of strength for different brand/attribute pairs may have different means but variances are equal.
- A3 Respondents set their criteria at optimal levels.

Given assumptions A1 and A2, response rates for hits and false alarms are sufficient for estimating an unbiased sensitivity measure, d', and a measure of response bias, β . If A3 is also holds, then the base rates may be divided out of β to yield the ratio of subject "importances" which we will denote by v.

$$v = \frac{VCR + CFA}{VH + CM} = \beta \times \frac{p(T)}{p(F)} \quad (4)$$

Level of Aggregation

TSD seems most appropriate as an individual level model of association strength for particular brands and attributes. As such the estimation of d' and β would require numerous within subject observations for each brand attribute pair. This is clearly not feasible given our earlier discussion. Therefore, a major issue becomes whether or not there is a reasonable way to aggregate data such that the assumptions of TSD are at least approximately preserved. That is, various groups of individuals, brands and/or ingredients must be identified that are plausibly homogeneous with respect to associative strength. Since the present goal is to develop a viable, descriptive measure of consumer knowledge, a relatively liberal criterion for the satisfaction of TSD assumptions may be adopted. If the goal were to develop a theoretical model of information processing based on TSD, the criterion would need to be much more strict. That is, we are more concerned with removing response bias and estimating sensitivity than with modeling the decision process in a pick-any task, per se.

A TSD Analysis of Knowledge About Cold Remedies

In order to illustrate the application of TSD to pick-any data, we have analyzed a subset of a larger data base comprised of several measures of consumer knowledge about non-prescription cold remedies. We will not describe the full study since its details are not relevant for the present analysis.

Method

Subjects. One hundred and fifty-four undergraduate Marketing majors at the University of Florida participated in the study for course credit during the Fall semester of 1982.

Stimuli. All brands listed in the Handbook of Non-Prescription Drugs (1979) as either Internal Analgesic Products or Cold and Allergy Products as well as a few new brands not listed (total = 154) were displayed in alphabetical order down the left hand side of three consecutive response sheets. A list of several types of descriptors (ingredients, symptoms relieved, side effects, dosage forms, etc.) was given on a cover page. In this analysis we focus on the four major types of ingredients found in cold remedies: analgesics, antihistamines, decongestants, and cough suppressants. The exact response alternatives are given in Table 1. On the cover sheet, they were listed along with 16 other ingredients in alphabetical order.

TABLE 1
General (G) and Specific (S) Ingredient
Response Items

Antihistamine (G)	Cough Suppressant (G)
Chlorpheniramine Maleate (S)	Codeine (S)
Methapyrilene Fumarate (S)	Dextromethorphan (S)
Decongestant (G)	Pain Reliever (Analgesic) (G)
Ephedrine (S)	Acetaminophen (S)
Phenylephrine (S)	Aspirin (S)
Phenylpropanolamine (S)	
Pseudoephedrine (S)	

Procedure. Respondents were given a four-page booklet. The first page contained instructions, a reference list

of brand descriptors, and a response form for indicating for each of five cold symptom categories (1) the number of times in the past year that they experienced each symptom type, (2) the brands they used last in treating those symptoms, and (3) the brands they would consider purchasing for those symptoms if they needed them today. The five cold symptom categories were Allergy, Cough/Sore Throat, Flu, Headache, and Head Cold. The subsequent three pages listed the 154 brand names and provided spaces for reporting brand descriptors. Respondents were given three tasks. First, they were to examine the brand names and identify approximately twenty brands with which they felt "very familiar." Second, they reported their frequencies of illness, brands used last and brands they would currently consider. Finally, next to each brand they had previously identified as "very familiar," they recorded the number associated with each descriptor they felt applied to the brand (up to a maximum of 14 descriptors). Sex and age information was also recorded.

Results

The average number of brands chosen as familiar was 19.1. The Handbook of Non-Prescription Drugs (1979) was used to identify the correct ingredients for each brand. Then, for each brand chosen as familiar, each ingredient was classified as either a hit, a miss, a false alarm, or a correct rejection depending on its validity and whether it was chosen, or not. Thus, there were over 41,000 observations in the initial data base (i.e., 154 respondents x 19.1 brands per respondent x 14 ingredients per brand).

Respondents were classified on the basis of whether, or not, their self-reported symptom frequency was above the group average. (Flu was excluded because of its generally low frequency and because computer capacity constraints required a reduced analysis; therefore, there were four Symptom Frequency variables: Allergy, Cough/Sore Throat, Headache, and Head Cold.) Brands were classified on the basis of whether, or not, they were recorded as used last (referred to as Brand Usage) and/or currently considered (referred to as Brand Consideration). These two variables are jointly referred to as Brand Familiarity. Finally, Ingredients was also used as a classification variable. Hits, misses, false alarms, and correct rejections were aggregated within each class formed by crossing these variables (i.e., 896 possible classes). Any class with less than four valid brand/ingredient associations (i.e., hits plus misses), less than four invalid brand/ingredient associations (i.e., false alarms plus correct rejections), or less than four positive responses (i.e., hits plus false alarms) was dropped from the data base in order to ensure a minimal level of stability. (Only 8 of the 14 ingredients given in Table 1 met this criterion.) An estimate of d' , β , and the importance ratio, v , was computed for each of the 220 remaining classes.

Specific Assumptions. In order for the TSD measures to be meaningful the three assumptions discussed earlier must be modified as follows.

- SA1 The associative strengths of all valid respondent/brand/ingredient triples within each aggregation class are independent, identically distributed normal random variables.
- SA2 The associative strengths of all invalid respondent/brand/ingredient triples within each aggregation class are independent, identically distributed normal random variables.
- SA3 All associative strengths within each aggregation class have equal variance (although their means may differ).
- SA4 All respondents have knowledge of the base rates, have the same importance ratio and set their criteria so as to maximize subjective utility.

Strictly speaking, it is highly unlikely that these assumptions will hold. However, as an approximation they are fairly reasonable. Since the classification scheme uses those variables that seem a priori most related to associative strength (i.e., Symptom Frequencies, Brand Familiarity and Ingredients), SA1 and SA2 are plausible. SA3 is also plausible since the sources of error variance in memory are probably fairly general and large relative to error variance due to specific aspects or valid versus invalid information. Moreover, there are several ways that SA3 can be tested (McNicol 1972). The standard tests require manipulations that are designed to affect β and v but not d' . These include changing the base rates for the stimuli and changing an explicit payoff scheme for the four types of responses. In the present analysis, certain factors are hypothesized to affect d' , but not β or v , or d' and β , but not v . Specifically,

H1 Frequency of illness and the brand usage/consideration variables should affect d' , but not β or v ,

H2 Different ingredients are likely to be associated with different base rates and therefore both d' and β , but not v , may be affected by which ingredient is involved,

and

H3 None of the factors should affect v and, therefore, β should be linearly related to the objective base rates across aggregation classes (see Equation 3).

SA4 is stated in rather strong terms so that v can be computed empirically. Even if people have imperfect knowledge of the base rates and are unable to be completely optimal in setting their criteria, v should be related only to Ingredients and the relationship should be weaker than for d' or β . If SA3 does not hold, however, and true and false associations have substantially different variances, then differences in their means will affect the computed values of β and v as well as d' .

Data Analysis. As a check on the validity of assumptions SA3 and SA4, hypotheses H1 and H2 were tested by simple dummy variable regressions of d' , β and v on Ingredients, Symptom Frequencies, and Brand Familiarity. The results of these regressions (given in Table 2) were generally consistent with the hypotheses. The three classes of knowledge related variables had significant effects on d' , but not on β or v . Thus, H1 was supported and H2 was partially supported. The absence of an effect of Ingredients on β most likely resulted from consumers having a poor knowledge of base rates. Interestingly, the effects of Ingredients and Brand Familiarity were larger than the effects of need related factors (i.e., Symptom Frequencies). If consumers who needed the drugs were learning about product alternatives prior to purchase (in order to make an informed choice) rather than after purchase, a stronger effect of Symptom Frequency would have been expected. Alternatively, perhaps people who have frequent symptoms use prescription drugs and, therefore, do not know much more than others about nonprescription drugs.

TABLE 2
Mean Values and Regression Results For
d', β , and v

VARIABLES	N	MEANS		
		d'	β	v
Ingredients:				
<u>General</u>				
Antihistamine	32	1.21	44.4	20.4
Cough Suppressant	38	1.57	18.0	8.4
Decongestant	42	1.93	35.9	26.6
Pain Reliever	46	.93	12.8	10.8
<u>Specific</u>				
Acetaminophen	11	.27	34.7	18.4
Aspirin	48	2.40	12.5	9.4
Dextromethorpan	2	.53	2.4	.6
Phenylpropanolamine	1	.67	2.0	.4
Symptom Frequency:				
<u>Allergy</u>				
High	47	1.86	31.9	21.5
Low	173	1.47	22.3	12.9
<u>Cough/Sore Throat</u>				
High	125	1.42	18.9	10.7
Low	95	1.74	31.4	20.1
<u>Headache</u>				
High	71	1.66	16.4	11.2
Low	149	1.51	28.1	16.4
<u>Head Cold</u>				
High	100	1.49	20.6	13.9
Low	120	1.61	27.5	15.4
Brand Familiarity:				
<u>Used Last</u>				
Yes	98	1.75	23.7	15.0
No	122	1.40	24.8	14.6
<u>Consideration</u>				
Yes	114	1.83	26.3	17.5
No	106	1.26	22.2	11.8
R ² for Dummy Variable Regression				
		.305*	.046 ⁺	.065 ⁺

* p < .0001
+ n.s.

H3 was tested by regressing β on the ratio of the objectively determined) base rates, p(F)/p(T). Overall, this regression was not statistically significant. However, inspection of the scatter plot of these data revealed a linear trend for high values of β . Separate analyses revealed that there was a significant positive relationship for $\beta > 10$ ($r=.57$, $p<.001$, $df=30$), but not for $\beta < 10$.

Discussion

The application of TSD to pick-any data appears to provide a potentially fruitful method of measuring associative strength at an aggregate level. A preliminary test of the assumptions required for such analyses was positive and the estimated values of d', in general, conformed to a priori expectations. However, these results must be qualified by the facts that (1) the pick-any methodology lead to many specific ingredients be largely ignored, and (2) the assumption that respondents use knowledge about base rates to make subjectively optimal choices in the pick-any task (i.e., A4) received only weak support. This suggests that this approach will be most useful for revealing relatively large differences in consumer knowledge or for establishing a reasonable unit of measurement (d') for comparisons between different product classes. Fine grained analyses of consumer knowledge are likely to require other methods.

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THE MEASUREMENT OF DECLARATIVE KNOWLEDGE

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Abstract

Models of declarative memory and procedures for measuring their content and structure are discussed. Then, the results of a study which applies these procedures are presented and their implications discussed.

Introduction

A considerable amount of research in cognitive psychology has recently been directed at understanding the problem solving of experts within a domain (see for example; Chi, Glaser and Rees 1982; Voss, Greene, Post and Penner 1983). Initial work in the area focussed on the strategies used by experts in problem solving, however, few quantitative differences in the strategies of experts and novices were found. For instance, both chess experts and novices were found to have similar breadth and depth of search in planning chess moves (de Groot 1965). These findings indicate that it is the quality instead of the quantity of search that define expertise in decision making. This suggests that more effort should be directed at understanding what knowledge experts have within a domain.

As a result of these findings, knowledge is now recognized as one of the most important variables which affects behaviour. Where previously researchers directly compared the effects of various treatments on behaviour, a more common approach now is to first examine the treatment's effect on memory and then to see whether the effects on memory are related to subsequent differences in behaviour. This approach has resulted in a growing body of literature which indicates that knowledge has a strong effect on how individuals process new information (e.g., Graesser and Nakamura 1982) and solve problems (e.g., Chi, Glaser and Rees 1982)

In consumer behaviour, a similar shift in interest has occurred. For instance, recent research examining individual level advertising effects has used different measures of memory to explain these effects (e.g., Beattie and Mitchell 1985). In addition, a number of recent studies have examined the effect of decision strategies on memory (e.g., Biehal and Chakravarti 1983) and the effects of consumer knowledge about a product category on information search (e.g. Bettman and Park 1981; Brucks 1984). However, in marketing as in cognitive psychology, most of the research examining the effect of knowledge on various information processing activities has generally viewed knowledge within a domain as unidimensional.

Knowledge within a domain, however, is most likely multidimensional. Consequently, in order to obtain a better understanding of how knowledge affects various information processing activities, we must first obtain finer grained measures of knowledge and its organization in memory. However, as we point out in this paper, these measures should be based on a theory of memory.

Given this problem, it is not surprising to find little systematic effort directed at actually measuring differences in the content and organization of information within a domain between individuals (for exceptions, see Chi and Koeske 1983; Chi, Glaser and Rees 1982; Scott, Osgood and Peterson 1979). Although the outlines of a theory of memory are available, it is

still not developed well enough to provide strict guidelines for measuring knowledge. Consequently, developing systematic procedures for measuring knowledge is an arduous and time consuming task. It literally involves feeling your way in a largely unknown area.

The following paper represents an attempt to build on the existing literature in cognitive and educational psychology, social cognition, and consumer research by discussing models of memory and various procedures, based on these models, for measuring knowledge. Furthermore, we will also present and discuss the results of a study in consumer research which demonstrates the application of some of these procedures. First, however, we will discuss models of memory.

Models of Memory

The usual distinction between long term memory (LTM) and short term memory (STM) will be used in this paper (e.g. see Horton and Mills 1984), however, we will only be concerned with measuring information in LTM. Here, LTM is defined as that subcomponent of memory which is permanent, virtually unlimited in storage capacity, and well organized. Although LTM is often represented as a complex system (Anderson and Bower 1973), a simplified representation is often sufficient for a task such as we are undertaking (e.g., Shavelson and Stanton 1975).

Also, it should be noted that knowledge within a domain can be represented in both procedural and declarative form (Anderson 1983), however, we will only be concerned with declarative knowledge here. Declarative knowledge consists primarily of the facts that are known about a particular domain while procedural knowledge represents the algorithms and heuristics that operate on these facts. A current issue in psychology is whether all our knowledge is represented in either declarative or procedural form. Here we will take the more general position that knowledge is represented in both forms.

Declarative Knowledge

The most generally accepted model for representing declarative knowledge in LTM is a semantic network (Wickelgren 1981). A semantic network is a node-link structure in which concepts are represented as nodes that are linked together according to a defined set of relationships (for a discussion of nodes see Rumelhart et al. 1972; for the various relationships between nodes see Anderson 1976; Norman and Rumelhart 1975). Although, this view of LTM results in a static, though manipulable form of memory, it must be acknowledged, that for many purposes, a dynamic model may be more appropriate.

The retrieval of information from a semantic network involves a process of spreading activation (Anderson 1983). Recall of the contents of a node will occur when the amount of activation at that particular node exceeds some threshold level. Which nodes then become activated depends on the strength of the association between the activated node and linked nodes. Those nodes that are most strongly associated are the most likely to be activated.

Declarative memory is, also, frequently divided into

episodic (knowledge of events we have experienced) and semantic (generalized knowledge) memories (Tulving 1983). Although initially hypothesized as two separate memory systems, there exists evidence to the contrary (e.g. Anderson and Ross 1980; McCloskey and Santee 1981). In this paper, we will assume that episodic information may be linked to semantic knowledge in some cases (e.g., Reiser, Black and Abelson 1985), while in other cases it may be located in a separate memory system.

Finally it should be noted that it is also currently believed that much of our generalized knowledge is organized into packets of information. A number of different terms have been used to refer to these information packets. These include schema (Alba and Hasher 1983), scripts (Abelson 1981; Schank and Abelson 1977), frames (Minsky 1975), prototypes and exemplars (Cantor and Mischel 1979; Rosch 1978), and MOP's and TOPS's (Schank 1980, 1981).

Briefly, schema and frames are generic terms for information packets. Scripts contain our generalized knowledge about the temporal sequence of events which occur within an event (such as visiting a restaurant). A prototype is an abstraction of a particular class of objects, while an exemplar is a specific instance that is considered representative of a set of objects. MOP's (memory organizational packets), which are similar to scripts, contain generalized knowledge about general events, however, they also contain linkages to specific events when the events do not meet expectations. TOP's (thematic organizational packets) represent higher order organization of events which are used to identify instances of a general theme.

It is also important, to recognize the major competitor to the network model of memory, the feature model (Smith, Shoben and Rips 1974). Here, members of a particular category are located in a multidimensional space whose dimensions are the defining features of the objects. In this model, category members have both defining features, which are common to all the objects within the category, and characteristic features which are unique to a subset of members. Scott (1969) used a similar model to develop procedures for measuring the relationship between objects within a domain. We will refer to the latter model in this paper, however, it should be noted that although the network and feature models are conceptually different, Hollan (1975) demonstrated their mathematical equivalence.

Measurement of Declarative Knowledge

In measuring declarative knowledge, it is important to make the distinction between structure and content (e.g., Scott, Osgood and Peterson 1979). Although a number of other dimensions of both structure and content of knowledge have been suggested (see for example, White and Gunstone 1980), the general distinction remains the most widely accepted and will be used for the purposes of our paper. Structure refers to how information within a domain is organized in memory. In a network model of memory, examples of different measures of structure might be the number of independent knowledge structures (e.g., structures with no links between them), the number of associations linked to a particular concept or the number and pattern of linkages between concepts within a structure (e.g., Chi and Koeske 1983). In addition, it may also be important to consider the pattern of linkages with other structures in memory (White and Gunstone 1980). In a feature model, examples of different measures of structure might be the number of dimensions or attributes associated with each object and the extent to which the same attributes are associated with each object.

The content of knowledge refers to the type of information stored at the nodes in memory. For instance, some individuals may have specific events associated with different brands in a product class while other individuals may have specific characteristics associated with the brands.

There are a number of different procedures that may be used for measuring either the content or the structure of knowledge within a domain. For a review, the reader is referred to Mitchell (1982) and Mitchell and Chi (1985). These procedures include paper and pencil tests, elicitation and word association, questionnaires which require the subject to evaluate objects and their attributes, tasks requiring the retrieval of information, response times, and scaling procedures. Most of these procedures, however, are capable only of measuring content or structure, but not both. One notable exception is the elicitation/word association procedure (e.g., Olson and Muderrisoglu 1979; Shavelson 1974). Under this procedure, subjects are given key terms from the domain to be tested and are asked to tell the experimenter everything that comes to mind or everything that is related to that term.

Deese (1965) was among the first to use the word association test as a means for examining knowledge within a domain. He defined the associations to a given stimulus probe (i.e. node in memory) as the responses obtained from that probe. He argued that although this was only a subset of all the associated concepts, it was the largest possible subset obtainable by any single technique. In addition, Deese has argued that the word association procedure comes closer than any other technique to being context free, and consequently is the most appropriate procedure for studying organization in memory. Finally, comparisons of the word association procedure with other procedures for measuring the structure and content of knowledge (e.g., paper and pencil tests) indicate substantial convergent validity between procedures (Shavelson and Stanton 1975; Preece 1976).

As mentioned previously, the major advantage of the elicitation and word association approaches is that they provide the data necessary for obtaining measures of both content and structure. Measures of the content of knowledge can be obtained by coding the elicitations into different categories, while measures of the structure of knowledge can be obtained if we assume that whenever one concept elicits or is associated with a second concept, a link between these two concepts exists in memory. Once these links are determined, we can then examine the structure in terms of pattern of links (Chi and Koeske 1983).

In addition, this procedure allows responses to be analyzed in several ways. For example, the degree of association between concepts within a domain can be calculated by the degree of overlap of the responses between concept probes (Preece 1976; Shavelson 1972).

The major problem with this approach is that we do not know exactly what probes or words to use to measure a subject's knowledge in a particular domain. Theoretically, we should probe each schema that is used to store information within that domain, however, currently our theories of memory are not precise enough to tell us which schemata individuals may have in a domain. It is also not clear how many concepts will be linked within a particular schema. If a schema contains many concepts, more probes should be used to elicit these concepts. This may be accomplished by increasing the depth of probing. For instance, after a subject has initially provided all the associations with the key word, second level probes could be used. These probes use both the key word and one of the

associations given by the respondent. When subjects have complex schemas for particular concepts, these second level probes or even third level probes may be necessary to get at all this knowledge.

Second, previous research has indicated that the reliability of these procedures, while acceptable, is somewhat modest. For example, Olson and Muddirisoglu (1979) found that the same probe given at two different points in time resulted in the elicitation of 50 to 60% of the same concepts. High reliabilities for this procedure cannot be expected because according to spreading activation models, the recall of a particular node in memory is the result of a probabilistic process. However, it still needs to be determined if these reliabilities are high enough for this procedure to be useful.

Third, if the researcher is interested only in what information is stored in memory, he or she must be careful that the subject provides only the information that is activated from the memory probe and does not attempt to construct new information. In order to increase the likelihood that the construction of new information does not occur, the subject should be kept in a passive state during this procedure.

A final and related problem is that context frequently seems to have a strong effect on information retrieval. This has been demonstrated in a number of experiments (e.g., Bower 1981). In word association techniques, however, it has been argued that as long as the major contextual variables are held constant (i.e., setting, interviewer, probes, etc.) the technique can be considered to be almost context free (Deese 1965).

Example

In this section we will discuss the use of both elicitation procedures (based on the semantic network model) and questionnaires (based on the feature model) to examine differences in the content and structure of declarative knowledge within a domain between high and low knowledge individuals. The purpose of this example is to provide an illustration of the use of these procedures and an indication of the type of results that can be obtained.

Method

Domain: The domain of motorcycles was selected for a number of reasons. First, there appears to be a wide variance in the amount of knowledge that individuals have about motorcycles. Individuals seem to be either very knowledgeable about motorcycles or have very little knowledge. Second, motorcycles have distinct product types allowing for examination of these types as a basis for organizing information in memory. Third, motorcycles have a fairly large number of attributes, different manufacturers and models so that the difference in the content and structure of knowledge between high and low knowledge individuals would be evident.

Subjects: The subjects were 24 individuals associated with an eastern university in the United States. They were recruited from classrooms and from signs placed on campus. To insure that the subjects differed in their knowledge with respect to motorcycles, the subjects were first prescreened based on their self-reported knowledge about motorcycles. Only subjects that reported that they were either very knowledgeable about motorcycles or had little knowledge about motorcycles were selected. Of the 24 subjects used in this study, twenty were men and four were women. Their ages ranged from 18 to 28.

Memory probes: As mentioned earlier, in order to design the memory probes, we must first determine the different schemata that individuals have containing information about that domain. Since there has been virtually no research on how consumers organize their knowledge about a particular category, the following assumptions had to be made. First, it was assumed that there would be a schema for the product class, so our first memory probe was the word "motorcycle". Since it was believed that individuals may have very complex knowledge structures for motorcycles, second and third level memory probes were also used.

It was also hypothesized that individuals would probably have separate knowledge structures for the different brands, models and types of motorcycles of which they were aware. Therefore, we asked each subject to name all the different motorcycle brands, models and types that he or she could think of and then conducted separate probes for each brand, model and type that was mentioned.

Finally, we hypothesized that individuals may have separate knowledge structures for different components (e.g. motorcycle engine) and performance characteristics (e.g. handling) of motorcycles. Consequently, separate probes were conducted for different component and performance characteristics of motorcycles.

Procedure: Three different sessions were used for collecting data from each subject, however, only the first two sessions are of concern in this example. These sessions took place approximately two weeks apart. In the first session, a questionnaire containing a number of different self-report measures of knowledge that have appeared in the literature (e.g., questions concerning ownership of motorcycles), measures indicating the amount of exposure to information about motorcycles (e.g., frequency of reading motorcycle magazines) and demographic information was given to the subjects.

After completing this questionnaire, the subjects were then given a series of memory probes. Answers were recorded on a tape recorder for later transcription and analysis.

In the second session, approximately two weeks later, the subjects were given additional memory probes and a series of questionnaires to obtain the measures of memory structure proposed by Scott (1979). Except for minor modifications due to the difference in topics, these questionnaires were virtually identical to the ones in Scott, Osgood and Peterson (1979). Next, the subjects were given a series of categorization tasks and a vocabulary quiz on a number of different motorcycle terms. Finally, a list of the five most important performance measures of motorcycles (e.g. acceleration) were given to the subject and they were asked to state which characteristics of motorcycles affected these performance attributes.

Dependent variables: One set of dependent variables that was developed included the self report measures of knowledge, number of brands, models and types mentioned, number of elicitations from each memory probe and scores on the vocabulary and the characteristic attribute tests. This set of variables was used to define level of expertise.

In order to measure the content of knowledge, a coding scheme with twenty six different categories was developed for the elicited concepts. These categories contain a number of broad groupings. Two of these groupings were whether the knowledge was specific to the product or related to the product. Examples of product specific knowledge include: performance (acceleration etc.),

general characteristics (size, weight etc.), specific characteristics (seat, tires etc.), brands, models, types, maintenance, and quality.

The second category consists of those variables which, although not specific to a motorcycle are objects or phenomena related to motorcycles. These include events (involving strangers, read about), personal experiences, other's experiences (of known people, friends, relatives etc.), people associated with motorcycles (actors, Hell's Angels etc.), places and objects encountered while riding (bridges, potholes etc.), type of riding (racing, highway etc.), procedures involved in riding (shifting weight etc.), safety, advertisements, company or country, and motorcycle clothing.

In addition to these two categories, a third category was created which consists of personal statements. This includes feelings/emotions, evaluative statements (I like that etc.), general statements (some people enjoy it), personal thoughts/philosophy (I think it is important to, I wonder what etc.), and images in mind (I picture ..., I can see, etc.).

Finally, a category for comparisons was developed which classified a comparison either as direct (comparing one motorcycle to another) or indirect (comparing a motorcycle to something else ... car, bicycle etc.). A preliminary measure of the reliability between coders for the coding scheme was .81.

Scott's (1969) questionnaires provide a number of different measures of the structure of knowledge. These include complexity (the number of associations an individual has about an object), evaluative centrality (the degree to which evaluative attributes are more central than attributes of neutral valence), image comparability (degree to which the attributes associated with the objects are the same) dimensionality (the number of independent dimensions or attributes required to represent the group of objects), and affective - evaluative consistency (associations between the evaluation of an object and the evaluation of the associations with that object) (Scott, Osgoode and Peterson 1979). The questionnaire also provides a measure of the number of motorcycles listed.

Results

An examination of the correlations between the first set of dependent variables indicates that most of these correlations were quite low (around .30), however, a number of the measures were quite highly correlated (around .75). These highly correlated measures included Rating of Knowledge, No. of Motorcycles listed, and the scores on the Vocabulary Quiz. The scores for these variables were standardized over subjects and the sum of the standardized scores was used as a measure of the subject's expertise. An examination of the subjects' scores on this variable indicated that they fell into four groups of approximately equal size. These groups were labeled novices, semi-novices, semi-experts and experts.

Differences in the Content of Knowledge: In order to examine the differences between these groups on the different content categories, a one way analysis of variance was used. Both the number and percentage of statements elicited for each category were analyzed.

An analysis of the number of statements elicited indicates that, overall, significantly more statements were elicited from the experts than from the novices. Although this was expected, it provides an indication of the complexity of the knowledge structure of the experts. Significant differences were also found in the number of statements elicited for eighteen of the

twenty six categories. Fourteen of these categories also displayed a significant linear trend. For all but one of these categories, the number of statements elicited increased with expertise. Six of the categories that increased with expertise were from the motorcycle specific grouping. These were: general characteristics, specific characteristic, brands, models, types, and quality. The other five categories where similar significant differences were found were company/country, procedure, feeling/emotion, specific evaluation, and generalized statement. The only category where the number of elicitations decreased with expertise was specific evaluations. Interpretation of the category specific evaluation would indicate that novices tend to respond to a probe with an evaluation (i.e., "It's good," "I don't like it," etc.) more frequently than experts.

In a second analysis, the percentage of each category was analyzed using oneway analysis of variance. First, however, an arcsin transformation was applied to equalize the within cell variances. Significant differences in the means between groups or a significant linear trend was found for 12 of the twenty six variables developed from the elicitations. These results also indicate considerable differences in the content of knowledge between experts and novices.

Of particular interest are the differences across the groups in terms of the three categories of content variables. Again, with the exceptions of performance and maintenance, the differences between groups in the motorcycle specific category were all significant and demonstrated a linear trend increasing with expertise. These results indicate that as expertise increases, an increasing percentage of an individual's motorcycle knowledge is specific knowledge. Other variables demonstrating the same significant linear trend were company/country of origin, procedures, and direct comparisons.

Significant linear trends decreasing with expertise occurred for the following variables in the other two categories: events, riders/people associated with motorcycles, advertisements, indirect comparisons and personal thought/philosophy. This suggests that novices tend to have more knowledge based on advertisements, newspaper stories, and people they associate with motorcycles (especially Hell's Angels). Also, as a result of less motorcycle specific knowledge, novices tend, when making comparisons, to make them with things with which they are more familiar (cars, bicycles) than to other motorcycles.

Differences on measure of structure: A similar pattern emerges with the Scott measures. Experts, for instance, could name a significantly greater number of motorcycles than novices. The measure of complexity was also significantly different between groups and demonstrated a significant linear trend increasing with expertise. This indicates that experts have many more associations with the different motorcycle brands, types and models than do novices. The dimensionality index was also found to increase between novices and experts indicating that experts used more dimensions in thinking about motorcycles. Perhaps the most interesting finding is an increase in affective evaluative consistency between novices and experts. This measure is based on the correlation between a subject's evaluation of each motorcycle and the sum of the evaluations of each characteristic associated with the motorcycle. For novices, this measure was actually negative, while for experts, this measure is positive and reasonably high. This suggests that experts based their evaluations of the motorcycles on careful consideration of the characteristics of the motorcycles, while novices may have based their evaluations on ex-

ternal sources, such as friends or advertisements, a result which was also apparent in the analysis of elicitations.

Finally, significant differences and a significant linear trend was also found on the image comparability measure. The linear trend decreased with expertise which indicated that experts were the most likely to have unique characteristics associated with different brands and models of motorcycles.

Differences in knowledge structures: In order to examine the differences in the structure of knowledge between experts and novices, we constructed a network representation of each subject's knowledge based on the memory probes. In constructing a network, a linkage was made between the node representing the memory probe and the nodes representing the various elicitations to the probe.

For novices we generally find that all of the elicited information is interconnected. That is, responses to one probe were often found in responses to other probes. This seemed to occur because there were only a few basic ideas about motorcycles in the structures, and almost all of the probes would tap into one or more of these ideas. For example, one novice's knowledge about motorcycles consisted of the experience of riding around on the back of her boy friend's Harley Davidson, television advertisements about motorcycles, knowledge about how powerful and dangerous motorcycles are, and a memory of a high school acquaintance who was badly injured in a motorcycle accident.

In contrast, experts generally had very complex knowledge structures and had developed separate knowledge structures for different types of knowledge about motorcycles. For instance, the knowledge structure of experts, for the most part, revealed few if any direct linkages between the elicitations from a particular probe and all the other probes. However, there may exist superlinks between structures which were not uncovered with the particular probes which were used.

What is particularly interesting about some of the expert structures is their hierarchical organization. For example, the motorcycle engine probe given to one of the experts elicited different characteristics of motorcycle engines (e.g. 4 cylinder, fuel injected). Connected to these characteristics was information about how these characteristics affect performance.

Experts also demonstrated a tightly knit structure relating brands, models and types of motorcycles. For instance, connected to each brand were generally found the specific models for that brand and these models, in turn, were linked to the different types of motorcycles. Consequently, the expert can access specific models of motorcycles either through the brand or through types of motorcycles.

Discussion

Overall, the patterns found across the two different procedures seems to indicate important differences in the content and structure of motorcycle knowledge between high and low knowledge individuals. Especially noteworthy was the finding that the proportion of motorcycle specific elicitations increased with expertise while the proportion of motorcycle related elicitations decreased. In addition, experts were found to have more associations with each brand, model or type of motorcycle, use more dimensions in thinking about motorcycles and had greater affective evaluative consistency.

Although still at preliminary stages, the procedure

developed for identifying the content and structure of knowledge appears to be a useful tool for the consumer researcher. The ability to identify the concepts associated with a product and the relationships between these associations provide researchers with a clearer picture of knowledge within a particular product class across subjects. They may also be useful as dependent measures, for example, the ability to map knowledge prior to and after the acquisition of product knowledge will give the researcher a better understanding of how the subjects integrated the newly acquired knowledge into their prior knowledge structures.

We have, however, also discussed a number of problems with the approach. These include the reliability of the measures and whether or not these procedures tap all the knowledge within a product domain. It also remains to be seen whether our coding schema for the elicitations will be useful for other product classes. Future research should address these issues so that reliable and valid procedures will be available for accessing the content and structure of product class knowledge.

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A NEW NONMETRIC CONJOINT METHOD: SOME PRELIMINARY RESULTS

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Abstract

A new nonmetric conjoint method is presented. This method is simple and it precludes the inconsistent predictions which can be obtained with the traditional methods, when using fractional designs. Preliminary simulation results are encouraging.

Introduction

The purpose of this paper is to present a new nonmetric method for estimating conjoint models. The method makes the two following assumptions:

Assumption A - the preference order of the levels of each attribute is known for each respondent;

Assumption B - each respondent is "rational" (i.e., each respondent prefers stimulus A over stimulus B if A dominates B, which means that all the levels of A are the same as or preferred to the levels of B).

Work is being done to adapt the method to cases where either assumption does not hold. Moreover, it can be used only with full profile data. But then "full profile" is the method the most used by practitioners (Cattin and Wittink 1982, Table 4).

Potential Inconsistencies With Traditional Estimation Methods

Let R be a (N x 1) vector of observed rankings where the most preferred stimulus receives the highest rank (N) and the least preferred the lowest (1). The design matrix X which defines the stimuli is expressed through indicator variables. An attribute with k_i levels can be described by $(k_i - 1)$ vectors. For instance, for an attribute with 4 levels we have 3 column vectors:

	level	1	2	3
least preferred level	1	0	0	0
	2	1	0	0
	3	0	1	0
most preferred level	4	0	0	1

Such an attribute will have $(k_i - 1)$ parameters associated with it if a model is fitted. In the above notation, if we include an intercept, then X is $N \times (\sum k_i - r + 1)$. Let b be the $(\sum k_i - r + 1) \times 1$ vector of parameters, wherein b_{ij} is the parameter associated with level j of attribute i (with the parameter associated with the lowest level, b_{i1} , taken to be 0). Under the assumption of ordered levels for each attribute, we have $0 \leq b_{i2} \leq \dots \leq b_{ik_i}$, $i = 1, 2, \dots, r$.

Suppose we have 3 attributes, 3 levels each, and that we are using a fractional design of 9 stimuli (Figure 1). For each attribute, level 1 is the least preferred and level 3 the most preferred. One can verify that the rankings (A) shown in Figure 1 are rational. They can be derived from an additive model or from a model with non-crossover interactions (with or without errors.)

If we use regression on rankings (A), we get $\hat{b}_{12} = -1/3$, $\hat{b}_{13} = -2/3$, $\hat{b}_{22} = 1$, $\hat{b}_{23} = 5$, $\hat{b}_{32} = 5/3$ and $\hat{b}_{33} = 10/3$

FIGURE 1: A 3 x 3 x 3 FRACTIONAL DESIGN WITH N = 9

Stimulus	Attribute			Rankings (A)
	1	2	3	
1	1	1	2	3
2	1	2	3	6
3	1	3	1	7
4	2	1	3	5
5	2	2	1	2
6	2	3	2	8
7	3	1	1	1
8	3	2	2	4
9	3	3	3	9

($\hat{b}_{i1} = 0$ for $i = 1, 2, 3$). The utility estimates obtained for attribute 1 are contrary to expectations (monotone decreasing instead of increasing). Suppose we use these utility estimates to predict the rankings of stimuli (1, 2, 2) and (2, 2, 2), where (a_1, a_2, a_3) represents a stimulus with levels $a_1, a_2,$ and a_3 of attributes 1, 2 and 3, respectively. We get $\hat{R}(1, 2, 2) = 4.33$

and $\hat{R}(2, 2, 2) = 4$, which is inconsistent (contrary to expectations).

It can be shown analytically that under assumptions (A) and (B) inconsistent utility estimates and predictions can be obtained with fractional designs, but not with full designs (Gelfand and Cattin 1984). There are no analytical results in the context of nonmetric methods, but inconsistent estimates and predictions can also be obtained with such methods. One solution is to constrain parameter estimates to be monotone (increasing or decreasing), which can be done with LINMAP. One can also use the method presented below.

Nonmetric Estimation of the Ranking of a Stimulus

The ranking of an unobserved stimulus $a = (a_1, a_2, \dots, a_r)$ is estimated using the following formula:

$$R(a_1, a_2, \dots, a_r) = \frac{\underline{R}(a) + \overline{R}(a)}{2} \quad (1)$$

where

$$\underline{R}(a) = \begin{cases} \max R(a_1^*, \dots, a_r^*), L(a) = \{a^* : a_1^* \leq a_1, i=1, \dots, r\} \\ a^* \in L(a) \\ 0, \text{ if } L(a) \text{ is empty.} \end{cases}$$

$$\overline{R}(a) = \begin{cases} \min R(a_1^*, \dots, a_r^*), U(a) = \{a^* : a_1^* \geq a_1, i=1, \dots, r\} \\ a^* \in U(a) \\ N + 1, \text{ if } U(a) \text{ is empty.} \end{cases}$$

Under rational rankings, (1) precludes the creation of inconsistent rankings. For instance, in the example in Figure (1), $R(1, 2, 2) = 3.5$ because $\hat{R}(1, 2, 2) = 4$ and $\hat{R}(1, 2, 2) = 3$, and $R(2, 2, 2) = 3.5$, as well.

Note that this method does not estimate any attribute utility. It predicts the ranking of an unobserved stimulus from the rankings provided by a respondent on N stimuli. These predicted rankings can (in turn) be used to

estimate preference shares, which is often done by practitioners (Cattin and Wittink, 1982, p. 50).

A Brief Simulation Study

Simulation Design

The purpose of the simulation is to gain insight into the behavior of the nonmetric approach compared to regression. All simulations were carried out with three attributes, each with 4 levels. Two orthogonal arrays of 16 stimuli each were used: one to create estimation samples, the other validation samples. Two main types of data were produced: additive and (non-crossover) interactive, to which varying levels of noise were added. Interactive data were also produced without noise. The rationale is that respondent's unreliability (i.e., noise) and interaction are two major reasons for imperfect fit when estimating additive models.

The additive data were produced using the following model. The r th response, or rating Y_r , is such that

$$Y_r = \sum_{i=1}^3 \sum_{j=1}^{k_i} b_{ij} X_{rij} + e_r \quad (2)$$

where

$$X_{rij} = \begin{cases} 1, & \text{if level } j \text{ of attribute } i \text{ is present in stimulus } r \\ 0, & \text{otherwise.} \end{cases}$$

$$b_{ij} = b_{i,j-1} + \text{Abs}(u) \text{ for } j \geq 2, i = 1, 2, 3.$$

$$b_{i1} = 0, i = 1, 2, 3.$$

Abs(u) = Absolute value of a variable drawn from a normal distribution with mean zero and variance one.

$$e_r = \text{noise.}$$

$$Y_r = \text{"rating" of stimulus } r.$$

The noise (e_r) was drawn from a normal distribution with mean zero and variance σ^2 , where σ^2 was set such that the expected percentage of noise in the data took on the values 11.5, 26 and 65 percent. These percentages correspond to high, medium and low predictive validity found in real data (e.g., Scott and Wright, 1976).¹ The noise was added to the stimuli in the estimation sample, but not in the validation sample. In this manner, it takes fewer replications to obtain significant differences between methods. There were five hundred replications for each level of noise.

The ratings of the stimuli in the estimation sample, obtained using (2), were transformed into rankings. These rankings were used to predict the rankings of the 16 stimuli in the validation sample using the nonmetric approach, i.e., (1). Both the ratings, obtained from (2) and the rankings of the stimuli in the estimation sample were used to estimate a least squares regression model. The estimated models were used to predict the ratings and rankings of the stimuli in the validation sample.

The order of the levels of each attribute is known. Thus, following Srinivasan, et al. (1983) and Cattin and Punj (1984), constrained least squares regressions were also performed to constrain the parameter estimates to be monotone increasing for each attribute. This was done as follows. For each attribute, b_{ik} and $b_{i,k-1}$ were averaged if \hat{b}_{ik} was found to be less than $\hat{b}_{i,k-1}$.

¹See footnote 3 in Cattin and Punj (1984).

Next, $\hat{b}_{i,k-1}$ and $\hat{b}_{i,k-2}$ were averaged if $\hat{b}_{i,k-1}$ was found to be less than $\hat{b}_{i,k-2}$ (and \hat{b}_{ik} , $\hat{b}_{i,k-1}$, $\hat{b}_{i,k-2}$ were averaged if \hat{b}_{ik} was found to be less than $\hat{b}_{i,k-2}$), and so on. The estimated models thus obtained were used to predict the ratings or rankings of the stimuli in the validation sample.

The predicted ratings or rankings obtained with each method, as well as the true ratings (in the validation sample) were transformed into rankings 1 through 16 (allowing for ties). Spearman rank and Kendall tau correlations were computed between true and predicted rankings and averaged across the 500 replications for each cell of the simulation design.

The interactive data were produced with the following model. Again, the r th rating, Y_r , is such that

$$Y_r = C_{jkl} + e_r \quad (3)$$

where j, k, l indicate, respectively, the levels of each of the three attributes. With $C_{111} = 0$, we create

$$C_{jkl} = \text{Max}(C_{j-1,k,l}, C_{j,k-1,l}, C_{j,k,l-1}) + \text{Abs}(u).$$

Abs(u) = Absolute value of a variable drawn from a normal distribution with mean zero and variance one.

$$e_r = \text{Noise.}$$

This is one way to produce interactive data of the non-crossover type. The noise was again drawn from a normal distribution with mean zero and variance σ^2 , where σ^2 was such that the expected percentage of noise in the data was 0% (i.e., no noise), 11.5%, 26% and 65%. Again, the noise (if any) was added to the estimation data only and there were 500 replications for each level of noise. The estimation and prediction procedures used with these interactive data were identical to those used with the additive data.

The b_{ij} and C_{jkl} values in (2) and (3), used to produce the additive and interactive data, were all drawn from the same distribution, thus implying relatively "compensatory" models. To gain further insight into the behavior of the nonmetric approach, another set of additive data was produced in which the b_{3j} values, drawn from the same distribution as before, were multiplied by 10, thus producing data in which the third attribute tends to be more important and implying a model with a "dominant attribute" (similar to a lexicographic model). Data were thus produced, followed by estimation and prediction, as described above.

Simulation Results

The mean Spearman rank and Kendall tau correlations obtained for each cell of the simulation design are shown in Tables 1 and 2. Not surprisingly, the best regression results are obtained when using constrained least squares on ratings. The improvement (compared to unconstrained least squares) is greater when the data are additive than when they are interactive.

Comparing the results obtained with the nonmetric method to those obtained with constrained least squares on ratings shows that the constrained least squares method outperforms the nonmetric method only with additive data when the noise level is 11.5% (i.e., high predictive validity). (Note that most of the standard errors of the mean correlations shown in Tables 1 and 2 are between .002 and .005.) The predictive validities of the constrained least square and nonmetric methods are about the same when looking at the results obtained with 11.5% noise under additive data with a dominant attribute. The predictive validity of the nonmetric method is higher everywhere else: i.e., with interactive data (whatever

TABLE 1

MEAN SPEARMAN RANK CORRELATIONS

Data Type Noise ^a	Estimation Method					
	Nonmetric	Least Squares			Constrained Least Squares	
		on ranks	on ranks	on ratings	on ranks	on ratings
Additive 11.5%	.925	.935	.947	.938	.949	
26.0%	.904	.879	.893	.890	.903	
65.0%	.845	.657	.678	.740	.753	
Interactive 0%	.953	.948	.950	.948	.950	
11.5%	.918	.899	.905	.904	.907	
26.0%	.889	.835	.845	.853	.858	
65.0%	.828	.601	.619	.706	.718	
Additive ^b with a dominant attribute 11.5%	.941	.917	.921	.938	.941	
26.0%	.918	.864	.869	.908	.909	
65.0%	.826	.657	.666	.786	.794	

TABLE 2

MEAN KENDALL TAU CORRELATIONS

Data Type Noise ^a	Estimation Method					
	Nonmetric	Least Squares			Constrained Least Squares	
		on ranks	on ranks	on ratings	on ranks	on ratings
Additive 11.5%	.818	.826	.844	.832	.850	
26.0%	.785	.739	.754	.757	.770	
65.0%	.710	.501	.517	.584	.592	
Interactive 0%	.869	.849	.851	.849	.851	
11.5%	.809	.768	.773	.775	.778	
26.0%	.769	.684	.693	.706	.710	
65.0%	.695	.457	.467	.555	.562	
Additive ^b with a dominant attribute 11.5%	.840	.792	.797	.836	.839	
26.0%	.803	.712	.716	.788	.788	
65.0%	.693	.496	.500	.642	.649	

^aThe 11.5%, 26% and 65% noise levels correspond to high, medium and low predictive validities. See footnote 3 in Cattin and Punj (1984).

^bDominant attribute means that the b_{3j} values, drawn from the same distribution, were multiplied by 10 (as explained in the text).

the noise level), and with additive data with medium to high noise levels.

Conclusion

The intent of this paper was to present a new nonmetric method which precludes the inconsistent predictions which can be obtained with traditional methods when using fractional designs. The method is quite simple and preliminary simulation results are encouraging. Additional simulations and empirical work are needed to gain more insight on the behavior of this method, compared to the traditional methods.

The method can be used only with full profile data and makes two important assumptions (given at the beginning of the paper). This limits its use. However, work is being done to infer the preference order of the levels of an attribute (when unknown) from full profile data, and to adapt the method to inconsistent (full profile) rankings. This will broaden the potential use of the method.

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SIMULTANEOUS VERSUS SEQUENTIAL ESTIMATION OF MULTI-STAGE MODELS OF PERCEPTION, PREFERENCE, AND CHOICE

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Abstract

Simultaneous and sequential estimation procedures for multi-stage models of perception, preference, and choice are reviewed and discussed. The relative performance of these estimation procedures is assessed with Monte Carlo experimentation for a simple multi-stage choice model with quantitative endogenous variables. The results indicate that 2SLS estimates have about 35% less error than OLS estimates in the presence of substantial cross-equation error correlation. This result appears to hold regardless of the level of correlation in the model's exogenous variables.

Introduction

In modeling choice behavior in high-involvement settings marketing scientists have used both physical attributes and buyers' perceptions of the characteristics of the choice alternatives as explanatory determinants of choice. Either physical attributes or perceptions -- but not both -- are typically used in a single-stage choice model.

In contrast to single-stage choice models, multi-stage choice models seek to integrate physical attributes, perceptions, preferences, and choices into a comprehensive model of judgment and decision making. A popular multi-stage choice model has the following form:

$$\begin{aligned} \text{Perception} &= f(\text{Physical Attributes, Information,} \\ &\quad \text{Other Factors}) \\ \text{Preference} &= g(\text{Perceptions, Other Factors}) \\ \text{Choice} &= h(\text{Preference, Situational Constraints,} \\ &\quad \text{Other Factors}). \end{aligned}$$

This multi-stage choice model incorporates both physical attributes and perceptions. The model also makes a distinction between preference and choice. Preference is often defined as "unconstrained preference", where the decision maker is specifically assumed (and directed in survey research questionnaires) to ignore certain constraining factors in providing the preference judgment. However, choice is affected by these situational constraints. This multi-stage model is consistent with models of consumer behavior proposed and applied by many marketing researchers (c.f. Tybout and Hauser 1981). This multi-stage choice model may be viewed as falling within the Lens' model paradigm (Brunswick 1952) or as being derived from the information integration view of judgment and decision making (Anderson 1981).

Marketing scientists typically estimate the various parts of this multi-stage choice model using the following approach. The assumption (usually implicit) is made that the errors of the three equations are uncorrelated across equations. Under this assumption, each equation in the multi-stage model may be estimated separately, in a sequential fashion, and this procedure will yield parameter estimates with the usual desirable statistical properties, such as unbiasedness and efficiency. However, the appropriateness of this sequential estimation approach depends critically on the assumption about the uncorrelated error terms.

Cross-equation error correlations in the multi-stage model may exist for several reasons. Correlations may arise because common measuring scales are used to measure perception, preference, and choice. Omitted variables would be another factor which induces cross-equation error correlation.

If the equation errors are correlated, sequential estimation of the multi-stage choice model will yield inconsistent parameter estimates. With cross-equation error correlation, the model should be estimated with

simultaneous equation techniques, using either single equation (such as two stage least squares) or system methods (such as three stage least squares). Single equation methods (also termed limited information methods) for simultaneous models will yield consistent parameter estimates. However, system methods (also termed full information methods) estimate the equations jointly, typically yielding more efficient parameter estimates.

The purpose of this paper is to compare simultaneous and sequential estimation procedures for multi-stage models of perception, preference, and choice. We explore the conditions under which it is necessary to use a more complicated simultaneous estimation procedure, rather than using the simpler single-equation-at-a-time sequential approach. This investigation focuses on the extent to which sequential estimation procedures may be deficient in the presence of cross-equation error correlations.

In the next section, a multi-stage model of the choice process is formulated. It is shown that some aspects of the model specification depend on the choice modeling context. In subsequent sections, appropriate estimation procedures are described for alternative model specifications. Simultaneous equation estimation techniques are discussed in detail. Monte Carlo experiments are conducted to compare the statistical properties of parameter estimates generated by sequential versus simultaneous estimation procedures. Some concluding remarks complete the paper.

Model Specification of the Multi-Stage Choice Model

The multi-stage choice model has two components: a structural sub-model and a measurement sub-model. The structural sub-model describes the links among the theoretical constructs; the measurement sub-model describes the relationships between constructs and their measures. The structural sub-model focuses on three aspects of decision making: perceptions, preference, and choice. Hence, perceptions, preference, and choice are considered to be endogenous (dependent) variables. The remaining variables are exogenous (independent).

A decision maker's perceptions, P_j , of an alternative in his/her unconstrained choice set are modeled as a function of the objectively-verifiable physical attributes of the alternative, informational cues in the environment, and other factors. The decision maker's preference, PR , for an alternative in his/her unconstrained choice set is viewed as a function of his/her perceptions of the alternative as well as other factors. Choice, C , is considered to be a function of preference and other factors, subject to situational constraints. (The "other factors" may include both individual- and situation-specific aspects of the choice process.)

The general form of this multi-stage model may be written in the following fashion:

$$P_j = f(W, X) + \epsilon_{1j}, \quad \text{for } j=1,2,\dots,J \quad (1)$$

$$PR = g(P, X) + \epsilon_2 \quad (2)$$

$$C = h(PR, X, Z) + \epsilon_3 \quad (3)$$

where:

j = a perceptual dimension ($j=1,2,\dots,J$) which characterizes the alternatives

\underline{W} = a vector of objectively-verifiable physical attributes of the unconstrained set of alternatives and the information cues available in the environment

\underline{X} = a vector of other factors (e.g., socio-demographic and other individual-specific variables)

\underline{Z} = a vector of situational constraints which mediate the choice process

ϵ_m = a stochastic disturbance term which reflects model specification and measurement errors for the dependent variable in equation m.

In equations (1)-(3), all variables have an implicit subscript denoting the alternative in the consideration set. This subscript has been suppressed for notational convenience. In equation (1), the subscript j denotes a perceptual dimension of an alternative. For example, "quality" of a college may be a relevant perceptual dimension in college choice modeling.

Throughout this paper, we make a number of assumptions about this model. First, it will be assumed that the functional forms of the equations -- the f(.), g(.), and h(.) functions -- are linear in the parameters. However, this assumption is relaxed when the principles discussed in this paper are extended to (non-linear) discrete choice model forms. Second, the disturbance terms have been defined to include both model specification and measurement error in the endogenous variables. Our parameterization of this multi-stage choice model in equations (1)-(3) does not distinguish between these two types of errors. Third, it is assumed that:

$$E[\epsilon_m | \underline{W}, \underline{X}, \underline{Z}] = 0, \quad \text{for } m = 1, 2, \text{ and } 3. \quad (4)$$

That is, equation (4) specifies that the equation error terms are uncorrelated with the exogenous variables. This is a standard econometric modeling assumption.

The structural sub-model also specifies the nature of the variance-covariance matrix of the equation disturbances. These disturbance terms may be correlated or uncorrelated across equations. Cross-equation correlations among the disturbances may arise from either model specification error, or due to the nature of the measurement error in the dependent variables.

Model specification error will be reflected in correlation among the equation errors when a common exogenous variable is omitted from all three equations. Alternative-specific indicator variables are often used to attempt to account for such omitted variables. Measurement error in perceptions, preference, and choice will also be reflected in the equation disturbances. Hence, the methodology used to measure the endogenous variables may induce correlation into the equation errors. Correlated errors may arise when the three endogenous variables are measured with similar scales, or when all the endogenous variables are measured at the same point in time rather than in stages. In the first instance, the use of a common scaling procedure may lead to a common source of error in the measures of perception, preference, and choice. In the second instance, halo effects are more likely to occur when all measures are collected simultaneously. Furthermore, the causal links among measures of perception, preference, and choice become complex when all the measures are taken at one point in time.

The measurement sub-models for the endogenous and exogenous variables will depend on the model context. To focus on specific model estimation issues, this paper considers alternative measurement sub-models for the endogenous variables. However, it is assumed that the exogenous variables are measured without error. The exogenous variables will typically include both objectively-verifiable physical attributes and individual-specific socio-demographic variables. Both types of variables are likely to have little measurement error, at least compared to the measurement error inherent in perceptions, preference, and choice.

Two features of the measurement sub-model for the endogenous variables are important in determining the appropriate estimation procedure for the multi-stage model. One of these features, the correlations among the measurement errors of the endogenous variables, has been discussed above. Another important feature of the measurement model is whether perceptions, preference, and choice are represented by quantitative or qualitative (discrete choice) measures. Our preliminary exploration of the estimation issues in multi-stage choice models focuses primarily on the quantitative dependent variable case.

Model Estimation Procedures For Quantitative Dependent Variables

This section describes estimation procedures for the multi-stage choice model when the measures of the endogenous variables are quantitative. The appropriate procedure depends on whether the equation disturbances are uncorrelated or correlated.

Uncorrelated Errors Across Equations

Consider the multi-stage model in which disturbances are uncorrelated across equations. That is, assume that:

$$E[\epsilon_{1j}\epsilon_{2j}] = 0, \quad \text{for } j = 1, 2, \dots, J$$

$$E[\epsilon_{1j}\epsilon_{3j}] = 0, \quad \text{for } j = 1, 2, \dots, J$$

$$E[\epsilon_{2j}\epsilon_{3j}] = 0.$$

This scenario is likely to occur when the endogenous variables are measured with different scales and at different points in time. It is also likely to occur when perceptions, preference, and choice are based on somewhat different sets of alternatives due to the presence of mediating constraints.

If the covariances of the error terms are restricted to be equal to zero, the multi-stage model has a recursive structure (Johnston 1972, pp. 377-9). A recursive structure implies that the disturbances of equations (2) and (3) are uncorrelated (in the probability limit) with the endogenous variables on the right-hand side of those respective equations. In this situation, all three equations are appropriately estimated with a straight-forward application of OLS to each equation. The OLS parameter estimates will be consistent and asymptotically efficient, if the model has a recursive structure.

Correlated Errors Across Equations

Consider the multi-stage model in which the disturbances may be correlated across equations. Hence, the variance-covariance matrix of the disturbances is unrestricted. This scenario is likely to occur in "one-shot" studies (i.e., when all measures are collected simultaneously), studies which use the same measurement methodology for all endogenous variables, and studies where perceptions, preference, and choice are based on the same set of alternatives.

If the disturbances are correlated across equations, the multi-stage model has a simultaneous structure. The disturbances of equations (2) and (3) are correlated (in the probability limit) with the endogenous variables on the right-hand side of the respective equations. Hence, the direct application of OLS will yield parameter estimates which are biased and inconsistent. The asymptotic bias will be greatest when there are a few exogenous variables with high intercorrelations (Johnston 1972, p. 411).

To present an alternative estimation procedure, it is useful to express the structure model in its reduced form:

$$P_j = f(\underline{W}, \underline{X}) + \epsilon_{1j}, \quad \text{for } j = 1, 2, \dots, J \quad (5)$$

$$PR = g'(W, X) + \epsilon'_2 \quad (6)$$

$$C = h'(W, X, Z) + \epsilon'_3 \quad (7)$$

where ϵ'_2 and ϵ'_3 are stochastic disturbance terms. Note that ϵ'_2 is a function of ϵ_{1j} and that ϵ'_3 is a function of ϵ_{1j} , ϵ_2 , and ϵ_3 . Hence, the stochastic disturbances in equations (5)-(7) are correlated across equations.

Identification conditions may be used to verify whether it is possible to recover the structural parameters from the reduced form model. These conditions will depend on the functional form of the model (Maddala 1977, pp. 220-31). Assuming a linear functional form, the structural parameters of this multi-stage choice model may be shown to be identified.

The structural parameters of the simultaneous multi-stage model can be estimated with a single equation method, such as two stage least squares, or system methods, such as three stage least squares or full information maximum likelihood methods. These estimation procedures yield parameter estimates with different statistical properties.

To apply the two stage least squares (2SLS) procedure to this multi-stage choice model, the following two steps would be required (Johnston 1972, pp. 380-4):

Step 1: Equations (5) and (6) of the reduced form model are estimated with OLS. Instrumental variables for perceptions (P^*) and preference (PR^*) are formed from the predicted values.

Step 2: The instrumental variables replace the endogenous variables on the right-hand side of the structural model as follows:

$$PR = g(P^*, X) + \epsilon_2 \quad (8)$$

$$C = h(PR^*, X, Z) + \epsilon_3 \quad (9)$$

Equations (8) and (9) are estimated with OLS. Note that the estimated standard errors from the second stage must be adjusted to obtain the correct values at the second stage (Maddala 1977, p. 239).

Since equation (5) of the reduced form model is identical to equation (1) of the structural model, stage one yields consistent estimates for the structural coefficients of equation (1). The disturbances in equations (8) and (9) are uncorrelated (in the probability limit) with the variables on the right-hand side of the equations because the instrumental variables do not have a stochastic component. Hence, stage two will yield consistent estimates of the structural coefficients of equations (2) and (3). If the instrumental variables are "poor" surrogates for perceptions and preferences, the sampling variance for the parameter estimates may be very large. In these circumstances, Johnston (1972, p. 211) points out that this may be a high price to pay for consistency.

2SLS estimates will be less biased than OLS estimates in finite samples. Monte Carlo studies indicate that multicollinearity may produce a greater increase in bias in 2SLS estimates than in OLS estimates, but the results are mixed on this point. When bias and standard deviation are combined in a measure of mean square error, the results are also mixed. However, 2SLS is more likely to lead to correct inferences about the true values of structural coefficients because the estimated standard errors are centered around an unbiased expectation. It is important to note that the differences between the estimation procedures are not very large, and vary considerably across data sets (c.f., Johnston 1972, pp. 410-7). In addition, OLS estimates tend to predict well and be more robust than many simultaneous methods in the presence of model specification error (Maddala 1977, p. 231).

As an aside, the reduced form version of the multi-stage choice model consists of "seemingly unrelated" equations. Such equations are characterized by error terms which are

correlated across equations and by sets of exogenous variables which differ across equations. Under these conditions, Zellner's system method (1962) will provide asymptotically more efficient estimates than OLS. Hence, Zellner's method of seemingly unrelated regressions could be used in stage one to estimate the reduced form model and form the instrumental variables.

If the structural model is characterized by error terms which are correlated across equations, and by at least one equation which is over-identified, system estimation methods will provide asymptotically more efficient estimates of simultaneous equation coefficients (Zellner and Theil 1962). System estimation procedures include full information maximum likelihood techniques and three stage least squares.

In full information maximum likelihood (FIML), it is assumed that the disturbances of equations (1)-(3) are normally distributed and serially uncorrelated, with an unrestricted covariance matrix. Then, the joint likelihood function is maximized with respect to the structural parameters (i.e., structural coefficients and error covariances). FIML is complex (involving the solution of non-linear equations) and computationally expensive. As a result, FIML is less frequently used than other simultaneous equation methods.

In three stage least squares (3SLS), the first two stages are those of 2SLS. In the third stage, generalized least squares is applied to equations (1), (8), and (9) using the covariance matrix of the estimated equation errors (Johnston 1972, p. 398).

Although system methods are asymptotically more efficient than 2SLS, they have a number of disadvantages (Theil 1971, pp. 528-9). System methods require a much more detailed specification of the equation system than 2SLS does. With 2SLS, if a coefficient in a given equation is postulated to be equal to zero when in fact it is not, the coefficient estimates for that equation will be biased. In system methods, the same model specification error will bias the coefficient estimates for all equations. Thus, model specification error -- a particularly common problem in marketing modeling efforts -- will have its influence felt throughout all equations when using a system estimation method, even if the specification error is only in a single equation!

Whether system methods really outperform the much simpler OLS estimates in real marketing data remains an unresolved issue. Chapman and Palda (1984) compared 3SLS and OLS estimates for a 10-equation model of "sales response" in an electoral marketplace. They found that the theoretically preferable system estimation technique (3SLS) yielded approximately the same pattern of parameter estimates as the simpler OLS (equation-by equation) approach.

Model Estimation Procedures For Qualitative Dependent Variables

This section describes estimation procedures for the multi-stage choice model when at least one dependent variable is qualitative (discrete choice). For the purposes of the present discussion, it will be assumed that choice is a qualitative variable, while perceptions and preference are quantitative variables.

Choice may typically be a polychotomous variable because it represents a selection from a finite set of alternatives. When choice is polychotomous, a popular model form is the multinomial logit model (McFadden 1974):

$$C = MNL(PR, X, Z) \quad (10)$$

where MNL is the now familiar multinomial logit model functional form. Thus, equation (10) replaces equation (3) in the specification of the multi-stage choice model.

As before, the estimation of the model consisting of equations (1), (2), and (10) depends on whether the

three equations' disturbances are uncorrelated or correlated.

Uncorrelated Errors Across Equations

Consider the multi-stage model of the choice process described by equations (1), (2), and (10) in which the disturbances are uncorrelated across equations. (The conditions under which uncorrelated errors are likely to occur were described earlier for quantitative endogenous variables.) As before, the multi-stage model has a recursive structure. Hence, all three equations can appropriately be estimated with limited information estimation procedures. OLS techniques may be applied to equations (1) and (2), and maximum likelihood estimation of the parameters of equation (10) may be performed. Sequential estimation of each equation yields coefficient estimates which will be unbiased and asymptotically efficient.

In the above discussion, it has been assumed that choice is the only qualitative (discrete) endogenous variable. Preference might, of course, also be a qualitative endogenous variable. Under the assumption that the equation errors are uncorrelated, this version of the multi-stage choice model would also be estimated by limited information estimation procedures. Elliot and Hollenhorst (1981) formulate a sequential response model with four stages, each measured by a qualitative endogenous variable. The outcome at each stage is conditional on "success" at the previous stage. For this type of model, the joint likelihood function can be maximized by maximizing the likelihood functions of each equation separately (Maddala 1983, pp. 49-51).

Limited information estimation procedures are typically utilized for multi-stage models of the choice process (e.g., Hauser, Tybout, and Koppleman 1981; Hauser and Wisniewski 1982). However, the underlying assumptions about the disturbance terms are generally not discussed, despite their impact on the statistical properties of the estimates.

Correlated Errors Across Equations

Consider the multi-stage model of the choice process described by equations (1), (2), and (10) in which the variance-covariance matrix of the disturbances is unrestricted. (The conditions under which correlated errors are likely to occur were described earlier for quantitative endogenous variables.) If the disturbances are correlated across equations, the multi-stage model has a simultaneous structure and limited information estimation procedures will yield biased and inconsistent parameter estimates.

The reduced form of the multi-stage model with quantitative endogenous variables was described by equations (5)-(7). Since choice is now defined to be a qualitative variable, equation (7) should be re-written in the form of equation (10), where choice (C) depends on all the exogenous variables (W, X, and Z).

Identification conditions for models with both quantitative and qualitative endogenous variables are somewhat different than those in the usual simultaneous equations model (Maddala 1983, pp. 117-25; Lee 1981). However, the identification problems in the multi-stage choice model are much the same as those in the usual simultaneous equations model, except that some parameters are estimable only up to a scale factor due to the presence of the qualitative endogenous variable (Maddala 1983, p. 120).

The structural parameters of the simultaneous multi-stage model can be estimated with a single equation or a system method. These estimation procedures yield parameter estimates with different statistical properties.

A two stage estimation method for the multi-stage choice model is the following (Maddala 1983, pp. 242-7):

Step 1: Equations (5) and (6) of the reduced form model are estimated with OLS. Instrumental variables for perceptions (P*) and preference (PR*) are formed from the predicted values.

Step 2: The instrumental variables replace the endogenous variables on the right-hand side of the structural model. As before, equation (2) is re-written with instrumental variables P* as shown in equation (8). Equation (10) is re-written with instrumental variable PR*, as follows:

$$C = MNL(PR^*, X, Z) \quad (11)$$

Equation (8) can be estimated with OLS. Equation (11) can be estimated with maximum likelihood estimation techniques.

This two stage procedure yields consistent estimates of the structural coefficients. As with 2SLS, it yields poorer estimates in the presence of multicollinearity (Maddala 1983, p. 252). Note that the estimated standard errors from the second stage must be adjusted to obtain their correct values. Lyon (1984) uses a variation of this two stage method in her study of the dynamic attitude behavior relationship.

With regard to system estimation methods, maximum likelihood methods can be applied to the multi-stage choice model with mixed quantitative and qualitative endogenous variables. (These methods were described in the previous section.) Two stage estimation methods are likely to be more popular than maximum likelihood, due to their computational simplicity.

Amemiya (1979) has suggested some alternative estimators to two stage estimators, such as the one described above. Such estimators are more efficient than two stage estimators, but there exists a generalized instrumental variable estimator that is more efficient than the GLS estimator derived from Amemiya's method (Lee 1981; Maddala 1983).

Relative Performance of Simultaneous and Sequential Estimation Procedures

To compare the relative performance of simultaneous (2SLS) and sequential estimation procedures, Monte Carlo experimentation on simulated data may be used. In this preliminary analysis, we focus only on quantitative endogenous variables. The corresponding analysis for a mixed system of quantitative and qualitative endogenous variables is deferred to future research efforts in this area. Our goal is to examine how cross-equation error correlations and multicollinearity among the exogenous variables influence the relative performance of OLS and 2SLS estimation procedures.

Design of the Monte Carlo Experiments

The following multi-stage choice model was used in these Monte Carlo experiments:

$$P = \alpha_0 + \alpha_1 X + \alpha_2 W + \epsilon_1 \quad (12)$$

$$PR = \beta_0 + \beta_1 P + \beta_2 X + \epsilon_2 \quad (13)$$

$$C = \gamma_0 + \gamma_1 PR + \gamma_2 X + \gamma_3 Z + \epsilon_3 \quad (14)$$

These equations are the simplest possible representation of the multi-stage choice model which was originally described in equations (1)-(3): there is one perception variable and the minimum number of X, W, and Z variables. This model might be used by decision makers in the evaluation and assessment of a single alternative or action.

In simulating choice model data, the distributional characteristics of the exogenous variables and the error terms must be specified, the true parameter values must be chosen, and correlation patterns (among the exogenous variables and between the error terms in the three equations) must be specified. Random draws made from the

specified distributions substituted into equations (12)-(14) yield measures for the endogenous variables in this model. The model's parameters may then be estimated by OLS and 2SLS procedures, and the resulting parameter estimates may be compared to the true (known) parameter values to assess the relative performance of the estimation procedures.

In these Monte Carlo experiments, all exogenous variables and error terms were drawn from normal distributions with mean zero and variance equal to one for exogenous variables and variance equal to four for the error terms. With regard to the true parameter values, all constant terms were set equal to zero and all slope parameters were set equal to one. These choices resulted in the explained variance averaging about 30%, 75%, and 85% in the P, PR, and C equations, respectively. Note that these levels of explained variance indicate that the instrumental variables generated by the reduced form equations will be "adequate" surrogates for the endogenous variables on the right-hand side of the structural equations. Hence, it should be expected that simultaneous estimation methods (such as 2SLS) achieve consistency at the expense of sampling variation.

Correlations among the exogenous variables were generated by making the W and Z variables equal to a linear combination of X and a white noise term. With an appropriate choice of weights, correlations of 0.00, 0.24, and 0.45 were obtained for the low, medium, and high correlation conditions in the experiment.

For the error terms, correlations were induced into ϵ_2 and ϵ_3 terms by making them linear combinations of the preceding error term in the model plus a white noise term. Appropriate choice of the weights and the error variances of the white noise terms yielded correlations of 0.00, 0.40-0.44, and 0.50-0.71 for the low, medium, and high cross-equation error correlation conditions in the experiment.

A factorial design was employed in the experiment. Each of the three levels of exogenous variable correlation was tested with each of the three levels of cross-equation error correlation, for a total of nine separate experiments. In each cell of this experimental design, a total of 25 replications were conducted. Each replication involved generating 250 observations, according to the model in equations (12)-(14) and the specified correlational structure of the exogenous variables and the error terms. After generating the data in each of the replications, the model was estimated using both OLS and 2SLS techniques.

Performance Measures

Two measures of precision were chosen for gauging the performance of the estimation procedures, related to bias and squared error deviation:

$$\text{BIAS}(c) = \frac{1}{R} \sum_{r=1}^R (c_r - c^*) \quad (15)$$

$$\text{RMSE}(c) = \left(\frac{1}{R} \sum_{r=1}^R (c_r - c^*)^2 \right)^{0.5} \quad (16)$$

where c_r is the estimate of parameter c obtained on replication r ($r=1,2,\dots,R$) of the Monte Carlo experiment and c^* is the true (known) parameter value. $\text{BIAS}(\cdot)$ measures the tendency of coefficient estimates to be, on average, above or below their true value. $\text{RMSE}(\cdot)$ is a measure of the precision of the parameter estimates (i.e., how "close", in an absolute sense, the estimates are to truth). $\text{RMSE}(\cdot)$ is equivalent to adopting a squared error loss function to account for deviations between a coefficient estimate and its true value.

The performance measures defined in equations (15) and (16) are for a single parameter. If these measures are summed over all parameters in the model in equations (12)-(14), 10 in total, we obtain BIAS and RMSE, the aggregate bias and root mean squared error, respectively. These measures of aggregate performance were used to compare OLS and 2SLS estimation procedures in these Monte Carlo experiments.

Results

The results of these Monte Carlo experiments are reported in Table 1. The aggregate BIAS and aggregate RMSE are reported in each cell of the experimental design. The key findings are as follows:

- (1) 2SLS outperforms OLS in terms of both BIAS and RMSE in the presence of any degree (medium or high) of cross-equation error correlation. This is, of course, expected based on standard results in econometric theory.
- (2) When there is medium cross-equation error correlation, the RMSE for 2SLS is about 10% less than the RMSE for the OLS estimates. In the high cross-equation error correlation case, the 2SLS estimates are about 35% more precise than the OLS estimates.
- (3) The bias in the OLS estimates increases as the degree of cross-equation error correlation increases.
- (4) OLS consistently underestimates the true values of the parameters.
- (5) If there is no cross-equation error correlation, the application of 2SLS yields less precise estimates than OLS (by about 35%), as measured by RMSE. There is no apparent pattern of bias in the 2SLS estimates (in the situation where there is no cross-equation error correlation).
- (6) As the collinearity of the exogenous variables increases, the precision of the estimates decreases (i.e., RMSE increases), for both OLS and 2SLS regardless of the degree of cross-equation error correlation.

As expected, the Monte Carlo experiments yield results which are consistent with the theoretical econometric results. These numerical results are particularly interesting, however, because they provide some sense of the magnitude of the potential gains in precision available by applying the theoretically correct, but more complicated, 2SLS estimation procedure.

The main finding is that the degree of cross-equation error correlation is crucial to the relative performance of 2SLS versus OLS. If the cross-equation error correlation is small (less than 0.50 in our Monte Carlo experiments), then the potential gains in precision are fairly small, about 10%. However, even small "errors" in parameter estimation may lead to incorrect inferences about the statistical significance of model parameters. In more extreme cross-equation error correlation situations, it will be necessary for the marketing scientist to use 2SLS since (a) precision will be improved by about 35% and (b) the parameter estimates will be noticeably less biased. These results hold regardless of the degree of correlation among the exogenous variables.

Concluding Remarks

Theoretical considerations suggest that simultaneous estimation procedures, rather than sequential procedures, may be more appropriate to estimate the parameters of multi-stage models of perception, preference, and choice. The rationale for this claim, plus issues associated with simultaneous estimation methods, were reviewed in this paper. Monte Carlo experiments indicate that limited information methods of estimating simultaneous multi-stage choice models dominate sequential estimation methods, if there is cross-equation error correlation.

Simultaneous estimation methods yield substantial gains in the precision of parameter estimates compared to sequential estimation methods. Also, bias is reduced. The Monte Carlo results reported in this paper provide

TABLE 1

SUMMARY RESULTS OF THE MONTE CARLO EXPERIMENTS

		Degree of Correlation Among the Exogenous Variables			
		Low	Medium	High	
<u>Degree of</u> <u>Cross-Equation</u> <u>Error</u> <u>Correlation</u>	<u>Low</u>	BIAS: OLS	-0.113	-0.041	-0.074
		2SLS	-0.069	0.064	-0.007
		RMSE: OLS	1.109	1.180	1.234
		2SLS	1.547	1.744	1.963
	<u>Medium</u>	BIAS: OLS	-0.174	-0.451	-0.821
		2SLS	-0.059	-0.097	-0.224
	RMSE: OLS	2.060	2.230	2.703	
	2SLS	1.813	1.946	2.065	
<u>High</u>	BIAS: OLS	-0.311	-0.670	-1.110	
	2SLS	-0.247	-0.015	0.285	
	RMSE: OLS	3.118	3.636	4.160	
	2SLS	2.060	2.368	2.629	

- Notes: (1) BIAS is the aggregate mean bias across the ten parameters in the simulated multi-stage choice model. The "bias" for each parameter in a replication is based on comparing the estimated coefficient (under the given estimation procedure) to the true, known parameter value. The "mean bias" for a given parameter is the arithmetic mean of the calculated "bias" values over the 25 replications.
- (2) RMSE is the aggregate root mean squared error for the ten parameters in the simulated multi-stage choice model. The "squared error" for each parameter in a replication is based on calculating the squared difference between the estimated coefficient (under the given estimation procedure) to the true, known parameter value. The "mean squared error" for a given parameter is the arithmetic mean of the calculated "squared error" values over the 25 replications. The "root mean squared error" is the square root of the "mean squared error."
- (3) The low, medium, and high correlation conditions among the exogenous variables refer to correlations of 0.00, 0.24, and 0.45, respectively.
- (4) The low, medium, and high cross-equation error correlation conditions refer to correlations of 0.00, 0.40-0.44, and 0.50-0.71, respectively.

numerical estimates of the potential gains in precision for a simple multi-stage choice model with quantitative endogenous variables.

Extensions of this work would involve a detailed study of the qualitative endogenous variable case, as well as considering how sample size, relative size of the error variances, and the ratio of exogenous to endogenous variables influence the relative performance of sequential and simultaneous estimation procedures.

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EXPERIENCE AND EXPERTISE IN COMPLEX DECISION MAKING

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Abstract

This paper has two objectives. First, we posit some conceptual distinctions between experience and expertise and indicate their implications for measuring the latter. Specifically, expertise needs to be operationalized in term of either knowledge and/or performance based indices that can be compared to some external criterion. Second, a top line summary is provided of the findings from a recent investigation that utilized a performance based operationalization to study the differences in the pre-decision information accessing behavior of practicing security analysts.

Introduction

The great number of factors that influence decision making may be organized into three broad categories: those relating to the nature of the decision task itself, the decision environment, and the decision maker. Theory (e.g., Bettman, 1979) suggests that one characteristic of the decision maker that should be particularly relevant is experience. Yet, at least with respect to the information search aspect of consumer decision making, the empirical literature has produced conflicting findings. Some studies suggest that people with higher levels of experience do less information search; others (e.g., Jacoby, Chestnut, Weigl and Fisher, 1976) suggest just the reverse.

Consumer research studies almost routinely include questions relating to past experience (e.g., purchase and/or consumption frequency and/or quantity). Few consider the related construct of expertise. This is not surprising since, as noted elsewhere (Jacoby, 1977a), consumer behavior offers few areas in which objective criteria exist for evaluating the quality of consumer decision making:

As Ross (1974) notes, the central problem in defining decision quality concerns use of appropriate criteria. One approach is to have "experts" identify what constitutes the "best" decision and then to assess the extent to which the subject is able to achieve this objective standard. Accordingly, we requested assistance from Procter & Gamble in identifying the single best laundry detergent available on the market for the purpose of using it as an external standard in our investigation. Their reply was illuminating. Though P&G believed that, overall, its products were superior to those of its competitors, there was no way to determine objectively which brand was best for all consumers because the specific needs, problems, and desires of individual consumers, and the types of stains, fabrics, etc., all varied considerably. What was best for one consumer or one type of laundry situation was not necessarily best for another consumer or another type of situation. It was obvious that, no matter which product category we approached, we had an identical problem (Jacoby, 1977, p. 571).

Without an objective basis for identifying decision quality, there is great difficulty in identifying just what constitutes expertise.

Selected insights on measuring expertise derived from the perceived quality and abilities literatures.

Notwithstanding the very substantial difficulties, there have been several attempts in the consumer behavior literature to incorporate the notion of expertise. Perhaps the first mention appears in Scitovsky's (1944) classic paper on perceived quality wherein he hypothesizes that experts would be less likely than non-experts to rely on price when arriving at a purchase decision. Though others speculated about the issue (e.g., Jacoby, Olson and Haddock, 1971, p. 578; Shapiro, 1968), it wasn't until 1972-1973 that attempts to assess the relationship began to materialize.

One investigation, Valenzi and Eldridge (1973), operationalized expertise via two self report questions probing the frequency and quantity of beer consumption. The subjects' answers to these two questions were combined and the distribution was split at the median in order to identify experts vs. non-experts. Aside from the methodological problems with self report data (e.g., no independent effort was made to verify that the stated frequency and quantity estimates indeed corresponded to any objective fact), and median splits (particularly based on the integration of two disparate distributions), it can be seen that a major conceptual problem was that the concept of expertise was operationalized in terms of experience. Yet these two constructs are actually conceptually orthogonal. One can have considerable experience, yet not be an expert. People at the same level of expertise may have different levels of experience, and vice versa.

The tendency to define expertise in terms of experience may stem, in part, from dictionary definitions of these terms. According to Webster's New Collegiate Dictionary: experience includes "something personally encountered; knowledge, skill or practice derived from direct observation or participation in event." The word experienced is defined as "made skillful or wise through observation of or participation in a particular activity." In contrast, the word expertise is defined as "skillful in a particular field." Reflecting upon these definitions suggests that both experience and expertise involve acquiring knowledge and/or skill. The essential distinction appears to be that expertise reflects qualitatively higher levels of either knowledge or skill. One implication is that if one wishes to study expertise, then that construct needs to be operationalized as more than "something personally encountered," as would be the case if one simply assessed purchase and/or consumption frequency and/or quantity. While drinking twenty-six packs a day may make one experienced, heavy and drunk, it would not necessarily make one an expert on beer. "Personally encountering" does not equate to "expertise." Any measure that purports to assess expertise needs to utilize indicants that reflect either knowledge and/or skill.

A second study, conducted over the 1972-3 academic year, relied on such a rationale to derive a knowledge based test of expertise (Jacoby and Williams, unpublished). A full description of how this test was developed is provided in a replication (Williams-Jones, 1974) which incorporated additional levels of the independent variable and followed immediately.

Briefly, a pool of items designed to assess stereo and high fidelity knowledge was developed, revised, pared down, and administered to a set of 50 pre-test subjects whose scores spanned virtually the entire range. The test was then administered to 12 stereo repair technicians whose scores ranged from 22 - 30. Based upon these re-

sults and a consideration of the two distributions, cut offs were assigned as follows: people scoring 22 or above were defined as experts and those scoring 12 or below were defined as non-experts. As applied to the 487 subjects employed in the replication study, 25% of the subjects were classified as experts and 23% as inexpert. This same test of expertise was later used to investigate whether people classified as opinion leaders in the realm of stereo equipment actually knew more about stereo concepts -- they did ($r = .69$) -- and a complete copy of the test is reprinted in that source (Jacoby and Hoyer, 1981).

Of present interest, the Williams-Jones and Jacoby replication also included four experience measures: stereo ownership, frequency of usage, number of magazines read each month which were directly relevant to stereos and stereo equipment, and number of electronic related courses that the individual had completed. Due to the large sample size ($n = 487$), the correlations between scores on these experience indicants and scores on the test of expertise (.24, .20, .25, and .26, respectively) were all significant at $p = .001$ or better. However, the low correlations means that none of these experience indicants explained more than 7% of the variance in the expertise scores. (N.B. The .24 correlation with ownership compares favorably to the .25 correlation obtained several years later by Jacoby and Hoyer, 1981.)

Moreover, knowledge does not always equate to skill. Demonstrating that one is an expert based on one's performance on a knowledge test is not necessarily equivalent to being able to exhibit that skill in actual task performance. Coaches may be exceedingly knowledgeable while, at the same time, exceedingly incapable of executing that knowledge. Of course, one might argue that these coaches are expert coaches, not expert players, and their players may be expert players, but not they are not expert coaches. It remains true, however, that many of the elements that constitute either coaching or playing expertise are incapable of being assessed via knowledge tests. Being able to do something doesn't necessarily mean one is able to identify or articulate what it is that one does. As Polyani's (1966) notion of tacit knowledge suggests, many aspects of performance are encoded (if at all) in hazy, non-verbal form.

The results of a study by Denisi and Shaw (1977) are instructive here. These authors had subjects first rate their abilities in ten areas and then administered a battery of standard, commercially available tests to measure these abilities. These authors report: "Correlations between self-rated and tested abilities, although generally significant, were too small to have any practical significance. The self-ratings were also unable to differentiate between those who would score high and low on the ability tests, even for extreme self-rated groups. No moderator effects were found. It was concluded that self reports of ability could not substitute for ability tests" (p. 641). The median correlation between self reports of abilities and actual abilities across all ten areas hovered near .3 and no single self report measure explained more than 16% of the variance in the corresponding test score.

Studying Decision Maker Expertise

Though far from a thorough discussion of the relevant experience/expertise literature, the work noted above was paramount among those things that influenced the senior author's thinking in developing the study reported below. Briefly, both prior theory and research (as well as common sense) suggests that pre-decision information accessing behavior of experts might differ appreciably from those who were inexpert. To effectively study whether this was indeed so required a satisfactory means of operationalizing expertise. This eliminates both experience based indices (e.g., those which probe the quantity and/or frequency and/or variety of purchase and/or usage experiences) and self reports of expertise. Though expertise might also be approached sociometrically (e.g., via peer ratings), we know of no such approach

that has been used and validated (against an appropriate criterion) in the consumer behavior realm. Finally, though a knowledge based measure might be appropriate for assessing the knowledge component of expertise, it would be inadequate for assessing the other principal facet of expertise, namely skill.

This eventually led to outlining a performance based study in 1977. Implementation of this research had to wait until the appropriate hardware (computers for containing and presenting the information environment) could be obtained. The study itself, which had a variety of other research objectives as well, was implemented over the 1981-82 academic year. Reports based on this database have either been published (Jacoby, Mazursky, Troutman and Kuss, 1984), are in press (Jacoby, Kuss, Mazursky and Troutman, 1985), or are under review (Jacoby, Jaccard, Kuss, Troutman and Mazursky, submitted; Jacoby, Kuss, Troutman and Mazursky, submitted). Beyond raising the conceptual issues noted above, a second objective of the present paper is to highlight some of the major findings from this investigation and to direct the interested reader to these other, more complete reports.

Overview of Methods/Procedures.

The nature of the subjects, decision task, task instructions, setting and procedure have already been described in considerable detail elsewhere (Jacoby, et al, 1984, 1985). Suffice it to say that seventeen professional security analysts participated in a behavioral process simulation (see Jacoby, 1977b, for a definition of terms) of security analyst decision making.

The analysts were motivated to participate by virtue of two incentives. First, the analyst who performed the best on the task was awarded \$500. Second and probably more important in an industry where recognition of one's performance counts highly, all the analysts knew that press releases would be issued to the relevant media publicizing the name of the winner.

Since it reflects upon their experience, note that the median age of these analysts was in the upper 30's, and their careers as professional security analysts ranged from 1.5 to 17 years (mean = 6.9 years; s.d. = 5.7 years). Fifteen of the analysts had Masters degrees, two held B.S. degrees. Two analysts declined to respond to an item regarding the income they derive from their activities as professional security analysts. Another eight indicated that their income was below \$75,000 a year; seven indicated that their income was above this amount.

The task objective was to select the "best buy" (defined as that stock most likely to show the greatest percentage of growth in price per share over the next ninety day period) from among eight securities for each of four successive ninety day periods. Except for the names of these securities, all information provided to the analysts was authentic and taken from the 1969-1970 period when these securities were listed on the New York Stock Exchange. (Post test manipulations revealed that only one of the 17 analysts correctly ascertained the identity of one of the eight stocks. Since there were $17 \times 8 = 134$ opportunities for someone to make such a correct identification, the one correct identification suggests that the camouflage manipulation worked as intended.) Subjects could access any of 26 types of fundamental factor information regarding each of the eight securities. Both pre- and post-investigation efforts suggest that, with few exceptions, these 26 factors are those of greatest interest and use to professional security analysts.

Operationalizing Expertise: The performance criterion used to distinguish between the better and poorer analysts was based directly on the increases in price per share of each security, calculated separately for each of the four test periods. The analysts were arranged in descending order, based upon the aggregate net yield they produced across the four periods.

Summary of Findings

Expertise and Experience: Across the entire sample of 17 analysts, task performance (i.e., expertise) correlated nonsignificantly with age ($r = -.22$) and length of time with present employer ($r = -.37$). Most noteworthy, performance correlated negligibly with either experience (defined in terms of number of years working as a professional security analyst ($r = .03$) or income ($r = .04$).

The depth, content and sequence of information accessing behavior were examined both for the entire sample and separately for the five (or seven) best versus the five (or seven) poorest performing analysts. These data and analyses were quite extensive and proved to be too much for any single article. Indeed, despite the five papers that have thus far been prepared, a number of the analyses have not yet been reported. Hence, what follows is necessarily a highly restricted "top line" summary of some of the findings.

Depth of Search: Expertise appeared to be related to the overall depth of search. When each analyst's performance score was correlated with the number of items acquired across all four periods, a significant relationship was revealed ($r = .41$; $p = .05$). However, much of this result is due to the extensive accessing of the top performing analyst. When his data are removed, the correlation for the remaining 16 analysts hovers near .2.

Second, there was no significant difference on the molar dimensions of information. That is, experts and in-experts did not differ on the number of stocks (median = 8) or number of fundamental factors (median = 9) considered across the four test periods. A period-by-period analysis revealed that, while the better analysts accessed a relatively constant $8.6 \pm .4$ properties across the four periods, the poorer analysts displayed a very high initial accessing rate (13.6 properties during the first period) followed by a dramatic and significant ($p = .02$) drop for the second, third and fourth periods (where the median was 7.2 properties).

Third, the more expert analysts were significantly more thorough in examining the stocks and factors that they had looked at. This is determined by examining the "percent of submatrix" accessed. While the 26 factors in eight stocks made available to each subject represented the experimenter-determined information matrix, not every piece of information in this matrix may have necessarily been useful, worthwhile or meaningful to any given subject. Hence, it is insightful to adopt a respondent oriented perspective and ask: If attention were limited to only those stocks and factors considered by the analyst at least once, then what percent of the information from that submatrix was accessed? The results indicate that better performing analysts were consistently more thorough in examining the contents of their submatrices (77% overall) than were poorer performing analysts in examining the contents of their submatrices (55.5% overall).

Much greater information on depth of search is provided in the Computer in Human Behavior article, with supplemental material appearing in the Journal of Applied Psychology piece.

Content of Search: The differences between expert and in-experts in terms of the type of information accessed was substantial. First, both expert and in-expert analysts devoted approximately 45% of their total information accessing to only 4 of the 26 available factors and only one of these four factors (12 month price/earnings ratio) was common across both groups (see Jacoby, Kuss, Mazursky and Troutman, 1985).

Second, when tests were applied on a factor-by-factor basis, significant differences (at the .01 level or better) were found for 16 of the 26 factors. As one example, though the better analysts devoted only 1% of all their information accessing behavior to acquiring

"interim earnings for the previous year expressed in terms of price per common share" information, this factor counted for 9% of the information accessing of the poorer analysts (see Jacoby, et al, 1985).

Two types of information are of particular interest. The first is feedback information. Since it was one of the 26 factors (namely, "Perceived price change over the past three months"), feedback was made available as part of the external information environment. Most discussions suggest a positive relationship between feedback and performance. However, as explained in Jacoby, Mazursky, Troutman and Kuss (1984), there are more compelling reasons for postulating an inverse relationship when feedback provides only descriptive information regarding the prior outcome without providing any diagnostic information (i.e., information which has either predictive and/or explanatory value). Our data are consistent with this expectation. Across all 17 analysts, the correlation between expertise and the accessing of outcome-only feedback was $-.48$ ($p = .02$).

Subsequent to publication of the above reports, one of our colleagues (Prof. Martin Gruber, Editor of the Journal of Finance) suggested that the data be reanalyzed to see what insights might be provided on a long-standing controversy in the domains of finance and accounting. Specifically, the question was whether better and poorer analysts could be differentiated in terms of their use of accounting based information. Accordingly, the 26 factors were apportioned into three categories: fully accounting based, partially accounting based, and non accounting based. A paper detailing these analyses is currently under review (Jacoby, Kuss, Troutman, and Mazursky, submitted); hence these data are not described here.

Sequence of Search: Probably the most dramatic differences of all were obtained with respect to the information accessing sequences employed by the better vs. poorer performing analysts. Those who were more expert were overwhelmingly Type 3 (within property; see Jacoby, Chestnut, Weigl and Fisher, 1976, for a discussion of the operationalization of this index) information accessors. In contrast, the in-expert analysts devoted nearly equal proportions of their search to within property and within option search. These data are detailed in a paper now under review (Jacoby, Jaccard, Kuss, Troutman and Mazursky, submitted).

Discussion

This report had two principal objectives. The first was to raise some perspectives regarding the distinction between experience and expertise -- perspectives that have both conceptual and operational implications. The second was to highlight several of the major findings emanating from a recent investigation which, using a performance based procedure to assess expertise, revealed strong differences between expert and in-expert behavior in regard to pre-decision information accessing.

Several concluding comments are in order. First, virtually every operationalization is flawed in some respect. A significant flaw inherent in using performance as an indicator of expertise is the danger that the subject may make an objectively good decision, but for the wrong reason, or vice versa. This is especially true in the realm of security analysis, since the stock market doesn't necessarily function in a rational fashion.

Second, even if this measure were entirely accurate, it still represents an assessment of only the skill/performance aspect of expertise, not the knowledge aspect. Though the data reveal no relationship between expertise and experience (the correlation between performance and number of years as an analyst was only $r = .03$), a study is still called for that would assess both knowledge and skill components in the same investigation.

(N.B. A number of other criticisms may be found in the other reports. Also note that the present paper was prepared at "the last minute" by the senior author without any opportunity for review by the junior authors. Hence, he assumes all responsibility for any flaws.)

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ENERGY CONSERVATION ACTIONS: ANALYSIS OF PREDICTORS¹

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The continued demand on finite resources to provide energy for an ever increasing population requires a more comprehensive understanding of consumers' intentions and actions. This understanding is vital to provide rational responses to short term crises and long term solutions to the demand-supply imbalance whether public policy or personal practices. With lessened public policy related to energy, personal practice is expected to respond to supply and price fluctuations and to national well-being. The hoped for outcome is sound energy use practices, the reality is yet to be assessed.

Conservation has been advocated as an important factor in easing the energy problem. Response to the crises of the 1970s has proven that conservation practices can result in lessened energy use and decreased acceleration of the growth in demand. Yet predictions of the energy situation in the United States label conservation trends as 'highly uncertain' (Energy Information Administration 1985).

If conservation and its dependence on the individual consumer are viewed on a continuum, on one extreme conservation is dependent on the design and production of energy efficient structures and systems, automobiles and appliances. On the other extreme are the actions and behaviors of individuals or groups who occupy the buildings and use these goods. Though efficiency has been built into new structures and goods, gains in efficiency are dependent on the replacement of current inventories and on the maintenance of optimal use through consumer practices and actions. Meanwhile, existing units may need to be retrofitted and operated and/or used differently from in the past to effect sustained conservation. Changes in the actions of people are essential to achieve optimal levels of conservation whether it be setting thermostats higher in summer and lower in winter, lessening heat loss or gain from one's living unit or using less hot water.

This paper looks at the plans and implementation of conservation measures by consumers in a longitudinal study done in the Western United States. The dynamics of factors in the residential energy picture and conservation efforts are explored to develop understanding between intent and action. Directions to take in further research related to the consumer and the conservation of energy are put forth.

Do people plan their actions to implement energy conservation retrofits? How much time elapses between stated plans and implementation of conservation actions? Do planners implement conservation actions more often than nonplanners? Is planning an ever present mode for a portion of people since actions can be done in increments (some weatherstripping this year, some next; add storm doors this year, windows at some later time)? What do people identify as barriers to taking planned actions?

Methodology of Sampling and Data Collection

Mail questionnaires were used to obtain a western states' perspective of attitudes and energy behavior in 1981 and again in 1983. Eight states--Arizona, Colorado, Idaho,

Nevada, Oregon, Utah, Washington, and Wyoming--participated in the study. In 1981 and 1983 all eight states administered their questionnaires simultaneously using the same mail survey procedures. This common use helped assure collection of comparable data in each of the states and legitimized the combining of states' data for regional analyses. The technique used was Dillman's (1978) Total Design Method (TDM). The method includes the following steps: 1) an initial mailing of a cover letter (individually addressed and signed), a questionnaire and return envelope; 2) a follow-up postcard designed as both a thank you to respondents and a reminder to nonrespondents one week later; 3) a replacement questionnaire with cover letter and return envelope to nonrespondents three weeks after the first mailing; and 4) either a telephone follow-up or a second replacement questionnaire sent by certified or special delivery mail. Copies of relevant survey and correspondence implementation materials for 1981 are included in Makela, *et al.* (1982); those for 1983 were similar.

The 1981 sample was a stratified (rural/urban) random sample of approximately 1500 households in each state drawn from telephone directories. Households responding to the 1981 survey were included in the 1983 survey. This was considered important for the purpose of measuring change over time. In addition to the follow-up of 1981 respondents, each participating state was required to draw an independent random cross-sectional sample from each of its rural and urban strata in 1983. Minimum sample size requirements proportional to state population were specified. The overall sampling plan is summarized as follows:

*In 1981, a cross-sectional stratified random sample of approximately 400 from the rural and from the urban populations of each of the eight states (useable returns 6,893, 58 percent);

*In 1983, a resurvey of the 6,893 respondents using a similar questionnaire (useable returns in panel resurvey 4,548, 67 percent);

*In 1983, a new cross-sectional stratified random sample in each of the states (rural and urban), (useable returns 2,768, 57 percent).

Conservation Plans and Actions

In their analytic framework, Cooper *et al.* (1983) indicated that three elements interact to determine the impact of rising energy prices on consumers. These elements are changes in income, expenditures and 'avenues of retreat.' The regional project explored the latter two elements to the greatest extent. Changes in expenditures include those for energy, other goods and services and 'instantaneous' responses--behavioral conservation and reductions in savings. The regional project explored changes in expenditures for selected goods and services, savings and the practice of behavioral conservation.

Respondents indicated a greater adjustment in their expenditures for other goods and services in 1981 than in 1983. By 1983 cutbacks had moderated especially for the basics of food, housing, education and health care. Less than one-fifth of the respondents assessed their cutbacks as 'alot' or 'some' in the aforementioned expenses in 1983. Discretionary items (vacations, recreation, eating out) were being cutback by two-fifths to one-half of the respondents. This may reflect that adjustments were made during the periods of rapidly rising energy costs and highest inflation. The result may well be that consumers have settled in on a new spending pattern that will be

¹"Research completed in Western Regional states (AZ, CO, ID, NV, OR, UT, WA, and WY), part of Regional Project W159, Consequences of Energy Conservation Policies for Western Region Households. Financial resources for the collection of the data were provided, in part, by USDA Regional Research Project W-159."

readjusted when internal or external events cause disequilibrium due to a strain on one or more of the expenditure categories.

'Avenues of retreat' relate to plans to cope with the impact of energy costs. Behavioral conservation, investment, indebtedness and reductions in living standard are the avenues used by Cooper, *et al.* All of these were studied in the regional project. Behavioral conservation and investment were explored to the greatest depth. Fourteen structural features were studied. Those most commonly added by the panel between 1981 and 1983 were weatherstripping and caulking (16 percent), storm or double pane windows (10 percent), and insulated window treatments (10 percent) (Table 1). Four other features had each been added in the two year period by 7 to 9 percent of the panel.

These longitudinal findings indicate that people do carry through with plans implementing the less technical and more proven features while being less likely to implement the high technology features. Yet, plans to add 'newer' features continue. Planners were more likely than non-planners to add features.

The portion of persons who plan and take action may appear small, but various factors influence the 'intent and action' relationship. The factors include:

- *the presence of the feature at the time of the initial survey;
- *climatic conditions that make the feature inappropriate;
- *structure characteristics that make the feature inappropriate;
- *nature of the feature that makes incremental additions appropriate;
- *general reluctance to replace features in working order or good condition with 'improved' models (more energy efficient in this case);
- *renters limited motivation or incentive to 'improve' their unit;
- *perceived short term tenure in current housing unit.

What are the standards for annual rates of adding of these individual features? What internal or external factors will decelerate or accelerate these rates? Answers to these two questions would help us better understand diffusion and adoption of energy conservation features.

As its state research focus Colorado explored the reasons that respondents identified as preventing their planned implementation of the projects (Makela 1984). Economic reasons were frequently given as the barrier preventing two or more of the projects from completion. Forty-five different reasons were indicated by 675 Colorado respondents. Their statements ranged from the costs of the projects to the age of the respondents to the constraints of their housing situation. The reasons most often cited and their respective percentages were lack of money, 66 percent; renting, 13 percent; lack of time, 9 percent; plans to move, 5 percent; and lengthy payback period, 5 percent.

When categorized by the type of limitation that they presented the pattern for the 675 reasons were primarily economic. Current economic limitations (57 percent of the reasons), housing limitations (18 percent of the reasons), and time limitations (7 percent of the reasons) were most frequently cited for preventing implementation of the projects. These three groups of reasons accounted for more than four-fifths of the deterrents to implementation of the projects.

The identification of economic barriers and the small portion (no more than 13 percent in any one state) of people who borrowed to implement features in 1981 need further exploration now that energy prices are increasing at slower rates than earlier, interest rates have declined and energy conservation has taken on (or been relegated to) a low profile. Will the addition of energy features decline as price pressures moderate or will this situation be viewed as an opportunity to use dollars that might otherwise be earmarked for rising expenses?

Conclusions

The following conclusions are drawn from these preliminary analysis.

- *Over the two year time span, the portion of planners remain fairly constant for most energy features.
- *During the 1981-83 period the portion making energy feature additions was similar to the portion planning to in 1981 except for the technical and 'newer' features--setback thermostats, solar water heating and home heating.
- *While nearly 80 percent of the respondents indicated projects they would like to do on their homes, only a small portion planned to add any one feature.
- *Of the projects that respondents would like to do, most were to improve structural efficiency or to allow for use of an alternative energy source.
- *The reasons most frequently cited as deterring the implementation of the projects were current economic and housing limitations.

With the continued demand for finite resources to provide energy for an ever increasing population, a more comprehensive understanding of consumers' intentions and actions is vital to provide rational responses to short term crises and long term solutions to the demand-supply imbalance. The relationships of consumer intentions to actual consumption behavior have been modeled by many renowned consumer researchers. The conclusions are not definitive. New choice situations call for continuing study of the relationship of what consumers 'say they plan or will do' to what they actually do. The 'intent to action' relationship is of prime importance in our individual and national efforts to decrease dependency on foreign supplies of energy and to maintain reasonable costs for delivery of energy to the residential sector. Our next step is the exploration of the predictive power of consumer attitudes, demographic and housing variables as they relate to consumers' intent and actions.

The study of diffusion of energy conservation features and consumers' intentions and actions may not mirror even the 'hazy' picture found for other consumer goods and services. Conservation features are not the relatively permanent goods and services described by Frankel (1977) "Prediction is apparently more successful for those goods and services that are relatively more permanent, such as financial services (bank accounts and credit card usage) and products for which the consumer is brand loyal" (p. 8).

Energy conservation practices and priorities are characterized by mixed messages at best. The major ones include the following:

- *Media reports of contradictory scenarios as to the supply and price of energy now as well as in the future. What can we believe?
- *Decreased attention to the need and practice of conservation as energy tax credits are allowed to expire and informational and educational efforts wane. Are we really convinced?

TABLE 1
STATUS OF ENERGY FEATURES IN HOMES OF 1983
PANEL MATCHED BY STRUCTURE

Feature	Present in 1981	Planned in 1981	Added 1981-1983
	(percent of respondents)		
Insulation - ceiling	64	10	9
Weatherstripping/caulking	59	14	16
Insulation - wall	58	4	4
Double pane/storm windows	49	11	10
Storm doors	38	13	7
Insulation - floor	30	8	4
Wood stove	26	8	9
Insulated window coverings (interior)	24	11	10
Glass doors/fireplace	22	6	7
Evaporative cooler	15	4	3
Window shades (exterior)	13	6	4
Setback thermostat	12	8	4
Solar water heating	2	10	2
Solar heating	1	7	1

Anderson, et al., adopted from Table A9.

*Limited advertising of conservation features of housing units, heating and cooling systems and appliances. Seemingly even less advertising of conservation products --weatherstripping, storm doors, solar systems. Insulation isn't sexy!

*Time cost for do-it-yourselfer to obtain the materials and tools. Some of us speculate it takes longer to shop than to install the features. This is a highly researchable area exploring time as well as money limitors.

*The confusion/misunderstanding that the 'payback' period message has given compared to a message that return on expenditure/investment might give. Would you make an expenditure if you thought you would sell the house before the payback period expired?

Research on residential energy use is now ready to go beyond the study of energy usage patterns and the explanation of these to the explanation of conservation actions and practices. This research will provide answers that enable the consumer to gain some control in their energy environment where they often feel at the mercy of a utility company, builder or auto manufacturer.

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DETERMINANTS OF HOME INSULATION INTENTION¹

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Abstract

Home insulation intention of home owners and renters is explained by a set of determinants: home characteristics, energy-related household behavior, attitudes, expectations, and sociodemographics. In a survey among 845 owners and 1101 renters, differences between owners and renters with and without insulation, are shown. Some home characteristics, attitude components, and expectations are significant determinants, although the level of explained variance is low. Home insulation intention of renters is mainly a matter of expected savings and expected high energy prices. For owners, comfort and an expected favorable household financial situation are the main determinants.

Introduction

One of the objectives of the energy policy of the Dutch government is to reduce the amount of energy, mainly natural gas, for home heating. This objective can be realized through a number of policies, one of them being a better thermic insulation of homes. The typical approach of a policy of better home insulation is to start with a survey of the technical state of homes and their possibilities for insulation, e.g. filling cavity walls and installing double glazing. Secondly, the economic aspects of home insulation are studied, and economic tradeoffs are made of the costs of installing home insulation of different types of homes and the energy conservation that can be attained. Thirdly, the behavioral aspects of home insulation come into focus. Why do some homeowners not insulate their homes, if this is technically and economically feasible? Why do other homeowners insulate their home, while they do not get enough return on this investment? Why do homeowners start their home insulation with double glazing, which is economically less effective than wall cavity filling? How do renters relate to the owners of their homes, and how does this influence home insulation decisions?

Determinants of Home Insulation

A number of factors influence the home insulation intention. Verhallen and Van Raaij (1981), in their study of factors determining household energy use, distinguish situational characteristics (climate, weather, technical home characteristics), behavioral factors (energy-related household behavior), and special circumstances, e.g. the presence of babies or elderly persons with a need for a higher temperature. Attitudinal and life-style factors may affect household energy behavior and thus energy use.

In a similar manner, the home insulation intention may be influenced by home characteristics, energy-related household behavior, home insulation attitudes, expectations with regard to the future energy price and prices in general, and sociodemographic characteristics of the homeowners and renters. A number of these determinants are discussed below.

Home Characteristics

Verhallen and Van Raaij (1981) use the following home characteristics in their study on household energy use: degree of home insulation, type of home (free standing,

semi-detached, row house, apartment), energy use of neighbors in attached homes, and wind orientation of the home. These home characteristics have both a direct and an indirect effect on energy use. The direct effect is the energy required to bring the home to an acceptable temperature. The amounts of energy required differ between home with different technical characteristics. The indirect effect is the effect of home characteristics on energy-related household behavior, and thus on energy use.

While the degree of home insulation is a significant determinant of energy use, we expect the reverse for this study. Energy use may be an important determinant of the home insulation intention. High energy bills might elicit an intention to install better home insulation, improving the "shell" (Van Raaij and Verhallen 1983b) of the home.

Related to the home's energy use is the type of heating system. We expect that people living in a home with an individual central-heating system (and their individual energy bill) will be more likely to consider home insulation than people living in a home without individual heating and billing.

Houses with a cavity wall are easier and less expensive to insulate than houses with a single wall. Most houses built after 1945 possess a cavity wall. Only a part of the houses built between 1925 and 1945 have a cavity wall, and almost no houses built before 1925 are built with a cavity wall.

Other relevant home characteristics are the maintenance level of the home. Owners of well-maintained homes are more likely to install home insulation than owners of poorly maintained homes. Homes with a low level of maintenance might be insulation in a process of home improvement and renovation.

Type of home, free-standing bungalow, row house, apartment, is a fifth relevant home characteristic. Larger, free-standing homes with a higher energy use have a higher potential for energy saving than, for instance, apartments. These homes are thus more likely to be insulated. Related to type of home is home ownership. Owners, living in their own home, make their own home insulation decisions. Renters, often renting apartments, have to make an arrangement with the home owner (private person, private organisation or municipality in the case of public housing). In the study of home insulation intention, the distinction between owners (living in their own home) and renters will prove to be essential.

Household Behavior

Energy-related household behavior may be described by the components "temperature" and "ventilation" (Van Raaij and Verhallen 1983b). After a principal components analysis, Van Raaij and Verhallen (1983b) obtained two central temperature variables (home temperature while at home and during absence from home) and two ventilation variables (airing rooms and the use of the hall door). Temperature variables apply to the "kernel" (heating of the home), whereas ventilation variables pertain to the "shell". Based on these variables, respondents are grouped in five behavioral clusters: "Conservers" are characterized by low temperature and low levels of ventilation. The "spenders" have the opposite pattern: high temperature and high ventilation. The "cool" are low on temperature, but high on ventilation. The "warm" are high on temperature, but low on ventilation. The other respondents are "average" on both temperature and

¹This study is financed by the (Dutch) National (Home) Insulation Program, Rotterdam. We thank Ineke Brouwer and Anthonie van Onzenoort for their computational assistance.

ventilation.

It is expected that respondents of these five behavioral clusters also differ with regard to their home insulation intention. We expect that the "conservers" and "warm" have higher home insulation than the "cool" and the "spenders", unless they have already insulated their homes.

Attitudes

Verhallen en Van Raaij (1981) obtained three principal components in their attitude statements: (1) Energy consciousness, beliefs that one should reduce energy consumption, (2) Home comfort and susceptibility to draughts; and (3) Price consciousness, energy saving for financial reasons.

One may distinguish costs and benefits of home insulation (Verhallen and Pieters 1984; Verhallen and Van Raaij 1985). Costs are short-term, related to the trouble and disorder, when the home insulation is installed. Long-term costs are also perceived as negative effects of home insulation, e.g., a damp and humid atmosphere in the home, and lack of fresh air. Benefits are the energy saving and increase of comfort of the home. Note that these costs and benefits are not only financial, but also behavioral.

Expectations

Consumer expectations with regard to economic developments, especially energy prices, prices in general, and the financial situation of the household. Consumers expecting higher prices in the future, may be more intended to insulate their homes than consumers not expecting higher prices. The expectation about unemployment is taken as an indicator of optimism/pessimism about future economic condition in the Netherlands. The expectation questions are similar to questions used to measure the "index of consumer sentiment" (Katona 1975; Van Raaij and Gianotten 1982).

Study Design

In order to investigate the relative importance of the home insulation determinants, a survey has been done among home owners and renters, commissioned by the (Dutch) National Insulation Program (NIP). The NIP is a government organization to stimulate and promote home insulation, and to perform research on the factors determining home insulation.

The survey was done by NIPO/Gallup Amsterdam on a national sample of addresses in The Netherlands. During a five-week period in February-March 1985, each week a sample of persons living at 400 addresses was interviewed. The random sampling procedure was to select 80 addresses from a universe of all available private addresses in The Netherlands. Starting with these 80 addresses, five interviews are held. This result is a clustered sample of five interviews per cluster. During the five-week period, 2000 interviews have been held, of which 1946 questionnaires are complete and available for analysis.

The sample consisted of 1101 renters and 845 owners of homes. No systematic differences are found between male and female heads of households.

Home Insulation Intention

In this paper, we will analyse the determinants of home insulation intention. Home insulation intention is measured with two questions on how likely/unlikely it is that the home will be insulated. The results are shown in Table 1. For most respondents, home insulation intentions are low or very low. For 54.3 percent of the renters it is very unlikely that they will insulate their homes; for owners this is 44.6 percent. For 18.1 percent of the renters and 32.4 percent of the owners home insulation is likely or very likely.

TABLE 1
HOME INSULATION INTENTIONS OF RENTERS AND OWNERS

	renters		owners	
very likely	73	8.6%	118	17.0%
likely	81	9.5%	107	15.4%
unlikely	234	27.6%	160	23.0%
very unlikely	461	54.3%	310	44.6%
	849		695	

The category "very likely" pertains to home insulation intentions within the next 12 months. The other categories pertain to home insulation after 12 months.

The home insulation intentions of owners are significantly higher than of renters. Owners have more freedom to insulate their homes. Renters have to negotiate with the home owner or have to accept the home owner's proposals. Renters face a rent increase after home insulation that may be higher than their energy savings.

Home insulation intentions may be lower for people who have already insulated their home. Prior partial insulation, however, may lead to higher intentions to continue on the way to a better home insulation. In the remainder of the analysis, we distinguish between renters and owners of insulated and non-insulated homes.

Home Characteristics

Four groups are formed of renters and owners with insulated and non-insulated homes: (I) Renters with home insulation; (II) renters without insulation; (III) owners with insulation; and (IV) owners without insulation. Group sizes are 313, 348, 408, and 155, respectively, due to missing data on intentions or on home characteristics. Multiple regressions are run for each of these four groups.

Year of building is a relevant home characteristic. Renters and owners of a more recently built home with insulation have lower insulation intentions, because their homes are already insulated (groups I and III). Renters of a non-insulated home also have lower intentions, probably due to institutional problems with the home owner. Another explanation is that group II constitutes a group of renters without intentions, left over after all renters with the positive intention did have their homes insulated. Insulation intentions of group II are positively related to the presence of cavity walls and an individual heating system.

For home owners with insulation (group III), the presence of cavity walls is related to a lower intention. Homes with a cavity wall are generally already insulated. For home owners without insulation (group IV), an individual central-heating system is correlated with more insulation.

Household Behavior

Based on reported behavior with regard to temperature and ventilation, five behavioral groups are formed: "conservers", "spenders", "cool", "warm", and "average" (Van Raaij and Verhallen 1983b). Respondents with a room temperature lower than or equal to 19° Celsius, and with lower thermostat settings during absence, are classified as "conservers" or "cool". They are classified as "conservers" if they do not air their rooms very often and rarely leave the hall door open. Otherwise, they are classified as "cool".

Respondents with a room temperature higher than 19° Celsius, who do not always have lower thermostat settings during absence, are classified as "warm" and "spenders". They are classified as "warm", if they do not air their rooms very often and rarely leave the hall door open. Otherwise, they are classified as "spenders". Respondents remaining unclassified by the above procedure, are named "average".

TABLE 2

A. Multiple Regressions of Home Characteristics Explaining Home Insulation Intention

Home Characteristics	Renter with insulation	Renter without insulation	Owner with insulation	Owner without insulation
	I	II	III	IV
cavity walls	.00	-.12 *	.16 *	.00
(semi) detached	.03	.03	-.03	.23
row house	.00	-.06	-.08	.15
maintenance level	.00	.02	-.07	-.11
own heating system	.02	-.15 *	-.05	-.19 *
collective heating	.08	-.10	-.07	.08
energy costs	-.02	-.02	.02	.02
year of building	.23 *	.14 *	.21 *	.11
R ² (explained variance)	.06	.04	.10	.07
	n=313	n=348	n=408	n=155

B. Multiple Regressions of Consumer Typology Explaining Home Insulation Intention

Consumer Typology	I	II	III	IV
conserver	-.05	.03	.00	.00
spender	-.04	.00	.04	.05
cool	-.04	-.06	-.03	-.14
warm	.02	.03	.05	.02
R ²	.01	.01	.01	.03
	n=357	n=403	n=459	n=191

C. Multiple Regressions of Attitude Components Explaining Home Insulation Intention

Attitude Components	I	II	III	IV
I. saving	-.18 *	-.12 *	.02	.12
II. benefits	.08	.09	.14 *	.35 *
III. long-term costs	.05	-.03	.10 *	-.07
IV. short-term costs	-.04	-.09	.01	-.03
R ²	.05	.04	.03	.16
	n=357	n=403	n=459	n=191

D. Multiple Regressions of "All" Determinants Explaining Home Insulation Intention

	I	II	III	IV
<u>Home characteristics:</u>				
cavity walls	.00	-.09	.16 *	.00
maintenance level	.00	.04	-.06	-.15 *
own heating system	.02	-.13 *	-.05	-.09
year of building	.23 *	.11	.24 *	.21 *
<u>Attitude components:</u>				
I. saving	-.20 *	-.10 *	.03	.09
II. benefits	.05	.06	.14 *	.33 *
<u>Expectations:</u>				
energy price	-.08	-.16 *	-.03	.05
household finances	-.10	.00	-.09	-.19 *
R ²	.13	.10	.14	.28
	n=313	n=348	n=408	n=155

* p < .05

The size of the five groups are as follows: 298 "conservers", 368 "cool", 410 "warm", 456 "spenders", and 406 "average".

Group membership, as dummy variables, is used in multiple regressions to explain home insulation intention (Table 2B). Explained variances are extremely low and regression weights are insignificant. One may conclude that energy-related house hold behavior, as measured with these five groups, is not related to home insulation intention. Daily energy conservation or spending behavior is apparently not generalized to home insulation intentions. There might be no generalizable "energy conservation ethic" (Painter, Semenik, and Belk 1983). Or, insulation intention and behavior belong to a behavioral category (Verhallen and Pieters 1984) different from daily energy-related behavior. It might be clear that these behavioral groups, although successful in explaining differences in energy use (Van Raaij and Verhallen 1983b), are no useful basis for segmentation on home insulation intention.

Insulation Attitudes

The questionnaire contained 15 questions on the attitudes toward home insulation (agree-disagree scale). A principal components analysis of these questions provided a four-component solution, explaining nearly 50 percent of the total variance. Only component loadings over .40 are reproduced in Table 3.

The four questions loading on the first component relate to savings and costs. Saving money and energy have positive weights; while statements that home insulation is after all more expensive or that home insulation has no benefits have negative loadings. The second component unites a number of insulation benefits (comfort, cosiness), insulation interest, and the statement that insulation is a necessity for all homes. The third component brings together a number of non-financial costs, e.g., damp home, humidity, mould, lack of fresh air, and ventilation problems. The fourth component is related to the behavioral costs of insulation installment.

We interpret this principal components solution as follows. Home insulation has two types of benefits: Financial/energy savings (I) and improved comfort (II). Respondents perceive two types of costs: Long-term costs of humidity (III) and short-term installment costs (IV).

Component scores of each of these four components are computed for all respondents and used in a multiple regression analysis to explain home insulation intentions.

Explained variance is generally low, between 3 and 16 percent. For renters, home insulation is related to financial/energy saving, in the sense that they believe that the costs are higher than the savings. For home owners, the benefits (comfort, cosiness, necessity, interest) are related to home insulation intention. For owners with insulation, long-term costs (damp home, humidity) are related to insulation. Other regression weights are insignificant, notably the short-term (behavioral) costs. We may conclude that a major obstacle for renters to have their homes insulated, is the belief that the costs exceed the benefits. Owners perceive more benefits related to home insulation, but tend to become aware of long-term disadvantages after home insulation (Table 2C).

Total Set of Determinants

In order to integrate the findings of the multiple regressions shown above, the total set of determinant variables is used in multiple regressions to explain home insulation intentions. Even when using 22 variables, the proportions of explained variance remain low, between 10 and 28 percent. These proportions are much lower than in studies explaining energy use. Verhallen and Van Raaij

(1981) explain almost 60 percent of the variance of energy use employing home characteristics household behavior, special circumstances, and attitudes. Home insulation intentions are obviously difficult to predict with the variables employed in this study. Discriminant analyses to distinguish between intenders and non-intenders were unsuccessful.

The home characteristics in Table 2D show a similar pattern as in Table 2A. Building year, cavity walls, maintenance, and own heating system, show significant relationships with insulation intentions. Household behavior, again, is insignificant in explaining insulation intention (Compare Tables 2B and 2D). The attitude components show a similar pattern (Compare Tables 2C and 2D). Renters relate home insulation to financial/energy saving; owners benefits, such as comfort, are related to insulation intention.

Sociodemographic variables, such as respondent's sex or social class, have no effect on home insulation intentions.

Consumer expectations, in combination with other variables, have only a minor effect on insulation intentions. For renters without insulation, pessimistic expectations about the energy price are related to higher insulation intentions. For owners without insulation, more optimistic expectations about the financial situation of the household are related to higher insulation intentions.

Note that for renters and owners with home insulation expectations are not relevant for their insulation intention. A rising energy price might increase the insulation intentions of renters. For owners, however, a better financial situation might be a stimulus for home insulation. If economic conditions improve, one may expect an increase of insulation intention for home owners.

Conclusions

Home insulation intentions, and probably behavior, do not belong to the same behavioral category as energy related household behavior. Explaining home insulation with the same set of variables as explaining energy use (Verhallen and Van Raaij 1981) is not successful, explaining a maximum of 28 percent of the variance (of owners without insulation). Energy use and behavior are daily activities, to be characterized by the dimensions "temperature" and "ventilation". Home insulation intentions are probably seen as investments in conservation done only once or a limited number of times. For renters, home insulation is probably the owner's business and they may feel that their intentions do not matter.

The behavioral model, proposed by Van Raaij and Verhallen (1983), for the explanation of energy use, is less applicable to the explanation of home insulation intention. The behavioral cost-benefit approach, however, may be useful. Owners and renters perceive different benefits (financial, comfort) and costs (short-term disorder and long-term humidity) related to home insulation. The task of advertising and promotion is to provide a realistic picture of benefits and costs, and to overcome the perceived short-term costs.

Home characteristics provide the opportunities and feasibility of home insulation, but they do not offer a sufficient explanation, why people decide to insulate their homes. For home owners, the building year of the home, the maintenance level, and the presence of cavity walls are the important home characteristics. For renters, the building year of the home and the presence of an individual heating system, are important.

Home owners, intending to insulate their homes, are inspired by the perceived benefits of insulation (comfort, cosiness) and optimistic expectations about their household financial situation. Energy or money saving are apparently not the first objectives. Home

insulation, as an expenditure category, is probably competing with other outlays on home improvement.

Furthermore, it was found that the intention of home owners with a non-insulated house (group IV) could be better predicted than the intentions of the other groups. This is probably so because they think more often about home insulation, and it is their own decision. Moreover, an economic upturn, resulting in better household financial situations, may result in an increase of home insulation intentions and consequent behavior.

Renters, on the other hand, considering home insulation, keep a sharp eye on savings. They face higher rents. Savings should thus be higher than the rent increase. Renters with pessimistic expectations about the future energy price, are more likely to consider home insulation. A major obstacle, however, is their lack of discretion or freedom. The owner of the house should cooperate or take the initiative. Renters' intentions may be less predictive of home insulation, because of institutional factors of home ownership and renting contracts.

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TABLE 3

PRINCIPAL COMPONENTS ANALYSIS OF ATTITUDE STATEMENTS (Varimax rotation)

Attitude Statements	I	II	III	IV	h^2
saving money	.80				.66
saving energy	.76				.58
more expensive	-.70				.60
no benefits	-.64				.43
interest		.72			.54
more comfort		.68			.54
necessity for homes		.66			.48
cosiness		.52			.42
damp home			.78		.64
humidity			.71		.55
more ventilation			.62		.47
lack of fresh air			.55		.44
disorder with install.				.57	.42
costs > benefits				.57	.49
installation trouble				.50	.34
eigenvalue	3.95	2.00	1.32	1.08	8.35
% explained variance	23.2	11.7	7.8	6.4	49.1

MARKETING TO VULNERABLE GROUPS:
TESTING THE EFFECTS OF PEERS AND INCENTIVES
ON ELDERLY RESPONSE TO HOME ENERGY AUDITS

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Abstract

This article presents the results of a field experiment designed to test the effects of the use of peer group members and incentives on elderly homeowners' response to home energy audits. Results provide insights into the decision processes of this important segment of society and the impact of two motivational tactics on subsequent behavior.

Background

In the United States, energy conservation programs have historically focused on information provision and motivation. Since 1980, market price has been the cornerstone public policy for encouraging conservation. Prior to this the Residential Conservation Service Program (1978) represented a landmark attempt at making available to all consumers, through a home energy audit, information on how to conserve energy. RCS was designed to encourage and facilitate the installation of energy conservation measures and renewable energy measures by making available low cost home energy audits. Utility companies were designated the primary distributor of the audits and audit programs. Since 1981, about one million such audits have been conducted each year (Morris et al. 1983, Centaur 1983). To date, neither pricing nor the RCS program have produced optimal consumer response in terms of conservation behavior. It is hypothesized that one of the reasons for this is the lack of attention to the differing demand schedules and situations of various market segments within the energy user marketplace.

This research deals with one component of society--the elderly--that has historically had special problems adjusting to the changing energy environment, presents unique challenges to utility companies trying to meet their needs, and in which there is very little known or understood about their responses to conservation efforts. Two reports by Hutton and McNeill (1981, 1983) summarize both the plight and opportunities facing the elderly.

In their literature review on vulnerable groups, it is documented repeatedly that the elderly and poor react differently to external stimuli compared to other segments of the population. Besides the traditional physical and monetary-related reasons why the elderly do not participate in conservation actions, particularly important is the concept of alienation stemming from financial, health, and/or educational disparities. Both endogenous and exogenous factors appear to affect elderly response.

Endogenous factors consist of the alienated individual's own personal psychological make-up and the adaptive ways in which he/she confronts the outside world. While program planners and activators can have little control over these factors, they can and should take them into consideration in the institutionalization of the programs.

The individual increases his/her alienation from society by withdrawing from or disengaging in participation in that society. Social disengagement involves decreasing emotional dependency, commitment, or involvement. The former results in what is termed an external orientation, the latter in what is termed an internal orientation. It has been shown that "externals," though withdrawn socially, are nonetheless emotionally dependent on others and have a locus of control outside of themselves. They therefore

respond well to psychographic presentations enhancing self-image and abilities. "Internals," however, are not emotionally independent, and their locus of control is internal. For this reason, they are harder to reach and influence than externals. However, if convinced of the seriousness of a situation, by the means of well-organized data, they may take action based on their own assessments rather than reliance on another's advice or persuasions. In either case, the alienated individual's response may be slow in coming due to the inertia of partially or completely reversing the process of alienation which he/she has entered into.

The other category of variables impacting an elderly or poor individual's degree of alienation are exogenous factors (i.e., societal factors). Exogenous factors may also either increase or decrease the sense of alienation. Programs which have tended to be unsuccessful have usually exhibited such qualities as a particularistic orientation which segregates servicers from utilizers, poor quality control, and/or insufficient knowledge of the target group's needs, wants, and tastes.

On the other hand, the literature review also describes a number of characteristics that have led to successful programs including:

- The servicers should go more than "half-way"--the participation of the alienated individuals should be encouraged and facilitated as much as is feasible possible at each step. At no point should their automatic participation be assumed.
- In light of limited resources that must usually be taken into consideration when planning how much effort to expend on attaining the goods leading to culmination of a successful program, involvement of associated community organizations and volunteers is the key.
- Market studies should be conducted to pinpoint the perceived problems, value systems, priorities, desires, and tastes of the vulnerable group of interest so that properly targeted communications can be addressed to the group.
- There should be a sense of shared responsibilities and shared accomplishments between the servicers and the utilizers and a minimization of manipulation of one group by the other.
- Management of these programs should also be as efficient as possible, with a high degree of flexibility, to enable rapid response to developing problems in the program, as well as to maintain a fairly rigorous quality control system. This efficiency and flexibility help ensure a good reputation for the program, which in turn gradually filters into the households which need to be reached and facilitates a greater receptivity to the program.
- Each separate individual involved in the program, from the home energy auditor to the telephone receptionist, must display an inspired attitude toward the program. The attitude is as important as the information conveyed.

- Follow-up procedures are necessary at all stages of the program. Constant reminders--or even periodic ones--maximize the likelihood of the occurrence of the desired conservation behavior.
- Personal selling seems to work better than mass appeals to low-income and elderly groups, although its cost should be weighed in making a decision as to how to reach the desired market.
- Patience is a key factor. In general, many of these groups are more withdrawn from contact with service-providing organizations because of past experiences with exploitation, causing a high degree of suspicion, mistrust, and lack of cooperation. Time is required to reverse these suspicions and that is why even many successful grass-roots organizations demonstrate such slow-moving programs and hard-won achievements. However, with a program which has "passed the test" the rate of participation will increase.
- At all times, the positive should be stressed, benefits should be emphasized over sacrifices.
- Peer/Incentive. In receiving the RCS audit through a utility company auditor, a peer was present during the audit to answer questions, install the incentive, and demonstrate other conservation actions.
- Peer. A peer member was present during the audit; however, an incentive was not provided.
- Incentive. The utility company auditor was responsible for providing the incentive, answering questions, and any demonstrating. A peer was not present.
- Control. The standard utility audit was conducted. Neither peer nor incentive was present.

Peer group personnel were recruited by the local utility from area organizations. Each peer went through several training sessions, including having an RCS audit conducted for their own home. Peers were compensated at \$20 per audit completed.

The primary incentive used was a hot water heater blanket. For each home designated to receive an incentive, a hot water heater blanket was installed. In the Peer/Incentive condition, the blanket was installed by a peer. In the Incentive only condition, the auditor installed the blanket. In cases where a hot water heater blanket was already installed, other appropriate low-cost incentives were substituted.

Sample

The sample for the study was a judgement sample selected to generally represent elderly homeowners in a large western metropolitan area. Qualifications included screening for homeowners 60 years of age and older who lived in single family detached homes and had never had an audit. Subjects were recruited at random by telephone. The total sample of 120 (30 per group) was then randomly divided into four experimental groups. Thirteen subjects refused to cooperate (i.e., changed their minds before the audit could be done) resulting in a final sample size of 107 (Peer/Incentive [28], Peer [28], Incentive [26], Control [25]).

Data Collection

Two types of data were collected for the study. Consumption data was collected via utility company billing information. Data was collected approximately 10 months prior to the audit in order to have baseline consumption information. Billing data was then collected for the 10 months following the audit. Analysis centered on changes in average daily consumption between the pretest and posttest periods.

The second type of data collection was a posttest-only survey of households conducted by means of a 15-minute telephone interview. Questions focused on measurement of a range of consumer response levels including knowledge, attitudes, intentions, and reported behavior. Respondents represented a family member present during the audit.

Results

Results will be presented by consumer response level beginning with the earlier response levels in the hierarchy. Responses are the result of the posttest telephone survey, except for the consumption analysis. Change in consumption is represented by prior minus posttest period billing data.

Recall

A series of questions were asked dealing with homeowners' recall of the audit experience. In both conditions where a peer was present, over 90.0 percent of the sample remembered the peer. However, no one was able to recall

While many of these conclusions apply to other segments of the population as well, they have been shown to be particularly important in reaching the poor and elderly. The combination of understanding the target group's needs and being able to integrate those needs with program goals and available resources will increase the probability of implementing a successful conservation effort.

In response to the environment for the elderly regarding energy conservation behavior and the social responsibility of policymakers to particular groups such as this, the previously described factors were taken into consideration in the development of this study. Two strategies were tested to improve elderly response to an RCS audit.

- Peer. Accompanying each utility company auditor would be a trained elderly person. The role of the peer would be to provide support, information, and demonstration of some conservation actions.
- Incentives. The utility company auditor would provide one or more incentives to the elderly household (e.g., installation of a hot water heater blanket) to encourage them to engage in more such actions recommended by the audit.

Both strategies, peer involvement and the use of incentives, are well-tested and proven marketing strategies for other goods and services. The use of incentives, for example, was particularly effective in encouraging homeowners to take low-cost or free conservation actions in the Low Cost/No Cost Energy Conservation Program (Hutton and McNeill, 1982).

Method

Two primary objectives were the focus of the study:

- Gain insight into elderly household response to the RCS audit experience, including changes in knowledge, attitudes, intentions, and behavior.
- Assess the impact of two marketing strategies--peer involvement and incentives--on different levels of consumer response.

Design

In order to attribute causality to the independent variables (i.e., peer, incentives) and to assess response in a "real world" setting, a field experiment was utilized. The design chosen was a 2 x 2 factorial. Each treatment had two levels. Either the peer or incentive was present or absent. The four groups were:

the name of the peer representative.

In both the Peer/Incentive and Incentive Only conditions, over 70.0 percent remembered that something was done to their home during the audit to help them save energy (Peer/Incentive = 71.4%, Incentive = 76.9%). Only one person in each of the other groups reported something being done. It is interesting that 25.0 percent or more of those who actually received an incentive did not recall it.

Perceptions

Table 1 reports household impressions of the audit and provides insight into the word-of-mouth potential for diffusing positive perceptions and knowledge among other members of the elderly household segment.

Prior consideration of an audit ranged from 48.0 percent in the Audit Only condition to 38.5 percent in the Incentive Only condition. Households were asked why they had not requested the utility audit. The most mentioned responses were:

- . Cost,
- . Felt they had already done everything they could,
- . Never got around to it, or
- . Already knew what they needed to do.

When asked what they learned from the audit, households gave a wide range of responses. However, the most mentioned were:

- . Need for some type of insulation,
- . Caulking and weatherstripping,
- . General knowledge, and
- . Nothing/don't know.

Large majorities in all conditions reported discussing the audit with friends or relatives. Additionally, of those that said they had discussed it, about 50.0 percent indicated their friends or relatives would request an audit in the future.

An additional question asked was whether households felt that they would be able to save energy as a result of this audit. Majorities in each condition felt that they would. However, while the three test conditions involving some combination of incentives and peers all reported over 70.0 percent feeling this way, only 56.0 percent in the Audit Only (control) condition felt they would save. However, those that did feel that they could save energy, most had no idea how much they could save. For those that did estimate their savings, the most mentioned responses ranged from 5.0 percent to 15.0 percent.

TABLE 1
AUDIT IMPRESSIONS/KNOWLEDGE

Question	Group			
	Peer/ Incentive	Incentive	Peer	Audit Only
Before being contacted by a utility company, had you ever considered having an audit? (percent yes)	46.4%	38.5%	39.3%	48.0%
As a result of this audit, do you think you will save energy? (percent yes)	71.4	73.1	71.4	56.0
Have you discussed your audit with friends or relatives? (percent yes)	71.4	69.2	71.4	64.0
Do you think they will request an audit?				
Yes	50.0	50.0	47.6	56.3
No	10.0	--	9.5	6.3
Don't Know	40.0	50.0	38.1	37.5

Perceptions of the Audit Process

A series of questions concerning the audit process showed that all of the conditions were generally satisfied with the audit process. Few households would change anything about the audit, including the way the information was explained and presented. Additionally, there was virtual consensus that the audit should be offered to all elderly households. Primary reasons for this feeling included:

- . Increased awareness/knowledge of the little things that can save,
- . Improve utility company image, and
- . Good service to the elderly because it is free and they need it.

Audit Evaluations

There were two types of evaluation efforts. The two conditions (Peer/Incentive, Peer Only) that received a peer member treatment were asked to evaluate the peer. All conditions were asked to evaluate the utility company auditor and the audit process (Table 2).

In both conditions, the peer was evaluated favorably. However, the Peer/Incentive condition produced relatively higher scores across all positive categories. The presence of the incentive along with a peer produces more favorable responses, probably because the peer has a better chance of getting involved by installing the blanket or other incentives.

The utility company auditor was rated on the same characteristics by all four conditions. As one would hope, the auditor was viewed very favorable across all conditions. No consistent pattern of differences was found.

TABLE 2
AUDIT EVALUATION

Question ¹	Evaluation ²			
	Very		Not	
	P/I	P	P/I	P
Do you feel this person (peer) was . . .				
Helpful	60.7%	50.0%	10.7%	7.1%
Knowledgeable	53.6	32.1	7.1	7.1
Useful	57.1	35.7	10.7	--
Friendly	85.7	71.4	--	--
Encouraging	53.6	35.7	7.1	10.7
Credible	42.9	21.4	10.7	7.1
Intimidating	--	--	96.4	85.7
Bothersome	--	3.6	100.0	85.7
	Very Favorable		Unfavorable	
	P/I	I	P	A
Attitudes toward ³ . . .				
Home energy audit	67.9%	57.7%	46.4%	64.0%
Utility company	46.4	34.6	28.6	32.0
Auditor	78.6	76.9	53.6	64.0
Audit printout	50.0	57.7	50.0	64.0
Audit educational material	57.1	61.5	53.6	60.0
Peer	55.6	N/A	23.1	N/A
Do you think it is a good idea to have someone (peer) accompany the utility company auditor?			P/I	P
Yes			67.9%	53.6%
No			10.7	7.1
Don't Know			21.4	39.2

¹ Only two groups received this question: P/I = Peer plus Incentive, P = Peer only.
² A 3 point scale was used for this series. The "Somewhat" and "Don't Know" categories are not presented here.
³ Groups are: P/I = Peer plus Incentive; I = Incentive; P = Peer; A = Audit only.
 "Very Unfavorable" and "Unfavorable" scale points were collapsed to "Unfavorable." Also, the "Favorable" category is not reported.

Other attitude questions also reflected favorably on the audit experience. Only in the evaluation of the utility company were there any significant unfavorable responses. About 20.0 percent of the sample in each condition had an unfavorable attitude toward the utility.

In a final evaluation of the peer, the Peer/Incentive condition continued to view the peer more positively than the Peer Only condition. While 55.6 percent of the Peer/Incentive condition reported "very favorable" attitudes toward the peer, only 23.1 percent in the Peer Only condition did so. Also, 67.9 percent of the Peer/Incentive condition felt it was a good idea to have a peer accompany the auditor; only 53.6 percent of the Peer Only condition felt this way. For those that did feel it was a good idea, the most mentioned reasons were cuts down on time, helps the auditor, and helps in understanding what to do.

Actions Resulting from the Audit

Tables 3 and 4 present the results of both self-reported behavior and an analysis of consumption data. Subjects were first asked what one change could be made in their home that would save them the most energy. The most mentioned responses were:

- . Attic insulation,
- . Caulking/weatherstripping,
- . Storm windows/doors, and
- . Turn thermostat down.

When asked whether they had actually done the one recommended change to save the most energy, there were significant differences between conditions. The Peer/Incentive condition was the only one to have a majority reporting taking the recommended action (59.3%). The Incentive and Peer conditions were next with 38.1 percent and 37.0 percent, respectively. Only 28.6 percent of the Audit Only condition responded positively. However, the Incentive and Audit Only conditions tied with the largest percentage planning to take the action in the future (83.3%). The Peer condition reported the largest percentage making other recommended changes (35.7%), and, again, the Incentive condition reported the highest percentage of intentions to take other actions (34.6%).

TABLE 3

ACTIONS RESULTING FROM THE AUDIT

Question	Group			Audit Only
	Peer/Incentive	Incentive	Peer	
Based on the audit, have you made the one change recommended that would save you the most money? (percent yes)	59.3%	38.1%	37.0%	28.6%
Do you plan to do so in the future? (percent yes) ¹	75.0	83.3	58.8	83.3
Have you made any other recommended changes? (percent yes)	17.9	15.4	35.7	16.0
Do you plan to make any? (percent yes)	25.0	34.6	21.4	12.0
Have you done anything since the audit to save energy that wasn't recommended? (percent yes)	10.7	7.7	14.3	4.0

¹ Base sample is composed of those households who had not made the change yet.

Table 4 measures behavior based on actual consumption. The analysis of variance table indicates that there are significant differences in mean consumption patterns between the conditions ($p < .05$). Analysis was accomplished by subtracting average daily consumption during the test period (following the audit) from average daily consumption during a pretreatment period (prior to the audit). Consequently, positive mean values (average daily change in consumption) reflect a reduction in consumption from

the pretreatment period. In order of effectiveness in reducing consumption, the conditions rank:

Incentive	.0864
Peer	-.1041
Audit Only	-.1852
Peer/Incentive	-.4145

The Incentive condition was the only one that achieved a reduction over the pretest consumption figures. The only statistically significant difference is between the Incentive condition and the Peer/Incentive condition.

TABLE 4

ANALYSIS OF VARIANCE RESULTS

Source	D.F.	Sum of Squares	Mean Square	F Ratio	F Prob.
Between Groups	3	3.24	1.08	3.05	.03
Within Groups	97	34.45	.36		
TOTAL	100	37.69			

Group	Mean Values ¹	Standard Deviation
Peer/Incentive	-.4145	.6071
Incentive	.0864	.4930
Peer	-.1041	.8113
Audit Only (standard)	-.1852	.3232

Rank Order Effectiveness²

1. Incentive*
2. Peer
3. Audit Only (standard)
4. Peer/Incentive*

¹ Mean values are in terms of gas.

² Difference scores determined by subtracting average daily consumption after the audit from average daily consumption before the audit over a 10-month period.

* Significant at $p < .05$.

Conclusions

The results of this study provide several insights for both policymakers and utility companies. Perhaps most important was the positive evaluation given the audit process. At least for the utility company involved in this study, the problem of elderly response to their audit program is not with the product. It is more with strategies to encourage accessing the audit and then motivating the household to take action. For example, one area that shows strong potential is the development of strategies that enhance diffusion of the audit concept by word-of-mouth.

Behavior measures presented both interesting and unexpected results. The condition that was most likely to believe they would save energy was the Incentive condition, followed closely by Peer/Incentive and Peer. Subjects in the Audit Only condition were significantly less likely to believe they would save. In reported actions to save the most energy, the Peer/Incentive condition led. However, the Incentive condition reported highest intentions

in both cases and was second in reported actions.

In terms of actual savings from the pretest period, only the Incentive condition showed a decrease in consumption from the pretest period. These figures most likely reflect an extremely severe winter. The Incentive condition showed an average daily saving of just over .08 therms per day. Any average percentage reduction, however, is somewhat misleading. There was extremely high variance across both seasons and households. For example, winter gas usage varies from several thousand therms per month for a household to 150 therms per month for other households. In summer, gas usage dropped to a low of 10 therms per month. Further analysis is needed to refine these figures. However, it does appear that the .08 therms-per-day saving is a significant amount.

The unanticipated result in this study was the poor showing of the Peer/Incentive condition. While it is impossible to say for sure why this condition performed so poorly, at least two possible explanations are worth considering. The first is differences between groups going into the study. For example, an analysis of classification data show the Peer/Incentive condition to be slightly less educated, older, and lower income than the Incentive condition. Another factor could have been the lack of coordination between the auditor, peer, and incentive. For the elderly homeowner this may have produced a type of environment that was not conducive to the most positive response.

In summary, several marketing and consumer behavior implications arise from the results of this study. The first is the importance of understanding the target market, particularly a segment such as elderly homeowners. Second, and most important, the product (i.e., audit process) does not appear to be the problem in explaining peer response to energy audits. Increasing response to audits and conservation among the elderly is more a function of appropriate front-end marketing efforts (i.e., pricing and targeted promotional strategies) and the utilization of positive incentives to gain follow-up action. However, more information is needed about how to supplement audits with incentive packages and other motivational tactics. This study is just one step in that direction.

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Abstract

Theoretical perspectives based upon goal-setting and comparative processes are elucidated and proposed as mediators of the feedback effect found in energy consumption studies. A field experiment designed to test these perspectives revealed that, for natural gas consumption, both goal-setting and activation of comparison processes are necessary conditions in obtaining the feedback effect.

Social Comparison Processes in Energy
Conservation Feedback Effects

Since the onset of the 1973-1974 oil crisis people have been awakened to their reliance upon energy for maintaining or altering their life-styles. Researchers in both the natural and social sciences quickly responded to the crisis via technological and behavioral solutions. Businesses also responded to the challenge through the development of more energy efficient appliances and modes of transportation. Consequently, the vast majority of the early research investigating energy utilization was descriptive in nature and followed by a vast wave of application-oriented research primarily designed to promote energy conservation.

Currently, over a decade later, with consumers having adapted to the relatively higher energy prices and with some energy sources dropping in costs (e.g., oil) the magnitude of published research examining energy consumption has dwindled. However, the current situation offers an opportunity to begin systematic efforts to examine the mediators as well as moderators of various strategies that have been shown to influence energy consumption. Only with a thorough understanding of the parameters and causes of consumption can policies be developed and strategies implemented for dealing with any future shortages.

A variety of intervention strategies, variable manipulations, and research classification schemes have been utilized in examining energy consumption (for reviews see: Becker, Seligman, & Darley 1979; Cone & Hayes 1980; Cook & Berrenberg 1981; Gottlieb & Matre 1976; McClelland & Canter 1981; McDougall, Claxton, Ritchie, & Anderson 1981; Olsen & Goodnight 1977; Shippee 1980 & 1981; Stern & Gardner 1981; Winett & Nietzel 1975; Winett & Kagel 1984; Winkler & Winett 1982). One strategy acknowledged by virtually all of the reviews as being effective in reducing energy consumption is termed the feedback effect.

Comparison Processes in Feedback Effects

Basically, the feedback effect entails providing consumers with frequent information (e.g., daily or weekly) concerning their energy consumption. Consumers provided with this consumption feedback have subsequently reduced consumption 10% to 20% when compared to consumers not receiving the feedback (Becker 1978; Becker, Seligman, & Darley 1979; Bittle, Valesano, & Thaler 1979 & 1979-1980; Hayes & Cone 1977 & 1981; Palmer, Lloyd, & Lloyd 1977; Seaver & Patterson 1976; Seligman, Becker, & Darley 1981; Winett, Kagel, Battalio, & Winkler 1978; Winett, Neale, & Grier 1979) and the effect tends to be maintained even when the frequent feedback is no longer provided and regular monthly utility billing represents the only consumption information. The generalizability of the feedback effect is acknowledged when one notes that it has "been shown to be effective in studies conducted in at least 10 states, with diverse samples of people, during all four seasons, and over a period of a decade" (Winett & Kagel 1984, p. 664).

A variety of parameters have been identified which moderate the feedback effect and are useful in providing insights into the possible mediators that are active. First, studies have shown that cost feedback as opposed to or in conjunction with usage feedback (e.g., kilowatts of electricity) is more effective in reducing consumption (e.g., Palmer et al. 1977). Furthermore, the superiority of cost feedback tends to be more pronounced with cumulative as opposed to discreet feedback for a limited time period (Bittle et al. 1979-80). This superiority of cost feedback is consistent with the long-term effect of pricing on demand from an economic perspective (i.e., Winkler & Winett 1982). Second, externally-generated feedback (e.g., supplied by the researcher or utility company) tends to result in less usage than self-generated feedback (e.g., generated by the consumer) although some reduction is found when consumers self-monitor their consumption (e.g., Winett et al. 1979; Pallak & Cummings 1976). Third, individual feedback is more effective at reducing consumption than group feedback such as for a neighborhood or region (e.g., Winett et al. 1978-79). Fourth, as suggested by some authors (e.g., Winett & Kagel 1984), increasing the frequency of providing the feedback may result in increased energy savings. For example, daily feedback may be more effective than weekly feedback which in turn may be more effective than monthly feedback as currently supplied by most utility companies. Unfortunately, no studies have been conducted which have systematically examined the effects of the frequency of feedback on consumption; most studies have utilized daily feedback and the suggestion for increasing the frequency of the feedback as been via extrapolations from other studies using weekly feedback. Also, as noted by Shippee (1980) and Stern and Gardner (1981) the costs of providing daily feedback may make it impractical. Furthermore, other studies have shown that even weekly feedback can result in a 24% reduction in consumption (i.e., Bittle et al. 1978) or, in the case of another study, simplifying the format and content of monthly utility bills resulted in a 10% reduction in consumption relative to normal billing format and content (i.e., Hayes & Cone 1981); reduction figures similar to those found for daily feedback. These studies suggest some caution in attempting to generalize about the effects of the frequency of feedback. Fifth, some studies have shown that a public commitment to saving energy as opposed to a private commitment results in a greater reduction in consumption levels (i.e., Pallak & Cummings 1976; Pallak, Cook, & Sullivan 1980; Seaver & Patterson 1976). Finally, other studies have demonstrated that providing consumers with a difficult goal for reducing their energy consumption results in lowered consumption rates when compared to rates for consumers provided with a relatively easy goal (e.g., Becker 1978).

An examination of the above parameters suggests that for feedback to be effective at lowering energy consumption consumers must have some standard against which to evaluate their performance (Becker 1978; Becker et al. 1979; Seligman et al. 1981; Cone & Hayes 1980). Consumers must be able to "evaluate how well or poorly they are doing with respect to their desired level of conservation" (Becker et al. 1979, p. 52). This interpretation entails three necessary conditions. First, consumers must have some standard or goal in evaluating their consumption. This standard or goal may entail previous usage levels, experimenter suggested reduction goals, or budget maintenance goals. Second, consumers must engage in the comparison process in comparing present consumption levels or behaviors with the standards or goals. Third, the information utilized in setting goals or standards and comparing with present consumption levels

or behaviors must be understandable and germane. This interpretation suggests that an understanding of the feedback effect and, hence, identification of the mediators, is based upon when comparisons will be invoked, what is being compared, and the prediction of behaviors following the comparison process. Festinger's (1954) social comparison theory provides an "established core of confirmed theory" (Singer 1981, p. 171) for testing the veracity of the comparison process in explaining the feedback effect.

Social comparison theory postulates that individuals have a drive to evaluate their opinions and abilities. In the absence of objective physical standards upon which to make these evaluations, individuals will utilize the opinions and abilities of others in assessing their opinions and abilities. Festinger (1954) also predicted that individuals would prefer to make these evaluations, along relevant dimensions, with similar as opposed to dissimilar others. Given that an individual's opinions and/or abilities are different from others', the individuals can either (a) attempt to persuade others to adopt his or her opinion or ability, (b) modify his or her opinion or ability to match the others', or (c) reject the others' abilities or opinions for use in making comparisons due to the dissimilarity along some dimensions.

The ability to wisely use or conserve energy and/or an individual's opinion of himself as being a prudent consumer or energy conscious consumer justifies the examination of energy utilization from a social comparison theory perspective. In the absence of any objective standards (e.g., experimenter provided, RCS audit) against which to judge their energy consumption, consumers may use information concerning similar others' consumption levels in assessing their own performance. For example, an individual may engage in the comparative process by asking a neighbor "how much was your electric bill?" A study by Pallak et al. (1976; 1980) also supports this notion in finding that consumers receiving both usage feedback and the average usage figures for all individuals in the study conserved more energy than did consumers receiving only the usage feedback.

Given the previous energy related research, the discussion of social comparison theory up to this point, and the Pallak et al. (1976; 1980) study, a number of predictions can be made. First, consumers provided with usage and cost feedback which does not facilitate the setting of standards nor the activation of a comparison process should conserve less energy than consumers provided with the same feedback plus facilitators. More specifically, consumers provided with current usage feedback plus previous usage figures should be more likely to engage in a self-comparison process using the previous figures as a standard and, hence, reduce their consumption more than consumers provided with only current usage feedback. Second, if consumers actually desire to evaluate their performance in conserving energy or their opinion about themselves as related to consumption, those consumers provided with feedback allowing them to make social comparisons should alter their consumption in the direction of the comparison point more than if they received self-comparison feedback. Consumers provided with their current usage figures and the current usage figures of their neighbors should adjust their consumption levels using their neighbors' consumption levels as a standard. These hypotheses suggest that consumers would be utilizing either their past consumption levels or others' consumption levels as an implied goal or standard in judging their own consumption and making adjustments in consumption according to the standards. The change in consumption should be greater under social-comparison as opposed to self-comparison feedback since consumers could justify changes in their own consumption as being due to temperature fluctuations.

The information that one receives for comparative purposes obviously plays an important role. From Becker's

(1978) study, one would predict that when an individual uses past consumption levels as a standard or goal in comparing current consumption levels, the higher the discrepancy the more the individual would attempt to conserve energy, assuming previous levels were lower than current levels of consumption. In other words, if previous consumption levels are utilized as a standard in a self-comparison situation, the greater the discrepancy with current levels of consumption the greater the change in future consumption levels. However, although this replication of Becker's findings should be found for self-comparison feedback, social comparison theory postulates the opposite effect for social-comparison feedback. Specifically, hypotheses III of social comparison theory suggests that as the discrepancy between one's ability/opinions and those of others increases, the probability of the comparison being made decreases and, hence, the tendency to alter behavior decrease. Therefore, as the discrepancy between an individual's consumption level and others' consumption level increase, less attempts should be made by that individual to alter their consumption level. Hence, an interaction should be found such that for self-comparison feedback a more difficult goal should result in more change in consumption while for social-comparison feedback a more difficult goal should result in less change in consumption when compared to a relatively easy goal.

Method

Sample

A local natural gas utility company submitted the names and addresses of 173 natural gas consumers to the author. These consumers were selected from the company's records on the basis of being within the same billing cycle, residing within similarly constructed homes located in one of three subdivisions, and with the restrictions that all homes were equipped with natural gas heating furnaces and water heaters. The majority of the homes selected were either single-level brick or wood-frame homes and occupied by two adults and either one or two children.

Initially, the consumers received a letter from the Vice-President of the local utility company explaining the consumers' potential involvement in the study and emphasizing the fact that participation was voluntary. Subsequently, the consumers were contacted in person and were asked to participate in a natural resource utilization study to be conducted over an extended period of time, allow access to their usage records of natural gas, and to give their permission for their utility meters to be read on a weekly basis. Of the 145 consumers that were contacted, 122 agreed to participate (84.1%) and signed consent and release forms. After examining previous usage records and subsequent records prior to the onset of experimental treatments, 14 consumers were dropped from the study due to floor effects in consumption; these consumers did, however, receive weekly usage feedback. Hence, 108 consumers were eligible for assignment to treatment conditions.

Feedback

A 3 X 2 X 4 two-between, one-within design was used manipulating the type of comparison feedback (self, social, or both), the implied goal as indicated by the feedback (13% or 23% reduction in usage), and feedback trials (first, second, third, and fourth week). A trailer control condition was also included in the design in which participants received only usage feedback.

All of the participants received usage feedback consisting of the amount of natural gas used during the previous week in thousands of cubic feet (MCF) and the estimated cost. The cost figure was computed by estimating the monthly consumption, applying the appropriate billing rate structure, and deriving the weekly cost figure. Participants in the trailer control condition received only this usage feedback (cost & MCF consumed).

Participants in the comparison feedback conditions were provided with information indicating an implied goal with which to compare their usage of natural gas. The implied goal was manipulated by showing the participant that the comparison information indicated either a 13% or 23% discrepancy between their own present usage and past usage or between their present usage and the use of a group of comparison others. The participant was always indicated as having consumed more natural gas than shown in the comparison feedback. The participant received only the usage and cost figures for use in making comparisons; the percentage difference was not indicated. Participants receiving this false feedback were provided with comparison information for natural gas consumed either by the participant during the same week of the immediately preceding year (self-comparison feedback), similar households during the same week (social-comparison feedback), or both (self-comparison plus social-comparison feedback). For example, the self-comparison feedback indicated to the participants that they consumed either 13% or 23% less natural gas during the same week of the previous year.

For the participants receiving both self-comparison and social-comparison feedback, the self-comparison feedback was presented first for half of the participants and last for the other half of the participants within the 13% and 23% implied-goal conditions. Because of the possibility of arousing the suspicion of the participants receiving both types of comparison feedback if the figures were exactly equivalent, 12% and 14% reduction figures were used for the 13% implied-goal conditions for the first and second type of feedback presented on a single feedback trial while for the 23% implied-goal conditions, 22% and 24% reduction figures were used. Feedback was provided to the participants by mailing a single post card containing the appropriate feedback on the same day their utility meters were read.

Procedure

After obtaining permission from the participants for their involvement in the study and for their usage records to be released from the utility company, the participants were not contacted in person at any time in the future. The participants' natural gas usage records were obtained from the utility company for December, 1981, and the average weekly consumption rate for each participant was determined. Ten participants were randomly withdrawn prior to any subsequent assignment to the experimental conditions. These participants were withheld for the purposes of replacing any of the other participants assigned to the treatment conditions who might withdraw from the study or move from the area prior to the presentation of the feedback. However, none of the participants assigned to the treatment conditions withdrew from the study. Hence, the withheld participants were included in the usage feedback condition. Using the average weekly consumption rate during December as a baseline, a ranking of the 98 remaining participants was made according to consumption rate and they were assigned to each of the seven conditions using a block-randomized procedure. With the inclusion of the ten participants withheld earlier for replacement purposes, 24 participants were included in the usage feedback condition while 14 participants were assigned to each of the other conditions.

Beginning in the third week of January, 1982, participants' natural gas utility meters were read and recorded once a week for six weeks. Meters were read on the same weekday and at approximately the same time each day. Five research assistants unaware of the purposes of the study were trained by the natural gas company to read the meters. Periodically, a sixth separately trained research assistant read a subset of the meters in order to obtain reliability estimates. An overall reliability estimate of $r = .96$ was obtained.

The last week in January was used as the baseline level to be used for the designation of half of the partici-

pants in each condition as high-level users and the other half of the participants as low-level users. Also, this week was used as the baseline level for subsequent analyses. During this week no feedback was presented; the MCF usage was used for subsequent feedback. Beginning in the first week of February, 1982, the participants received via a mailed post card the appropriate feedback for the particular condition to which they were assigned. Feedback was provided for four weeks.

Results

As a manipulation check, an analysis of variance was conducted on the amount of natural gas consumed during the last week of January for the type of comparison feedback (self, social, or both) X implied goal (13% or 23%) X usage level (high or low) matrix. The only significant effect was the main effect of usage level, $F(1,72) = 79.17$, $p < .0001$, with means of 3.45 MCF and 4.91 MCF for low-level and high-level users, respectively. No other effects approached statistical significance, $p > .10$.

The dependent measure employed for all subsequent analyses investigating the change in consumption due to feedback was the percent consumed relative to baseline levels. Because of the lower limits involved in using the percent consumed relative to baseline as the dependent measure, a square root transformation was employed. Means reported in the text, however, have been retransformed into the percentage figures.

General Findings

A four-factor analysis of variance with one repeated measure was conducted on the type of comparison feedback X implied goal X usage level X feedback trials matrix. A marginally significant comparison feedback X implied goal interaction was obtained, $F(2,72) = 2.74$, $p = .07$. The means contributing to this interaction are presented in Table 1.

TABLE 1
MEAN PERCENT NATURAL GAS CONSUMED RELATIVE
TO BASELINE CONSUMPTION LEVELS

Comparison	Implied Goal		Total
	23%	13%	
Self	101 _{ab}	101 _{ab}	101
Social	93 _a	108 _b	101
Self + Social	102 _{ab}	100 _{ab}	101
Total	96	103	

Usage Feedback Only: 103_b Expected: 102_b

Means not sharing common subscripts differ at $p < .05$.

Tests of simple main effects revealed a significant difference in percent consumed between participants receiving social-comparison feedback indicating a 23% implied goal and participants receiving social-comparison feedback indicating a 13% implied goal, $F(1,24) = 7.96$, $p < .01$. For the social-comparison feedback, whereas participants receiving the 23% implied goal decreased their consumption by 7% relative to baseline levels, participants receiving the 13% implied goal increased their consumption relative to baseline by 8% during the same time period. None of the other simple main effects approached acceptable levels of statistical significance, $p < .10$.

Significant main effects for the usage level factor, $F(1,72) = 2.81$, $p < .10$, and trials, $F(3,216) = 441.21$, $p < .001$, were qualified by a significant usage level X trials interaction, $F(3,216) = 2.85$, $p < .05$. Simple main effects revealed that, during Trials 1, 2, and 3, low-level consumers altered their usage relative to baseline (\bar{X} s = 1.31, 1.41, .88, .79, respectively) more than did high-level consumers (\bar{X} s = 1.19, 1.31, .79, respectively). No significant differences between usage

levels were present during Trial 4 (low-level users $X = .60$, high-level users $X = .59$).

Comparison Versus Usage Feedback

Using a pooled mean square error term, Dunnett's t -tests were calculated testing the differences between the means for the usage feedback condition and the comparison feedback X implied goal conditions using computations outlined by Winer (1971, p. 470). These analyses revealed that participants receiving social-comparison feedback indicating a 23% implied goal reduced their consumption relative to baseline ($\bar{X} = .93$), while participants receiving only the usage feedback increased their consumption relative to baseline levels ($\bar{X} = 1.03$), $t(94) = 1.82$, $p < .05$. Hence, the addition of the social-comparison feedback indicating a difficult goal resulted in a 10% decrease in energy consumption when compared to the usage feedback. No differences were found between the other feedback conditions and usage feedback condition.

Because of the significant usage level X trials interaction found for the participants receiving comparison feedback, it was deemed appropriate to compare the means involved in this interaction with the corresponding means of the same interaction for participants receiving usage feedback using pairwise Dunnett's t -tests. Again, a pooled mean square error term was employed. None of these comparisons revealed any significant differences, $p > .10$.

Comparisons Involving Expected Usage

In order to assess any differences between the percent consumed relative to baseline consumption due to the various types of feedback in the present study and the percent of natural gas consumption that would be expected due to temperature fluctuations, it was necessary to derive the percent change in heating degree days relative to baseline for each of the respective feedback trials. Basically, heating degree days are the number of degrees that the average temperature per day is less than 65 degrees F. (18.33 C.). To obtain the number of heating degree days over a set period of time (i.e., seven days in the present study), the number of heating degree days are summed. Degree days, whether heating or cooling, are the units of measurement commonly used by utility companies to predict energy consumption during specific periods of time and have been used in previous studies (e.g., Becker & Seligman, 1978).

Heating degree days were obtained from the National Weather Service for the area in which the study was conducted and the percent of heating degree days was calculated for the treatment time periods relative to the baseline time period. These estimates of expected usage due to changes in heating degree days were felt to reflect the changes in energy consumption due to temperature fluctuations. Using the square root transformation, the expected change in energy usage due to heating degree days was compared to the changes in energy usage found in the present study using Dunnett's t -tests for comparisons involving a single control group (i.e., expected change in usage due to temperature changes) and multiple experimental groups (i.e., means involved in the comparison feedback X implied goal conditions and usage feedback condition). However, caution should be exercised in interpreting the results of these analyses. First, these analyses assume that if a control group had actually been included in the study the mean percent consumed would have been equal to that predicted by changes in the number of heating degree days. This assumption may be erroneous in that changes in degree days may not be related to actual changes in natural gas consumption in a one-to-one relationship. Also, the slopes and intercepts may be different. Similarly, the analyses assume that energy usage can be perfectly predicted by changes in temperature, an assumption that is unlikely. Second, using the percent of heating degree days during the experimental periods as compared to

baseline levels of degree days in creating a control group for comparison purposes, an assumption must be made that if a control group had actually been included in the study, the obtained variance would have been homogeneous with the variances obtained for the participants receiving the experimental manipulations.

In order to minimize some of the possible violations of the assumptions mentioned above in testing the changes in consumption by participants in the study with the expected percent change in energy usage predicted from heating degree days, the corresponding mean square error terms and number of subjects considered in the immediately preceding analyses were employed as the denominator in calculating the Dunnett's t -statistic. Using this procedure actually results in a more conservative estimate of t than assuming that a control group was actually included in the study (i.e., specifying a number of subjects for the expected change scores).

The results of the Dunnett's tests indicated that participants receiving the social-comparison feedback indicating a 23% goal reduced their consumption relative to baseline ($\bar{X} = .93$) differentially than would be expected from changes in heating degree days ($\bar{X} = 1.02$), $t(94) = 1.67$, $p < .05$, one-tailed test. This result can be interpreted, with the cautions mentioned above, as demonstrating that participants receiving social-comparison feedback indicating a difficult goal used 9% less natural gas than would be expected by changes in the number of heating degree days. None of the other comparisons approached statistical significance.

Discussion

The effects of feedback found in the present study can not be adequately explained by either the goal-setting perspective (Becker 1978; Seligman et al. 1981) nor by a social comparison perspective (Festinger 1954) when these perspectives are considered independently. However, when these perspectives are integrated, the present data suggest multiple necessary causes. From the goal-setting perspective, it seems clear that individuals will attempt more effective energy conservation efforts when a difficult, as opposed to a relatively easy goal, is imposed. This goal-setting effect is qualified, however, by the comparison processes that are activated via the feedback. Feedback about others' energy usage patterns appear to be more effective in promoting energy conservation than feedback about past personal consumption levels or than feedback simply stating current consumption levels. However, contrary to hypothesis III of social comparison theory and consistent with the goal setting perspective, the social-comparison feedback in the present study was only effective when consumers received information indicating that others were using considerably less energy than the consumers. Consumers were able to utilize information about others' energy consumption levels in evaluating their own consumption levels and in adopting personal energy usage goals. Hence, the present study tends to support an integrated goal setting and comparative process interpretation of the feedback effect.

A number of issues can, however, be raised concerning the two perspectives for explaining the feedback effect and, specifically, the lack of any main effects. From the goal-setting perspective, the absence of a goal main effect may have been due to the source of the goal, the commitment to the goal, or to the credibility of the information provided. In previous studies examining consumption goals (e.g., Becker 1978), the goal has been set by the experimenter. In the present study, the goal was merely implied to the consumers via the feedback. Hence, the goal effect found in previous studies may have been due to demand characteristics or, simply, to the overall saliency of the goal itself. Consumers may not have been as committed to the goal in the present study as when they made a "public" statement to try to achieve a goal in previous studies. The lack of the

goal main effect could also be due to consumers justifying their consumption levels since outside temperature was not controlled for in the feedback; a factor impacting upon the credibility of the feedback (Winett & Kagel 1984). Similarly, previous studies have provided feedback concerning performance relative to the goal. However, in the present study no attempts were made to provide information to the consumers indicating performance relative to the goal. In fact, in the present study the discrepancy between current and previous usage levels remained constant throughout the study. However, the plausibility of this factor in contributing to the lack of a main effect is weakened when one notes the absence of any goal X trials interaction. Finally, the absence of a goal effect may be due in part to the generalizability of the finding from electricity consumed for home cooling (Becker 1978) to natural gas usage for home heating. Some ancillary evidence for this proposition exist from a study by Winett and Nietzel (1975) which found rebates to be effective in lowering electricity consumption but not for natural gas usage when both energy sources were used for home heating. Also, the ability to detect significant differences due to measurement sensitivity for kilowatts of electricity as compared to thousands of cubic feet of natural gas may have contributed to the null finding.

As with the absence of a goal main effect, measurement sensitivity may have hampered the ability to detect a comparison feedback main effect. In other words, the insensitivity of MCF (thousand of cubic feet) as opposed to KWH (kilowatts) may have caused any differences between social-comparison and self-comparison feedback to be undetected. An additional problem for social comparison theory involves hypothesis III. From hypothesis III of social comparison theory it was predicted that when a relatively large discrepancy between others' consumption levels and the individuals consumption level were portrayed via the feedback, the individual would be less likely to engage in the comparison process and, hence, alter their subsequent consumption. However, it was found that under the larger discrepancy (i.e., goal) individuals did alter their consumption. This effect may be due to the 23% goal not being perceived as a difficult goal or as not indicating "different" others. Alternatively, individuals receiving the social-comparison feedback implying a 13% goal may not have perceived the difference to be discrepant from their own consumption levels. In other words, either the 23% goal may not have been discrepant enough, the 13% goal may have not been perceived to be discrepant, or both factors may have contributed to the lack of an effect. Future research examining the difference thresholds for comparative feedback is warranted.

It was predicted that the combined self- and social-comparison feedback would increase consumers perceptions of the similarity between themselves and others, leading to more conservation attempts. However, at least for the 23% implied goal, when provided with both types of comparison feedback the self-comparison feedback negated any beneficial effects of social-comparison feedback. It is feasible that when both types of feedback were presented to consumers the similarity between their previous usage levels and others' current usage levels may have been used as indicating or emphasizing a dissimilarity between the other individuals and themselves. Alternatively, the amount of information presented for the combined comparison condition may have acted as a buffer in not initiating or facilitating the comparative process.

On a more general level, the results of the present study underscore the importance of examining the parameters and mediators involved in energy utilization from a process perspective. The underlying processes involved must be examined empirically and used in making policy decisions. For example, the results of the Pallak et al. (1976; 1980) study and the present study seem to suggest that providing consumers with comparative information and, specifically, social comparison

information on utility bills may effect subsequent consumption. However, if one acknowledges that if an average consumption figure was provided to consumers, the information would indicate a higher rate of consumption for half of the recipients and a lower rate of consumption for half of the recipients and, hence, any beneficial effects could be negated; lower level users may cease any efforts to conserve. Additional systematic research is warranted examining the feedback effect and testing alternative theoretical perspectives in field settings in order to further identify and understand the energy consumption process.

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A LONGITUDINAL STUDY OF FACTORS AFFECTING HOUSEHOLD
ENERGY EXPENDITURES IN CANADA 1969-1982

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Abstract

Data from the Family Expenditure surveys between 1969 and 1982 provide one of the best sources of historical information on the behaviour of Canadians throughout the 'energy decade'. Through the application of special regression analysis procedures, the relationship of energy use to demographic and capital stock characteristics is assessed.

Introduction

Much research has been directed to determining the factors related to and affecting energy use. These efforts have had two main goals. One is to determine who has been most burdened by the rapid increases in energy prices. Policymakers need this information in devising programmes of protection for those disadvantaged groups. The second goal of the research is more directly related to conservation programmes. By sorting out those factors related to high energy use, the targets for conservation programmes can be identified. By determining the characteristics of those who have constrained energy use, the effectiveness of such conservation programmes can be more clearly assessed.

This study makes use of the wealth of some existing Statistics Canada data and multivariate analysis procedures to simultaneously examine several factors known or postulated to be related to energy use. The data set has particular historical value as it covers the period 1969-1982, spanning the 'energy decade'.

Difficulty of Conducting Research on Energy Use

Studying energy use by household consumers is a very difficult process. Actual energy consumption data is hard to get and is highly suspect in many cases. The problems arise from the fact that most households do not keep long-term information on their ongoing energy purchases. Moreover, since the 1972 'energy crisis' and subsequent pressures on Canadians to conserve, most respondents are cautious to say that they do try to conserve energy and that they have been cutting back on its use. So answers to questions on use are highly reactive. Even worse, it is quite possible that the bias due to self-reporting may be unevenly distributed across the population. Those with higher incomes and educations have repeatedly been found to be more sensitive to energy conservation issues and to report more conservation-oriented attitudes. However, energy use has also been consistently related to incomes. Therefore, there might be more under-reporting of energy use among those who on attitude measures are the most conservation-minded but yet are using more energy than those with lesser incomes. Non-reactive and reasonably accurate measures are needed.

Another problem which makes energy research difficult is that it is generally not possible to get comparative data over long periods of time. To assess the impact of the 'energy crisis' at the individual level, data must be available from before and after key events in the history of that crisis period. However, it was only after the beginning of the energy situation that researchers generally became interested in energy consumption and began collecting information on usage rates. Retrieving comparable information from pre-crisis years is very difficult. Certainly respondent recall is not adequate.

In some studies consumption data has been obtained from utility company records (Heslop et al. 1978, McDougall et al. 1979). Such records are excellent sources of detailed data that are not reactive and are historical. However, it has proven very difficult to obtain such data on large samples of respondents. Utility companies require signed releases before they will allow consultation of records on households. Also in many cases records are not kept by suppliers longer than two years. Finally, the number of suppliers of home heating fuel is quite large especially if a large geographical area is being studied. In a recent study (McDougall et al. 1979) electricity utility records could only be obtained on about half and gas and heating oil records on about one-third of respondents who were members of a research panel and, therefore, more likely to co-operate.

The Value of FAMEX Data

The Family Expenditure Survey data base offers many advantages for studies of energy use under these circumstances. Detailed expenditures on a national sample of households were collected in 1969, 1972, 1974, 1976, 1978 and 1982. So the time period covered precedes the 1973 "crisis" and includes an early post-1973 measure, then one preceding the large price increases in 1978-79 and one following them, during a time of moderating and stabilizing prices. Sample sizes are typically several thousand and the sample is nationally representative. There is no problem arising out of selection into the sample because of personal interest in the subject matter. The information on energy use can be considered as non-reactive. The study is not focussed on energy use itself. Respondents are asked about energy expenditures just as they are asked about all other expenditures. So the respondent is likely to be less sensitive to give the "right" answers.

The data set also includes a wealth of other information which can be linked to energy use, including expenditures on other categories of goods and services, demographic information on family composition, age, income and education of the head, and also capital goods information such as dwelling type, size and location, and appliance ownership. The use of this information along with energy expenditures allows for the profiling of the lifestyle of the energy user and the factors associated with energy use.

The data includes energy expenditure information in dollar terms, but not in quantity terms. Where accurate price information is available, conversions are possible. However, in order to make these conversions, within-year price changes make it necessary to do some rather rough interpolations of proportions of the total year's energy which may be consumed at different times of the year. This would be a highly judgmental process and so was not undertaken in this project. So this study is of energy expenditures as one measure of energy use.

The data set is not without its problems, however. There have been many changes over the years in how some categories of expenditures have been handled in reporting. For this study, these categories were manipulated where necessary to provide for a consistency in categorization across the 13-year period. As far as possible the 1982 categorization format was used.²

²For detailed information on the construction of the data sets used in this study, contact the Social and Economic Studies Division of Statistics Canada.

¹The views expressed in this paper are the responsibility of the author alone, not of Statistics Canada.

The study is a recall study, but considerable care is taken to aid recall, and householders can check personal records for assistance. The data is collected in the first 3 months of the year following the year under study to minimize recall difficulties. Therefore, errors are likely to be relatively small and random.

Data on direct energy use is only available from those households who pay directly for their energy. Apartment dwellers by and large and especially during the earlier periods under study were on bulk meters. Therefore, how much they actually pay for their in-home energy cannot be determined as their rent payments include some unknown proportion for energy. Some studies have arbitrarily assigned a certain proportion of the rent to be the measure of energy use. However, this has not been done here. Where the procedure has been used, the judgments as to the rental proportion going to energy have been vaguely and arbitrarily set as a fixed proportion of rents. There appears to be no justification for this technique, except to increase sample size. Furthermore, renters usually can do very little to control energy use in their dwelling and have no incentive to do so. They are, therefore, likely to be far less sensitive to energy price increases and efforts to encourage conservation. It should also be kept in mind that such renters are atypical of the entire population. They are likely to have lower incomes and be younger than average or older with small families. So, because accurate in-home energy consumption on such apartment renters is not available and because they are a less important set of energy consumers in terms of the amount they consume and as targets for conservation activities, they have been removed from the sample. Their energy levels especially within the home are likely to be lower than average.

Also rejected from the sample were part-year families, who lost or gained members or who were formed in the year to ensure that such major within-year changes did not affect the ability of models used in the study to explain variances in expenditures. Therefore, only full-year households who were owners and renters of houses - detached, semi-detached, row, town - throughout the year and who made payments directly for their energy were included in the sample.

Finally the data set used in this study contains data only from the eight major urban areas used in all six surveys for consistency. Although it does restrict the conclusions to city-dwelling Canadians, this is the vast majority of Canadians. It also allows for the inclusion of climate factors in energy use analysis as discussed later.

Two main measures of direct energy use are used in this study -- in-home energy and transportation energy for the personal use of the car or truck. The in-home energy expenditures measure was created by combining heating and electricity information. This was done because there was no feasible way to determine what proportion of an electrically-heated home's electricity was used for home heating and how much was used for lighting and cooking. Similar problems arise in the case of other fuels which have multiple uses.

In this study then in-home energy and car and truck fuel expenditures are examined. Factors known or postulated to be related to energy use are combined and used in regression models to determine if they are useful in explaining these expenditures in any or all of the years for which data is available. The results can be usefully applied to meeting the two goals of such research, identifying who has been most affected by and who has responded to the rapid energy price increases of the 1970's.

Regression Techniques for Use with the Survey of Consumer Expenditures

The Family Expenditure Surveys use samples drawn from the Labour Force Area Sampling Frame. The sampling procedure is of the stratified cluster sampling type. It also

involves disproportionate sampling of smaller cities in order to ensure the reliability of city estimates. In developing total estimates, individual records are weighted to restore to each city its appropriate importance in the total and compensating for any variability in response rates between cities as well as variable sampling ratios.

Because of the cluster sampling procedures used, the assumptions of independence of observations made for ordinary regression analyses are violated. Kish and Frankel (1970) suggest that with large samples the regression coefficients themselves that arise from the use of normal regression procedures of data from complex (correlated) samples tend to approach a normal distribution about the corresponding parameters. It is, however, the variance estimates which are more problematic. With the usual regression procedures they are likely to be underestimated, thus affecting the validity of tests of statistical significance.

Several modified regression techniques have been suggested and used to deal with these problems including balanced repeated replications, jackknife, Taylor linearization and, more recently, bootstrap procedures. The first two tend to be very time consuming and expensive operations because of the high number of iterations required. The Taylor linearization procedure has been chosen as an equally effective and less costly alternative.

The problem of variance estimation for the regression coefficients is solved "by finding a linear approximation to the estimator of the coefficients. This approximation is then used to derive an approximation of the variance" (Holt 1977, p. 5). The linearization technique used is the Taylor series expansion of the estimator.³ The regression results discussed in the following sections have used this procedure with sample weights included as derived from the original data set.

The Models

The regression models used in this study have the following variables:

Dependent variables

1. Dollar expenditures on in-home energy and gasoline for private car and truck operation as explained in an earlier section.
2. In-home energy and personal transportation energy per person or per capita in the household.
3. In-home energy per room in the dwelling per 1000 degree days.⁴

These last two measures are extremely useful measures over time of efficiencies in energy use. Schipper and Ketoff (1981) note the importance of focusing on intensity of energy use in order to understand what is actually occurring in energy use over time and to tease out the effects of conservation efforts that may be hidden in simple consumption data.

Independent variables

1. Total expenditures- This variable is being used as a substitute for the income effect frequently found to be an important explanatory variable. At the aggregate level Schipper and Ketoff (1981) note that higher

³For more detail on the Taylor linearization procedure, see Frankel (1971) and Holt (1977).

⁴Degree-days are determined as the number of days of temperatures below 18° celsius. The information on degree-days for each year for the cities used in the study was obtained from Environment Canada and added to the expenditures data set.

average incomes of a population are associated with higher energy usage. At the individual level family income has been positively associated with in-home energy use (see, for example, McDougall, Ritchie, Claxton 1981) and also with energy conservation efforts involving capital investments (see, for example, Decision Research 1982; Pitts, Willenborg and Sherrill 1981; Tienda and Aborampah 1981).

Total expenditures has several advantages over income as an independent variable here. The expenditure data collected for the Family Expenditure Survey is collected in a careful and detailed way, but less emphasis is placed on the income data. From a theoretical perspective, using total expenditures allows expenditures on categories of goods and services to be viewed within the perspective of total allocations of monies to this function. Moreover, there is no concern then as to whether monies for these expenditures were derived from current income or from dissavings. The current flow of resources for expenditures is the basis of analysis. Of course, in using this variable in the regressions, expenditures on the energy source under study were subtracted from total expenditures to eliminate the situation of using the energy expenditures on both sides of the equation.

2. Stage of family life cycle - Energy is used to carry out activities in the household, rather than as a direct end in itself. Therefore, it is to be expected that families of different composition in terms of age of head and number and ages of children would have different energy needs for the different range of activities in which they must be involved. For example, the use of the family car has been repeatedly linked to the presence and ages of children (McDougall, Ritchie, Claxton 1981; Pitts, Willenborg and Sherrill 1981; and Zimmerman 1981).
3. House characteristics - These have been found to be the most useful in explaining energy use in the home as well as energy conservation activities (Decision Research 1982; McDougall, Ritchie, Claxton 1981; Tienda and Aborampah 1981; Verhallen and Raaij 1978). Number of rooms in the dwelling and whether the house was a single-detached, semi-detached, rowhouse or duplex could be identified from the FAMEX data.
4. City - In Canada there is a dramatic difference among the regions in the need for energy to maintain comfortable house temperatures. The heating degree day information for each of the cities for each of the years under study was obtained and added to the data set as a way of accounting for these differing needs. Also the eight different cities are in seven different provinces representing all the different regions of Canada. Each province differs in the price charged for the major forms of energy because of differences in distances from sources of energy, differences in provincial taxes, and, in the case of provincially-owned or controlled utility companies, differences in legislated rates and rate structures. So city variables hold useful information relating to the supply of energy, the demand for energy and its price. Since provincial factors are so important the two cities within the province of Ontario, Toronto and Ottawa have been combined for analysis.
5. Education - This variable has been found to be related to energy conservation activities (Decision Research 1982; Pitts, Willenborg and Sherrill 1981). It also can serve as a proxy measure of socio-economic status which has also been linked to the holding of socially conscious attitudes.

The regression models then take the form

$$E_1 = a + b_1 (TE-E_1) + b_2 (S') + b_3 (Rooms) + b_4 (H') + b_5 (C') + b_6 (E') \quad (1)$$

where

a, b_1 = parameter estimates.

E_1 = expenditures on the energy in the home or in the car

$TE-E_1$ = total expenditures for the household minus the expenditure for the energy under study

S' = dummy variable set for stage of the family life cycle where

Stage 1 = married couple with head under 45 years of age and no children

Stage 2 = married couple with head under 45 years of age and at least one child under 5 years of age

Stage 3 = THE OMITTED REFERENCE CONDITION, married couple with head under 45 years of age and at least one child 5-16 years of age

Stage 4 = married couple with head 45-64 years of age or over with at least one child 5-16 years of age

Stage 5 = married couple with head 45-64 years of age with no children under 16 years of age

Stage 6 = married couple with head 65 years of age or over

Stage 7 = unattached individual under 45 years of age

Stage 8 = unattached individual 45-64 years of age

Stage 9 = unattached individual 65 years of age or older

Rooms = number of rooms in the household dwelling unit

H' = dummy variable set for the type of dwelling unit with single-detached dwelling being the OMITTED REFERENCE CONDITION

S = a semi-detached dwelling

R = a rowhouse

D = a duplex unit

(NOTE: Information on this variable set was not collected in 1969.)

C' = a dummy variable set for cities where Toronto and Ottawa (Ontario cities) combined are the OMITTED REFERENCE CONDITION

SJ = St. John's, Newfoundland

H = Halifax, Nova Scotia

M = Montreal, Quebec

W = Winnipeg, Manitoba

E = Edmonton, Alberta

V = Vancouver, British Columbia

E' = a dummy variable set for education where

Grade 8 or less completed is the OMITTED REFERENCE CONDITION

PLS = partial secondary level completed

CS = completed secondary level

PS = non-university post-secondary education, partial or complete

PU = partial university

CU = university degree completed

The entire list of independent variables was used in the models involving the dependent variables of in-home energy expenditures and in-home energy expenditures per capita. For the in-home energy expenditures per room per

1000 degree days, the number of rooms and the city variables were dropped from the list of independent variables.

For the car and truck fuel expenditures the house characteristics were, of course, not included as independent variables.

Results

Tables 1 and 2 summarize the results of the testing of the regression models. Presented in these tables are all the significant variables in the models with the numerical values given for the estimates of the intercept terms and the total expenditures variable parameters. Also given are the adjusted R-squared values for the models.

has been increasingly dramatically over the thirteen-year period. For in-home energy dollar expenditures it jumped sharply between 1969 and 1972, then more slowly but consistently until 1976, then took a large leap to the 1978 value and finally levelled off. The total increase over the period was 404%. For dollars per capita the general pattern was the same with an overall increase of 1123%. For dollars per room per degree day this increase was more gradual throughout the early period until after 1978 with it took a very large jump with the final percentage increase being 256% for the period. The much larger increase for the per capita expenditures likely reflects the basic changes in family structure that occurred during this period due to such demographic changes as the decline in the number of children per family, the

TABLE 1
FACTORS EXPLAINING VARIANCE IN IN-HOME ENERGY EXPENDITURES OF URBAN CANADIAN HOUSEHOLDS, 1969-1982

Independent Variables (Reference Condition In Dummy Variable Set)	Intercept	Total Expenditures	Stages of Family Life Cycle (Stage 3)	No. of Rooms	Type of Dwelling (Single-detached)	City (Ontario Cities)	Education (< Gr. 9)	adj R ²	D.F.
Dependent Variable									
In-Home Energy Expenditures									
1969	121.6	.009	1(-)	+	N.A.	S _J ,H(+);M ₁ ,W,E(-)	PS(-)	.41	21/2814
1972	223.3	.003	1,2(-)		R ₁ ,D(-)	S _J ,H(+);M ₁ ,W,E,V(-)		.41	24/1961
1974	306.3	.006	4+		R ₁ ,D(-)	S _J ,H(+);M ₁ ,W,E(-)		.33	24/2291
1976	377.5	.006		+	R ₁ ,D(-)	H(+);M ₁ ,W,E,V(-)	PU(-)	.30	24/1973
1978	574.8	.010	6(+), 7(-)	+	R ₁ ,D(-)	S _J ,H(+);M ₁ ,W,E,V(-)		.31	24/1809
1982	612.2	.009	7(-)	+	R(-)	S _J ,H(+);M ₁ ,W,E,V(-)		.29	24/2104
In-Home Energy \$/capita									
1969	12.9 ^{NS}		1,2,5,6,7,8,9(+)	+	N.A.	S _J ,H(+);M ₁ ,E(-)		.48	21/2814
1972	53.1		1,2,5,6,7,8,9(+)	+	S ₁ ,R ₁ ,D(-)	S _J ,H(+);M ₁ ,W(-)	CU(+)	.60	24/1961
1974	80.1		1,2,5,6,7,8,9(+)	+	S ₁ ,R(-)	S _J ,H(+);M ₁ ,W,E(-)	CU(+)	.53	24/2291
1976	108.1		1,2,5,6,7,8,9(+)	+	R ₁ ,D(-)	H(+);M ₁ ,W,V(-)	CU(+)	.52	24/1973
1978	150.9	.002	1,2,5,6,7,8,9(+)	+	R(-)	S _J ,H(+);M ₁ ,W,E,V(-)	PU(+)	.49	24/1809
1982	157.7	.002	1,2,5,6,7,8,9(+)	+	S ₁ ,R(-)	S _J ,H(+);M ₁ ,W,E,V(-)		.44	24/2104
In-Home Energy \$/room/1000 degree days									
1969	11.8				N.A.			.03	14/2821
1972	14.5				R(-)			.04	17/1985
1974	17.8	0.7x10 ⁻⁴			R(-)		PS, CU(-)	.01	17/2315
1976	23.3	1.0x10 ⁻⁴			R(-)		PU, CU(-)	.01	17/1980
1978	24.6	1.7x10 ⁻⁴	5,6,9(+)		R(-)		CU(-)	.06	17/1853
1982	42.0	2.0x10 ⁻⁴	6(+), 7(-)		R(-)		CU(-)	.05	17/2111

Note: See text information on the meanings of numbers for stages and letters for type of dwelling, city and education.

All factors reported in this table are significant at the <math>\alpha < .05</math> level or beyond unless indicated ^{NS} (not significant).

N.A. - data not available in that year.

In-Home Energy

In-home energy expenditure variances were well explained by the model elements. All the adjusted R-squares are significant and most are reasonably high. The adjusted R-squared values were higher for the dollar expenditures and the dollar per capita measures than for the dollar per room per degree day indicating the fundamental importance of climate, prices of energy and house size in understanding energy consumption. Also for the first two measures there is a definite decline in the model's ability to explain the variance over time suggesting that individual factors not included in the model may be accounting for more and more of the differences among households over time. For the dollars per room per degree day measure the R-square increases somewhat in the later period as more of the variables in the model (stage of family life cycle and education) become significant.

The intercept term can be thought of as a minimum amount of expenditure for the household as defined by the set of reference or baseline conditions for all the dummy variables. In this case it would be a family in Stage 3 of the family life cycle (male head under 45, one or more children 5-16 years of age) living in Ontario in a single-detached house and the male of the household head has less than a high school education. The amount of this minimum

maturing of the baby-boom generation, and rising divorce rates. All these lead to drops in average family size. Further the population of elderly families continuing to maintain their own homes is increasing. The smaller increase in the expenditures per room per degree day may indicate that the Canadian population is making some real efforts to curtail energy use which may not be as obvious when only total expenditures are examined.

The household's total budget has a consistent significant positive effect only on the total energy expenditure measure. The trend in the size of the parameter estimates for total expenditures seem to follow the trends in the real prices (adjusted for income increases) of energy in Canada which declined in the early 1970's, rose in the mid-70's and then levelled off or moved down slightly towards the last part of the period under study. Total expenditures are not significant for the other two energy expenditure measures until prices started upward. Those with more money to spend then were the ones who could continue despite these price increases to spend more intensively, i.e., more per person and more per room per degree day. They clearly were more able to absorb the price increases, whereas those with more limited resources had to find ways to hold the line. So it would appear that as prices of energy increased those with larger budgets spent more and made significantly greater gains in their use of energy.

The stage of the family life cycle variable set is very interesting in what it reveals across the different measures of energy use and the different years. For in-home energy expenditures it appears that most families spend alike and do not differ substantially from the reference condition (Stage 3). In the early periods, the smaller younger families spent less. During the later periods with energy prices much higher, the elderly couples spent more in 1978 and the young singles spent less in 1978 and 1982. However, in terms of expenditures per capita the economies of scale of the full nest families (Stage 3 and 4) become obvious. All other households spent more in every year. Finally, again for dollars per room per degree day there is little difference. The full-nest families may spend less per person but they usually occupy larger homes and do not use the energy any more or less intensively in these rooms. The only trend seen in this last measure of in-home consumption of note is the evidence that the elderly are spending more in later periods. These households are more likely to be in older homes, less well-insulated with older, less efficient oil-fired heating systems (see Heslop 1985a). For a variety of social and economic reasons they seem to be less able to make the necessary moves to improve their efficiency of energy use and must bear the costs resulting.

House characteristics are very important as would be expected from the previous research. Number of rooms is significant for four of the six periods when relative energy prices are highest for dollar expenditures and all years for per capita expenditures. Rowhousing seems to be the only consistent winner over detached single houses for all measures for all years. The other multiple unit dwellings are in some periods but are not in others, especially the later ones. This would suggest that perhaps those in single detached dwellings have been improving the energy efficiency of their dwellings.

The set of city variables indicate the hardship experienced by those who are more isolated from energy supplies and are burdened with high prices. The cities in the Eastern Maritime provinces spent significantly greater amounts on total in-home energy and on a per person in the household basis. Those in the West near the Alberta oil supplies or in Quebec with its abundance of hydro-electric power spent less. Also those blessed with more temperate weather on the West coast usually, but not always spent less.

the other two measures in later years. Post-secondary education is associated with higher per capita consumption between 1972 and 1978 but then is not, suggesting that those with higher education made disproportionately heavy use of energy on a per capita basis until its price rose dramatically in 1978-79. Moreover, with regards to expenditures per room per degree day those with the highest education used significantly less after the first 'crisis' period. This may suggest that those with higher education levels could and did respond more effectively to information about energy conservation and incentives to conserve energy or switch to less expensive sources.

Car and Truck Fuel Expenditures

For expenditures on fuel for personal private transportation (see Table 2), again the models used are significant in explaining variance in both expenditure measures across all the years. However, the adjusted R-squares are much lower than they were for in-home energy expenditures. This is undoubtedly due to the absence from the models of vehicle characteristic measures (gross vehicle weight and total engine displacement) which usually explain most of the variances in usage.

The intercept terms take a slight drop between 1969 and 1972 and these gradually increase until there is a large jump between 1978 and 1982. Again the trend reflects the trends in real energy price increases. The dollar expenditures intercept term increases by 430% and the dollar per capita term by 469% over the thirteen-year period. Again, as for in-home energy, there appears to be a greater increase in per capita expenditures suggesting that car use is increasing despite gasoline price increases. Demographic shifts may explain much of the change. The period was marked by a rapid increase in the number of young drivers who are traditionally heavy users of cars and by an increase use of cars by older married couples (see Heslop 1985b).

Total expenditures again are very significant in accounting for individual differences in both expenditure measures. Those with larger budgets spent more in all years. The value of the parameter estimate increases generally over time and suggests that the 'income' sensitivity of expenditures for personal transportation is increasing.

TABLE 2
FACTORS EXPLAINING VARIANCE IN CAR AND TRUCK GASOLINE EXPENDITURES OR URBAN CANADIAN HOUSEHOLDS, 1969-1982

Independent Variable (Reference Condition In Dummy Variable Set)	Intercept	Total Expenditures	Stages of Family			adj R ²	D.F.
			Life Cycle (Stage 3)	City (Ontario Cities)	Education (<Gr. 9)		
Dependent Variables							
Gasoline Expenditures							
1969	154.7	.008	6,8,9(-)	M(-)	PLS,CS,PS(+)	.03	20/2821
1972	126.0	.011	6,8,9(-);5(+)	M(-);E,V(+)	PLS(+)	.21	20/1965
1974	197.7	.010	6,8,9(-);5(+)	M(-);E,V(-)	PLS,PS(+)	.18	20/2295
1976	221.3	.014	6,9(-);5(+)		CU(-)	.16	20/1977
1978	274.0	.012	6,8,9(-)	SJ(+)		.16	20/1813
1982	820.5	.013	6,7,8,9(-)	SJ,M(+)	PS,PU,CU(-)	.05	20/2108
Gasoline \$/capita							
1969	31.5	1.7x10 ⁻³	1,2,5,7,8(+)	SJ,M(-)	PLS,CS,PS,CV(+)	.17	20/2815
1972	23.1	2.3x10 ⁻³	1,2,5,7,8(+)	M(-);E,V(+)	PLS,PS(+)	.23	20/1965
1974	39.8	2.1x10 ⁻³	1,2,5,7,8(+)	M,E(-)	PLS,CS,PS(+)	.17	20/2295
1976	41.0	3.2x10 ⁻³	1,2,5,6,7,8(+)	V(+)		.19	20/1977
1978	59.3	2.5x10 ⁻³	1,2,5,6,7(+)	SJ(+)	PLS(+)	.14	20/1813
1982	179.3	3.3x10 ⁻³	1,2,5,7,8(+)	SJ(+),M(+)	PS,CU(-)	.16	20/2108

Note: See text information on the meanings of numbers for stages and letters for type of dwelling, city and education.

All factors reported in this table are significant at the <.05 level or beyond.

Education effects are very interesting. They do not contribute much to the understanding of total expenditures. However, several education variables do enter for

the stages of the family life cycle that are important differ greatly between the two measures. In gross expenditures it is clear that older households spent less.

Also those households with middle-aged heads and older children still at home spent more during the middle 1970's but not thereafter. This would suggest that these heavy users responded to the need to cut back. In terms of per capita consumption the results look more like those for in-home per capita expenditures. Almost all family types consumed more per capita than the full nest families. Only the unattached individual elderly consistently did not. Even elderly married couples frequently consumed like younger households indicating recent growth of interest in driving among this group.

City location is not as consistent a predictor of personal transportation fuel expenditures as it is for in-home energy. Essentially it seems to capture here the effects of provincial variations in fuel prices. The Maritimers do not appear to be so burdened in this case. Since driving is somewhat more discretionary than home heating, they may prefer to drive less in the face of their higher gasoline prices. Montrealers appear to have lost any advantages they had in earlier periods which allowed them to have lower expenditures before 1982. Indeed, in 1982 the average price of gasoline was higher in Montreal than in all of the other seven cities (Statistics Canada 1983).

Finally again the education variable set is interesting. During the early periods those with some or all of secondary school or a non-university post-secondary education spent more than those with less than Grade 9. However, those with a university education did not. By 1982 those with post-secondary education of any kind spent significantly less than the reference group. Again there appears to be an educational achievement effect in conservation efforts resulting in lower energy expenditures.

Summary and Conclusions

The Family Expenditures Survey data on energy expenditures can be a very informative source of historical information on the experiences of households and their responses to the events of the 'energy decade'.

Those households in the Eastern Maritime provinces have been particularly burdened with high costs of in-home energy. Those households with higher incomes spent more and used energy more intensively. Smaller households used less total energy in the home, but families in the full nest stages used less per capita. Some multiple unit dwellings, especially rowhousing, used less in-home energy than did single-detached houses and larger houses used more.

Further there is evidence to suggest that the more highly educated have been more responsive. Also those living in single family dwellings appear to have made more efforts to improve efficiencies of in-home energy use. Finally there are indications that the elderly may be falling behind in efficiency of energy use in the home and so are incurring larger than average expenditure burdens.

The expenditure increases of households has been rapid and dramatic. The overall pattern of dollar expenditures for energy indicates little effort to control increases as they generally parallel price increases. However, a closer look at the data through the use of intensity of use measures (per capita and per room per degree day) give more evidence that efforts to counteract the price increases with restraints on the growth of energy use have occurred. Demographic and economic trends have masked some of these efforts so that they are not obvious in the gross measures.

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FOUR SCRIPT STUDIES: WHAT HAVE WE LEARNED

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Abstract

This paper describes four studies designed to examine the influence of scripts on attitudes and judgment. There are two objectives for this discussion. The first objective is to tie together the findings of four script studies. The second objective is to identify conceptual issues that have arisen from this program of study.

Introduction

One advantage of a programmatic series of studies is that they offer a chance to evaluate multiple facets of a theory or conceptual model. Before discussing what we have learned from four script studies, the theory that prompted these studies will be discussed. Then, an overview of the conceptual findings of four studies will be presented.

A Conceptual Model

The conceptual model encompasses four main components. The first two components may be viewed as input components: information stored in an individual's memory and information from an organizational (purchasing) task environment. The third component in the model controls the informational input. It is a collection of sense-making psychological mechanisms - knowledge structures or schemata - that combine an individual's stored knowledge with information from an organized task environment (Weick 1979; Calder and Schurr 1981). The fourth component is the output. In this case we are interested in attitudes and judgment as the output of the sense-making schemata.

Of information input, information control, and output components of the conceptual model, the information control mechanism is perhaps the least understood. First, we will discuss schemata and, particularly, scripts as control mechanisms. Then, information input will be discussed, with special attention to the task environment as a trigger for schematic processing.

Schemata as Control Mechanisms

A schema is defined as "an abridged, generalized, corrigible organization of experience that serves as an initial frame of reference for action and perception" (Weick 1979, p. 50). A schema assumes the operation of four central processes: selection of all incoming stimuli for mindful representation, abstraction of the meaning of perceived information, interpretation using prior knowledge to aid comprehension, and integration for storage in memory (Alba and Hasher 1983).

A schema controls information selection by directing attention to a limited portion of stored knowledge and by causing selective perception of information in the environment. By organizing information, a schema gives meaning to stimuli and enables interpretation and comprehension. Sense-making itself seems related to a network of thought connections, which makes the notion of episodic scripts a good starting point for research into information control mechanisms.

Scripts

A script is an event-centered schema in which knowledge is organized like a causal model around expectations

concerning a sequence of events or actions (Abelson 1976). Scripts are of particular interest because scripts link the individual with an organizational context and role (Calder and Schurr 1981).

Further, according to Abelson (1981), scripts capture most of the conceptual elements of other types of schemata, yet permit more focused analysis and experimentation because scripts are simple and well-structured. A script is a mental picture - "picture plus caption" in Abelson's terms (1976, p. 34) - representing the action sequences, participants, and physical objects found in a situation. Information is organized around one or more scripts.

The activation of scripts by an individual depends on three general conditions that must be satisfied for scripted processing to occur (Abelson 1981): the individual must have a cognitive representation of a script, an evoking context must be present, and the script must be physically or mentally entered.

Scripts are evoked by a context. Therefore, because a task environment acts as a trigger for scripts, a task environment at least in part determines what information stored in memory will be activated and what environmental information will be selectively perceived. Thus, a script is a significant way for past experience and organizational task environments to influence individuals (Weick 1979; Calder and Schurr 1981; Axelrod 1976).

Input: Information from the Task Environment and Memory

Essential to the process leading to attitudes and judgment are the informational inputs: information from the task environment and from memory.

The task environment. The organizational task environment is defined as the context, structure, and content of a decision problem and decision-making situation (Newell and Simon 1972). It serves two key functions. First, prominent cues in a context activate the scripts that will in turn guide further information processing. Second, as a context for a role occupant's thought processing, the task environment provides information relevant to role behavior and problem solving through the process of perception.

The role of memory. Like the task environment, an individual's memory contributes to information processing in two different ways. First, scripts are stored in memory and must be activated. Second, memory provides basic units of information - thoughts and beliefs - as input to active processing. That is, individuals have in their memory information obtained from actual and vicarious experience, more information than could ever be processed efficiently for a given problem (Newell and Simon 1972). Part of this reservoir of information is tapped by a script.

In summary, attitudes and judgment are a function of three elements: information provided by a task environment, information activated in memory, and information processing guided by sense-making knowledge structures. Knowledge structures, such as scripts, are stored in memory, but activated by the organizational purchase context. Our simple conceptual model suggests knowledge structures provide the basic ingredients for attitudes and judgment (cf., Cialdini, Petty, and Cacioppo 1981; Greenwald 1968; also see Calder and Schurr 1981). Thus, the following research focuses on demonstrating that an understanding of purchasing buyer scripts can result in accurate predictions concerning buyer attitudes and judgment.

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A Summary of Four Studies

Our research program called for sequential studies that allowed the researcher to learn at each step in the research program. Four studies in our research program are discussed here. The goal was to test the causal relationship between scripts and purchase evaluations in an organizational purchasing context. The approach was to manipulate aspects of the purchasing task environment and examine hypothesized effects on attitudes and judgment. To evaluate script-information interactions, information was also manipulated in two of the four studies.

A brief summary of the four studies is provided, along with a reference to where more detailed information can be obtained about the study. Then the studies are critiqued from the standpoint of substantive findings and conceptual issues.

Study 1

Background and Hypotheses (see Schurr 1980 for details). The purpose of the first study was to challenge the assumption that the relationship between a purchase decision problem and attitudes is relatively fixed. Our rival hypothesis was that an attitude changes with the perspective (schema) in mind at the time.

In particular, consider boundary role theory (Katz and Kahn 1966; Goffman 1969; Adams 1976; Vidmar 1971). A boundary role person, such as an organizational buyer, performs two representational roles. On one hand, an organizational buyer represents a seller's viewpoint to individuals within the organization, such as users. On the other hand, an organizational buyer also represents the viewpoint of internal constituencies, such as users, to sellers' representatives. Thus, organizational buyers potentially bring two different perspectives to the analysis of every purchase decision problem.

Consider, for example, a situation where there is a disagreement between a user and a supplier of a product. (All four studies focus on purchase problem evaluations stemming from user-supplier disagreements.) Say, for instance, the user claims the competition is promising a better delivery schedule, but the current supplier claims a better delivery schedule is not realistic. As a boundary role person, an organizational buyer must convey the views of the user to the supplier's representative. In seeking a resolution of a purchase-related disagreement, the reverse also holds. That is, the purchasing agent must represent the supplier's view to insiders (i.e., the user) so they will be able to develop realistic expectations about how to resolve the disagreement.

Notice how this example based on boundary role theory lends itself to Abelson's (1976) idea of a script. The basic script concerns the event sequence leading up to and including a meeting between the purchasing agent and one of the disagreeing parties. In the meet-supplier track of the script the participants are a purchasing agent and an outsider (supplier's representative). In the meet-user track of the script the participants are a purchasing agent and an insider (user). We found meetings of this kind to be quite familiar to purchasing agents. The evoking context is provided by the problem (user-supplier disagreement) itself and an anticipated meeting with the user or supplier to discuss the disagreement.

We hypothesized that the meet-supplier induction would cause a purchasing agent to adopt an insider's perspective when expressing attitudes or judgments; the subject would be less favorable toward the supplier's position and more favorable toward the user's position. Essentially, the purchasing agent will organize thoughts to represent the user's viewpoint. By comparison, the meet-user induction would have the reverse effect and cause subjects to be more favorable toward the supplier's position and less favorable toward the user's position in a disagreement.

Method. Twenty-eight organizational buyers rated four items in an attitude scale (Cronbach's alpha = .96) for each of nine different user-supplier disagreements. The between-subject manipulation was simply to interchange the terms "user" and "supplier" when giving instructions to subjects regarding problem evaluations: "You are preparing to meet with the user (supplier) of a product to discuss a disagreement between the user and the supplier..."

Results. The main effect was significant at the .001 level ($F(1,26) = 12.7$). As hypothesized, the meet-supplier script caused a more favorable attitude toward the user's position in the disagreements, as compared to the meet-user script.

Critique. As a first step in the pursuit of attitude-script linkages - indeed, a baby step - the study yielded interesting results. In particular, subjects did not have a patternless reaction to the nine stimulus problems (the null hypothesis). Rather, the meet-user and meet-supplier inductions differentiated the responses. This result suggests something in the "black box" of the human information processors was "switched on" (evoked) in one condition, and something different was evoked in the other condition. Unfortunately, Study 1 offers little supporting evidence that a script was evoked or activated by the inductions. A remaining task is to demonstrate that scripts were actually involved in the effects.

Study 2

Motivation (see Schurr 1980 for details). Study 2 attempted to enhance the evidence that scripts caused attitude differences in Study 1. Thus, one tactic was to carefully design a study in which all the ingredients to script activation would be present. In particular, action sequences, entry conditions, specific roles, and props (physical objects) were included in pictorial stimuli. A second tactic was to manipulate informational inputs so that the interaction of scripts and information processing could be examined. An interaction would suggest that the black box mechanism was handling information differently in different contexts - a theoretical effect of a script or schema. A third tactic was to utilize dependent measures to assess whether action sequences were mindfully represented.

Background and Hypotheses. Study 2 again pursued a substantive issue prompted by boundary role theory. The aim was to utilize role partner relationships to activate script processing. According to Adams (1976, p. 1176), boundary role persons, such as organizational buyers, operate at a distance from the organization and in closer proximity to the outside world. This physical and psychological distance generates suspicion among a buyer's role partners inside the organization and makes a boundary role person sensitive to the reactions of insider role partners, such as a product user. The more exposed a boundary role person is to monitoring by an insider role partner, the more a boundary role person tries to avoid the appearance of compromising the insider's best interests.

Following work by Organ (1970), it was hypothesized that a monitored-buyer script (a user is present in a purchasing agent/sales rep meeting) would cause a less favorable evaluation of a supplier's position in a user/supplier disagreement. In an unmonitored script (the user is not present) it was hypothesized that the subjects would evaluate a supplier's position more favorably in relative terms.

A script by information interaction was conceptually motivated as follows. First, Calder, Insko, and Yandell (1974) demonstrated that adding arguments favoring a particular viewpoint increases the persuasiveness of that viewpoint, at least up to the point where the number of arguments swamps short term memory. Second, scripts can increase or decrease the perceived persuasiveness of a communication by influencing meaning, stimulating counter

arguments, and affecting attention (Taylor and Crocker 1980). It was hypothesized that the monitored-buyer script would neutralize the persuasiveness of a salesperson's arguments as compared to the unmonitored-buyer script, because the former script would stimulate counter arguments.

Method. Data from forty purchasing personnel in a large company in Chicago were utilized. Monitored/unmonitored buyer scripts were crossed with two levels of supplier's arguments (3 and 6) in a between-subject, two by two factorial design.

Scripts were induced using three small pictures depicting arrival (an entry condition) and meeting actions. Pictures were accompanied by captions identifying participants in the meetings. The user was depicted only in the monitored-buyer version. The objective was to convey realistic but minimal cues consistent with these scripts.

A user-supplier disagreement problem from Study 1 was adapted for use in Study 2. Either three or six supplier arguments (and three user arguments) accompanied the inductions as presented to the purchasing personnel.

Twenty rating scales items were employed, including five measures designed to assess mentally represented actions prompted by the inductions.

Results. One scale (three items, $\alpha = .77$) indicated the monitored-buyer script caused less favorable ratings of the sales representative's position in the user-supplier disagreement than did the unmonitored-buyer script as predicted ($F(1, 36) = 12.1, p < .001$).

There was a script by number of arguments interaction, but only for one item that measured how good or poor the user's arguments were perceived by the purchasing agents. The scripts actually reversed the intuitive effect of the number of arguments. That is, monitored buyers rated the user's position more favorably when there were six, not three, supplier arguments ($F(1, 36) = 16.9, p < .001$); there was no difference between three and six arguments for unmonitored buyers.

Other aspects of the results are less conclusive. The buyer's overall attitude toward the supplier was not influenced by the manipulations. Further, there was no script by number of arguments interaction for the primary scales, although a main effect for the number of arguments was significant in the predicted direction ($F(1, 36) = 5.6, p < .02$).

Finally, the five measures of script-prompted actions yielded little evidence that generic action sequences were brought to mind by the inductions.

Critique. The results indicate the relationship between a boundary role person and his or her role partners is a determining factor when attempting to predict the attitudes and judgment of a boundary role person, such as a purchasing agent.

With respect to scripts, the results are only slightly encouraging. The presence of a script by number of arguments interaction for one item suggests additional research is warranted, but the single-item effect must be recognized as a possible result of chance, since the pattern of results was inconsistent. The main script effect on the three item scale provides more cause for optimism.

Our major conclusion is that the script inductions caused different purchase problem evaluations. Without a convincing interaction effect and without confirming evidence that action sequences were brought to mind by the script inductions, support for script theory is less than hoped for in Study 2.

Study 3

Motivation. The results of the first two studies could be explained by role theory. In fact, since the manipulations simply involved roles, role theory is perhaps the best explanation for the effects. (Nevertheless, script theory explains why simple role manipulations in the context of stereotypical organizational events prompted significant differences in purchase problem evaluations.)

The next two studies focus less on the role aspect of scripts and more on subtle manipulations of the props - physical features - present in a stereotypical action sequence. This strategy further examined the notion that the effects in the first two studies were the result of script, rather than role, manipulations.

Background and Hypotheses (see Schurr and Calder 1986 for details). Study 3 provides an interesting connection between the restaurant script, which has received much attention thanks to Abelson's writings, and the every day business lunch. The published report of this study (cited above), in fact, focuses on substantive issues related to buyer-seller interactions at business lunches. Script theory motivates the method used (not the hypotheses) in the published report. In contrast, the discussion here will center on how this study relates to script theory.

Because script research has devoted considerable attention to the notion of stereotypical restaurant scripts (e.g., Abelson 1981), the restaurant script is a firmly anchored starting point. Briefly, script theorists regard the restaurant script as a commonly experienced event sequence around which we organize information. Most people have in their memories a script for traveling to a restaurant, being seated, having a drink, ordering from a menu, being served the first course, and so on.

In organizational buying, an equally common script is the business lunch script (see Schurr and Calder 1986). The business lunch script in Study 3 had a purchasing agent and a supplier's sales representative arriving at a restaurant to discuss, as in the previous studies, a user-supplier disagreement. We are interested in two versions. One is a regular business lunch meeting at an ordinary restaurant. The other version is a meeting at a fancy restaurant. Notice we are primarily interested in the setting, defined by the ordinary or elaborate "props" - the restaurant decor.

Based on previous studies of business lunch meetings (Dempsey, Bushman, and Plank 1980; Halvorson and Rudelius 1977) and Webster and Wind's conceptualization of the buying process (1972), we reasoned that as task environments, the restaurant settings would influence a buyer's interpretation of events by evoking knowledge of specific norms, shared ideals, and positive or negative thoughts that contribute to attitudes and judgment.

The norm for regular meetings at ordinary restaurants is business-as-usual: attention is given to problem-solving and relationship development. Regular business lunch meetings include an element of mutual persuasion, but the motives of the participants are not questioned for the most part.

Fancy restaurants in the context of addressing a disagreement are less normal. While nearly everyone prefers a fancy restaurant to an ordinary restaurant for celebrations and social occasions, when business must be conducted, a fancy restaurant to some extent creates the impression that a buyer's objectivity is impaired.

In our hypotheses we compared the effect of a regular meeting with that of a fancy restaurant meeting. We hypothesized that a regular restaurant meeting would influence an industrial buyer to: (H1) evaluate a sales representative's arguments more positively and a user's arguments more negatively, (H2) judge that the user must yield relative to the sales representative in the buyer-

seller disagreement, and (H3) give a more positive overall supplier evaluation.

Method. Data was collected from 211 purchasing personnel in the Purchasing Management Association of Chicago by means of a mail survey.

Two scripts and three buyer-seller disagreement problems were evaluated in a six cell between-subjects design. The restaurant meeting script inductions utilized the picture-plus-caption approach of Study 2. Three scenes were depicted: (1) buyer and seller arrive at the door of a restaurant, (2) buyer and seller are shown at a table, and (3) buyer and seller engage in discussion at the table. All three scenes appeared in both restaurant meeting inductions, but the physical appearance of the surroundings - the props in Abelson's terms - were manipulated. The regular restaurant scenes showed unpretentious surroundings and decor, while the fancy restaurant scenes displayed more elegance.

The three disagreement problems were developed from the earlier studies, and four categories of dependent measures were collected.

Results. All three hypotheses were supported at the .025 level or better. Further, four measures designed to capture perceptions of the meeting scripts gave some indication that the respondents were thinking along lines consistent with a script interpretation of the effects (see Schurr and Calder 1986).

Critique. There are several ways to assess the results. First, the substantive finding that norms related to the task environment - in this case the ordinary or fancy restaurant - in part determine attitudes and judgment agrees with theories of organizational buying (e.g., Webster and Wind 1972).

Second, Study 3 demonstrates that the use of script-related inductions allows researchers to explore questions that might otherwise be intractable. In this case, examination of meeting place effects on attitudes was made possible by the script inductions.

Third, Study 3 addresses at least one of the limitations of the first two studies. Compared to the role manipulations in the first two studies, the Study 3 manipulations concerned only the physical aspects of the restaurant settings (nevertheless, role theory was needed to develop the hypotheses). Cognitive reactions to these inductions could not easily be explained without considering that the meeting setting prompted some sort of knowledge retrieval and information organization. Because restaurant scripts have been shown to organize event-related knowledge (Abelson 1981), it is reasonable to suggest that restaurant meeting scripts would, indeed, organize information related to a business lunch meeting task environment.

Fourth, in Study 3 there is more assurance that the subjects were likely to have business meeting scripts stored in memory. Subjects were required to meet two criteria: the respondent must have had experience meeting with supplier's representatives at business lunches, and their primary area of responsibility had to be purchasing.

Study 4

Motivation (see Schurr 1985). Two aspects of Study 3 warranted additional attention. First, it was argued in Study 3 that the meeting script effect was directly related to norms of the task environment associated with the purchasing agent's role and relationship to role partners. This reasoning suggests different roles have different scripts; a seller and buyer should react differently to different stimuli. Second, Study 3 did not examine script effects on information.

Background and Hypotheses. A role by script interaction was predicted. Buyers in Study 4 were expected to react

to the meeting scripts as before, with the fancy restaurant meeting resulting in a less favorable attitude and judgment with respect to the seller. By comparison, no script effect was expected for sales representatives.

Study 4 also tested information effects by manipulating subjective or objective information content in the sales representative's response to the user's concerns in the user-supplier disagreement. Compared to subjective information, objective information has been found to cause a more positive response (Edell and Staelin 1983; Holbrook 1978).

An interaction of interest would be a script-induced neutralization of information effects caused by the organization and meaning given to information. We tested the notion that a fancy restaurant meeting would give increased (negative) importance to subjective information.

Method. Data was collected from 248 subscribers to a leading Chicago business letter publication. All of the subjects had direct experience in restaurant meetings with their counterparts. Purchasing and sales people were differentiated based on their responses to a series of questions, such as job title and job responsibilities.

Three independent variables (role, script, information) with two levels each were crossed in an eight cell design. The script and role variables have been described. The information inductions are reported in Schurr (1985). Dependent measures were drawn from the previous studies in this program.

Results. The hypothesized role by script interaction was supported by a two item scale capturing an evaluation of the sale representative. Subjects who were identified as being in a purchasing role in their organizations reacted as did subjects in Study 3: they rated the seller's position in a disagreement less favorably in the fancy restaurant meeting context. Subjects identified as being in a selling role, on the other hand, expressed a positive evaluation of the sales representative, regardless of the script condition. This interaction is significant at the .05 level.

The only script by information interaction was indicated by a single item that concerned a judgment of whether the buyer or seller in the disagreement should make concessions in the disagreement. The concession item indicated that subjectively embellished information neutralized the script effects, while objectively embellished information did not affect the script effects.

Critique. Study 4 did not close the door on script research by any means. On one hand, the role by script interaction supports our conceptualization of scripts, but this interaction was indicated by but one scale; the effect was not pervasive. On the other hand, the information by script interaction was inconsistent with our conceptualization of scripts, but this contradictory evidence was indicated by only a single item.

Summary and Conclusions

What We Learned

The results of any single study in this program does not provide sufficient evidence in support of script theory. Yet the accumulated evidence is consistent with script theory. We propose that the following propositions warrant additional consideration, based on the encouraging pattern of results in our research program.

Proposition 1: Scripts affect attitudes and judgment by evoking an organized body of knowledge.

Two kinds of evidence are available. First, previous research has established that people store in memory information related to action sequences (Abelson 1981;

Bower, Black, and Turner 1979; Leigh and Rethans 1984). Second, our research program has found effects suggesting a direct relationship between scripts and attitudes and judgment.

Proposition 2. Scripts are role dependent.

Again there appears to be two forms of evidence. First, boundary role theory has served as the conceptual foundation for all four studies. Support for the boundary role hypotheses has been quite consistent. Second, Study 4 demonstrated that individuals in different roles react to scripts differently.

Proposition 3. Scripts capture important aspects of a task environment which in turn frames a buyer's reactions to problems in buyer-seller exchange relations.

All four studies demonstrated that purchasing agents evidence different assessments of user-supplier disagreements, depending on the task environment script in mind at the time.

Unsolved Conceptual Issues

Based on these four studies (and the reactions of many who have read reports of these studies), the following issues need attention.

Issue 1: How does script processing relate to information processing explained in terms of cognitive response theory?

A reasonable critique of script research is that many of the effects can be explained in a cognitive response framework. Does script theory represent a more complicated way to explain simple cognitive response? Does script theory explain mental information control processes better than cognitive response theory?

Issue 2: How do we know that scripts, not informational cues in the inductions, prompted the effects on attitudes and judgment?

Script theory claims that scripts organize a body of knowledge related to attitudes and judgment. A rival hypothesis is that script inductions of the kind used in the above studies simply provide pieces of information that cause the results. If so, an organized body of knowledge - information connected to other information - is irrelevant to effects on attitudes and judgment. This explanation resembles a stimulus-response interpretation.

Conclusion

We believe the conceptual framework offered in this paper provides a reasonable starting point for research. Effort must be directed toward pitting competing theories, such as script theory and cognitive response theory, against one another. Although we cannot disprove these theories, we can demonstrate which theories explain causal relationships more simply and completely.

Finally, based on formal and informal debriefings and discussions with subjects in our studies, we think script-based inductions offer a powerful tool for studying substantive issues that otherwise might not receive attention (e.g., Schurr and Calder 1986). Script-based inductions, with a focus on entry conditions, event sequences, and roles in a task environment, apparently evoke a frame of mind that reflects actual situations.

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MEASURING SCRIPT DEVELOPMENT:
AN EVALUATION OF ALTERNATIVE APPROACHES

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Abstract

A common limitation in script research, both in the consumer context and in other settings, is the failure to quantify subjects' level of script development. The majority of studies simply assume a homogeneous script across all subjects for an event selected at the researcher's discretion. This assumption clearly hampers developmental studies of scripts, and also restricts the ability to make unambiguous statements about the effects of scripts on consumer information processing. This paper discusses various approaches to the measurement of script development that will reveal the degree to which the structural features of such representations are present in consumer memory.

Introduction

The impact of knowledge on product evaluations and purchase decisions is a growing concern in the consumer behavior literature (Brucks 1985; Johnson and Russo 1984; Sujan 1985). The need to measure consumer knowledge structures, and assess their influence on information processing, is acknowledged by Mitchell (1982), who suggests that "in order to develop valid measures, you must first have a theory of memory" (p. 45). The objective of this paper is to describe and evaluate several techniques for the measurement of consumers' knowledge structures which are derived from schema theories of memory.

The first part of the paper will briefly review the basic propositions of such theories, and describe the structural characteristics of schematic memory, with particular emphasis on scripts, or event schemas. Given this theoretical framework, attention will then focus on alternative stimuli and dependent measures that may be employed to quantify an individual's level of script development, as indicated by the presence or absence of these structural features.

Schema Theory

Although the organization of human memory may assume various forms, memory schemas appear to perform an important role in the structure of consumer knowledge (John and Whitney 1982; Leigh and Rethans 1983; Roedder John and Whitney 1985; Whitney and John 1983). Event schemas, or scripts, consist of abstract knowledge about the sequence of actions typical of a commonplace event (Abelson 1976, 1980; Schank and Abelson 1977). Scripts, like all schemas, are propositional, verbally or semantically encoded knowledge structures (Lord 1980). However, they possess several structural characteristics that differentiate them from other memory representations, including concept abstraction, a set quality, causal or temporal sequence, and hierarchical structure (Abbott and Black 1980; Thorndyke and Yekovich 1980).

Concept abstraction refers to the nature of the knowledge represented in a script. An event schema does not contain the specific details of any particular occurrence of an event. Rather, it consists of a prototypical event composed of the common actions abstracted from repeated experiences. Thus, the structure of a script is a network of generic actions and rules for combining them. In addition, this network possesses a set quality in that activation of any component action provides access to the entire group of actions constituting an event. The temporal or causal sequence typical of a script's organization refers to the characteristic that certain actions in this set must precede other actions in time in order to provide the

enabling conditions necessary for the latter action to occur.

Finally, scripts possess a hierarchical structure which defines the relationships among actions of varying levels of specificity or centrality to an event. As described by Abbott and Black (1980), this hierarchy is composed of three levels including a script header, scene headers, and scene actions. A script header represents the most general, or macro level of the hierarchy, and summarizes an entire event (e.g. dining in a restaurant). This event is composed of several scenes which are identified by scene headers such as entering the restaurant, ordering the meal, and eating. The scene headers exist at an intermediate level of the hierarchy, and contain more detailed information about the event. At the lowest level of the hierarchy are scene actions, which are the individual actions relevant to each scene. Thus the ordering scene may consist of reading the menu, discussing the choices, and placing the order.

Given these structural features of event schemas, the task of quantifying the level of script development may be clarified. As an individual's script for an event becomes better articulated, it would be expected that their response to some stimulus would exhibit a higher degree of concept abstraction, the set quality, temporal/causal sequence, and hierarchical structure. Thus the measurement task involves devising stimuli that will elicit responses that can be quantified using various dependent measures to assess the presence or absence of these structural features. It should be emphasized that measuring script development should focus on assessing the structure of knowledge, rather than its processing effects. The influence of scripts on consumer information processing can only be demonstrated once it has been determined that consumers have actually organized their knowledge of an event in a schematic structure.

Measuring Script Development

The script literature is replete with a variety of measures that are used to elicit event schemas or to evaluate their impact on information processing. Only rarely, however, have these measures been employed to assess respondents' level of script development, although many are adaptable for this purpose. In the following discussion, verbal and visual stimuli appropriate to this task will first be considered, and various dependent measures useful in assessing responses to these stimuli will then be discussed.

Stimulus Materials

Verbal Stimuli. Inasmuch as scripts are composed of semantically or verbally encoded propositions (Lord 1980), verbal stimuli are naturally suited to measuring script development. A wide variety of measures employing this approach are found in the script literature, although by far the most common verbal stimulus utilizes a probe to elicit a written or spoken description of an event. Typically referred to as protocols or retrospective self-reports, stimuli employing such free-recall tasks have served several purposes in script investigations, including identifying the component actions of an event (Bower, Black, and Turner 1979; Bozinoff 1982; Fivush 1981, Graesser, Gordon, and Sawyer 1979; John and Whitney 1982; Rethans and Hastak 1982; Whitney and John 1983), evaluating the influence of a script on information processing (Black and Bern 1981; Bower, Black, and Turner 1979; Brewer and Dupree 1983; Graesser, Woll, Kowalski, and Smith 1980; Lichtenstein and Brewer 1980; Martin, Harrod, and Siehl 1980; Salmasso,

Baroni, Job, and Peron 1983; Whitney and John 1983), and assessing level of script development (Roedder John and Whitney 1985; Smith and Houston 1985).

Although only rarely used in this final context, it seems reasonable to expect that the responses of subjects with various levels of schematic memory for an event would vary systematically with respect to all four of the structural properties noted previously. That is, an individual with a highly developed script would be more likely to generate an abstract description of a complete set of actions, ordered in their typical temporal sequence and reflecting the hierarchical structure of component scenes than a respondent lacking a script. A potential limitation on this approach, however, is that generating a response to the stimulus imposes a substantial cognitive burden, and one which would seem to be inconsistent with the automatic, mindless nature of script-based processing. Some preliminary evidence that responses may not adequately reflect script development is offered by Smith and Houston (1985) who observed substantial instability over time in the responses of individuals with well-developed scripts. The lack of test-retest reliability suggests that this type of verbal stimulus should be used cautiously when assessing script development.

Verbal stimuli requiring cued recall may be designed, however, that minimize this problem of cognitive load. For example, subjects might be presented with a single action in an event, and be asked to recall the action that precedes or follows it. Such responses would obviously be informative with respect to the temporal sequence quality of scripts, but might indicate the set quality as well. That is, as the set of actions stored in memory was less complete, one would expect larger "gaps" between the stimulus action and the action given in response. Moreover, a respondent's use of abstract versus episodic language would offer a clue to the degree of concept abstraction. Finally, findings by Abbott and Black (1980) imply that the degree of hierarchical structure would also be evident in responses to such stimuli. These authors found that subjects with scripts exhibited an asymmetrical recall pattern, such that the probability of recalling a scene action given a scene header was less than the probability of recalling a scene header given a scene action. This systematic pattern would not be expected, however, among individuals whose knowledge of an event was not hierarchically structured.

A third type of verbal stimulus that also minimizes the problem of excessive cognitive load consists of a list of randomly ordered actions, only some of which are relevant to the event. The response to such a stimulus involves a recognition task in which subjects select the actions they feel are relevant to the event, and number those chosen to indicate the normal order of occurrence. While a number of studies have employed verbal stimuli which require discrimination, rather than reconstruction of an event, to assess the processing effects of scripts (Abbott and Black 1980; Bower, Black, and Turner 1979; Brewer and Dupree 1983; Graesser, Woll, Kowalski, and Smith 1980; Lichtenstein and Brewer 1980; Salmaso, Baroni, Job, and Peron 1983), their use in evaluating script development is less common. However, Smith and Houston (1985) found that this approach was effective in determining the presence of the set quality and temporal sequence characteristics of scripts. Moreover, the measure employed in their study exhibited reliability superior to that of a retrospective self-report measure. This type of verbal stimulus offers a promising approach to measuring script development, and one whose potential should be further explored.

A fourth type of verbal stimulus that has been employed to assess script development consists of a multi-item scale of experience/knowledge about an event. A variant of this procedure is a single-item scale consisting of a self-rating of familiarity. A higher score (as indicated by the scale value of a subject's responses) is presumed to indicate a more highly developed script. Although such measures have been used in a number of studies (Alba 1983; Conover 1982; Schurr and Calder in press; Smith and Houston 1985; Smith, Houston, and Childers 1984, in press),

they suffer from a major conceptual flaw in that responses indicate only the level of knowledge, but not the structure of that knowledge. Therefore, a response to this type of stimulus may be only indirectly related to the level of script development. Close correspondence has been observed, however, between questionnaire scores and those obtained on the dependent measures used to quantify responses to other verbal stimuli (Smith and Houston 1985; Smith, Houston, and Childers 1984, in press). Therefore, self-ratings and questionnaires may be useful in validating other measures of script development.

Visual Stimuli. In spite of the strongly propositional and semantic character of scripts, prior research has demonstrated a strong link between script development and the ability to generate visual images of an event (Smith, Houston, and Childers 1984; in press). Therefore, visual stimulus materials are also appropriate in assessing script development, and offer certain advantages over verbal stimuli. In particular, they avoid the vagaries of verbal stimuli, a feature that is particularly desirable in research settings where certain age groups (i.e. children or the elderly) may experience difficulties encoding verbal presentations.

While verbal stimuli dominate script research, a few investigations have utilized visual approaches to ascertain the component actions of a script and assess its effects on information processing (Brewer and Dupree 1983; Goodman 1980; Lichtenstein and Brewer 1980) as well as to evaluate script development (Fivush 1981). In the latter context, Fivush (1981) used a visual stimulus consisting of a set of pictures depicting the component actions of an event in a study of the development of children's scripts. The stimuli contained pictures of actions that were both relevant and irrelevant to the event. The children responded by selecting the relevant pictures, arranging them in the proper sequential order, and then telling a story based on the selected pictures.

Although such responses would reasonably be expected to reflect the presence of all the structural characteristics of scripts, Fivush concluded that they may be misleading with respect to script development. Compared to the responses of children who were simply asked to describe an event, the children performing the picture sorting task were more prone to include irrelevant actions and to improperly order the chosen action pictures. It appears that children relied on existing scripts to guide their spontaneous construction of a verbal description of an event, but not their selection of pictures. While tentatively suggesting the inappropriateness of picture sorting for measuring script development, the generalizability of these results to adult subjects remains an empirical issue.

Studies of the processing effects of scripts in which visual stimuli have been used suggest that videotaped presentations offer a more promising approach to assessing the level of development of consumers' scripts. Lichtenstein and Brewer (1980) reported that videotapes of goal-directed events elicited patterns of memory effects similar to those observed when verbal descriptions served as the stimuli. Specifically, recall for goal-directed actions was generally superior to that for non-goal-directed actions, a pattern that was also observed in subsequent studies by Brewer and Dupree (1983).

Although videotapes have never been used specifically to evaluate script development, these findings suggest that they may offer an attractive alternative to consumer researchers. The utility-seeking nature of consumer events implies that they are goal-directed. Videotaped presentations afford an opportunity to represent such action sequences in a more comprehensive and externally valid manner than verbal descriptions. Moreover, if subjects are asked to respond to such presentations by describing what they observed, their responses may reflect the structural properties of scripts in much the same way that responses to verbal probes would, but without the attendant task-related effects.

Dependent Measures

Regardless of whether verbal or visual stimuli are employed to evaluate script development, a variety of dependent measures may be used to analyze responses and to determine the degree to which the structural characteristics of scripts are present. Since any single measure is unlikely to reflect all the structural properties of a script, multiple indicators will often be desirable.

For those stimuli that elicit responses indicative of concept abstraction, two types of dependent measures are available. The first is a content analysis system developed by Martin, Harrod, and Siehl (1980), in which various language characteristics are analyzed. The system permits a subject's description of an event to be categorized as representing an episodic (most concrete), categorical, or hypothetical (most abstract) script (Abelson 1976). A simpler adaptation of this measure was developed by Roedder John and Whitney (1985), in which coders were given examples of the language typical of these three developmental stages, and assigned an overall rating of script development based on their reading of the response as a whole.

A second indicator of concept abstraction is the relative number of central and incidental actions in a response. As the event representation becomes more highly developed, responses will reflect less frequent mention of actions incidental to the main theme, relative to the occurrence of those actions central to the continuation of the event. Moreover, the central actions will be described abstractly, rather than episodically, as script development increases. Roedder John and Whitney (1985) used both these measures in a study of the development of children's scripts, and as expected found that older and more experienced children described a consumer event more abstractly and reported fewer incidental actions.

To assess the degree to which responses reflect the set quality of scripts, a different approach is necessary. Since activation of any part of a script permits access to the entire action set that comprises the event, it would be expected that the responses of subjects with well-developed scripts would be more complete than those of individuals without schematic representations. Therefore, the number of central actions (independent of the occurrence of incidental actions) will be indicative of this aspect of a script's structure. Moreover, the order in which these central actions appear in a response offers a clue about the temporal sequence characteristic. That is, if a script were used in retrieving these actions from memory, the order of retrieval should correspond to the generic sequence typical of the event.

Evidence concerning both these points is provided in an investigation by Smith and Houston (1985). A measure was constructed that evaluated both the completeness and sequence of actions in responses to two types of verbal stimuli (a free recall protocol and a recognition task). Variations of this measure, which incorporated corrections for omitted actions and for false alarms (in the recognition task), were also constructed. All versions of the measure successfully differentiated between individuals with varying levels of script development.

Clustering indices represent another type of dependent measure adaptable to assessing script development, and may be used to indicate the degree of hierarchical structure in a memory representation. Such measures are only useful for responses that involve free recall, however. A clustering index is designed to "measure the degree to which a series of responses provided by a subject conforms to a hypothesized structure within the set consisting of all possible responses" (Hubert and Levin 1976).

Clustering indices have usually been employed to assess categorical, rather than schematic memory. However, if the action set comprising a script is viewed as the total set of responses, the actions comprising each scene in the event constitute its hypothesized structure (Abbott and

Black 1980). Therefore, the degree to which actions related to each scene cluster together during recall will be indicative of the presence of this structural quality.

A variety of clustering indices are available, and their strengths and weaknesses have been reviewed elsewhere (Frankel and Cole 1971, Roenker, Thompson, and Brown (1971). Further consideration of the individual indices is beyond the scope of this paper, but it should be noted that one measure, the adjusted ratio of clustering index (ARC) was used by Srull (1983) to evaluate the structure of consumers' brand knowledge. While there is no empirical evidence of its ability to differentiate levels of schematic knowledge about consumer events, it appears to overcome the shortcomings of certain other indices, and bears further consideration in this context.

A final dependent measure suitable for use with either verbal or visual stimuli is response time. In a few investigations, chronometric devices have been used to assess the processing effects of scripts (Bower, Black, and Turner 1979; Galambos and Rips 1982; Nottenburg and Shoben 1980). These findings indicate that response latencies may also be informative with respect to the temporal sequence and hierarchical structure of event schemas.

Bower, Black, and Turner (1979) found that subjects with scripts more quickly recognized the proper order of action pairs that were closer together in the script than those further apart. They also found quicker comprehension of actions later rather than earlier in the event, perhaps because of their temporal nearness to the goal-outcome of the script. Among individuals lacking a schematic representation of an event, no such systematic relationship between response latencies and temporal position of actions would be expected.

Other investigations have reported that reaction times may be related to the hierarchical structure of a script. Nottenburg and Shoben (1980) observed lower response times to recognize typical or important actions among subjects with scripts. Such actions would occupy higher positions within a script's hierarchy, while less central actions, for which response time is greater, would be located at lower levels. Responses latencies for individuals lacking a script should be independent of the hierarchical position of component actions.

It should be noted, however, that teasing out the separate effects of hierarchical structure and temporal sequence on response time may be problematic since these characteristics may not always be independent. Galambos and Rips (1982) reported that the centrality of actions more strongly influenced response latencies than did temporal position. Thus, in using chronometric measures to assess the presence of these script qualities, it is important to ensure their independence, in so far as possible. In the consumer context, however, centrality may be the more important consideration in evaluating script development since central actions are likely to be associated with greater utility.

Summary

This paper has described various stimulus materials and dependent measures available to assess the level of script development for consumer events. All of the techniques evaluated have the potential to provide insight as to the presence or absence of various structural characteristics of event schemas. Since it is not possible to demonstrate the effects of scripts on consumer information processing without first ascertaining the degree to which knowledge has assumed these structural features, the use of these measures, either individually or in combination, is a vital component of research on consumers' scripts.

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THE POST-AFFLUENCE CONSUMER: CONSUMER DECISION PROCESSES REVISITED

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Abstract

Consumers behave in a social and economic environment. During the long period of industrialization, a number of paradigms emerged as useful devices to describe, predict, and even explain consumer decision processes. The domain --i.e., variables and their interactions--posited by such paradigms were similar; for some of us, they were "equivalent" (e.g., the domain of the neo-classical household is equivalent to that postulated in S-R or Watsonian work, and, making appropriate changes in time-ordering, both are equivalent to a Skinnerian domain).

The fruits produced by industrialization efforts began to be harvested, and, by the 'fifties, consumers were learning how to behave in an affluent environment. The change from a pre-affluent to an affluent consumer revealed some limitations of the previous domain and called for new conceptualizations. New paradigms began to be proposed from the 'fifties on.

For several years, some of us have become tangibly aware of, and in fact often frustrated with, an increasing number of limitations in the prevailing conceptualizations of decision processes by affluent consumers--e.g., paradigms ranging from the known comprehensive "models" of behavior (including my own), through the "Fishbeinization" era and the information processing period, and the period of structural "estimation" equations.

The prevailing domains today reflect the ways increasing numbers of consumers in Western societies began to experience affluence, and the ways the private and public sectors reacted to the emerging affluent consumer. Yet, especially for problems facing corporate managers and public policy makers since the early 'seventies, these prevailing domains (e.g., the roles of attitude toward a class of brands, etc.) do not capture the new mechanisms that guide the behavior of post-affluence consumers.

By trial and error, I have put together a number of quasi-propositions describing consumer decision processes in a new domain. This domain drastically differs from those that have been reasonable and often useful for the study of affluent consumers.

Although the traditional conceptualizations may be still relevant for the study of brand choices, such choices are themselves guided by consumer decision processes that concern choice of activities, allocation of time to activities, and changes in the institutions (e.g., family, place of work, place of worship, and "schools") where pre-purchase and, above all, post-purchase activities occur. For the purposes of modeling the birth and behavior of the post-affluent consumer, long-term changes in the technologies affecting the structure and function of the work, and then family, institutions are considered to be the exogenous variable driving this new, or revisited, consumer decision process.

THE PROSUMER MOVEMENT : A NEW CHALLENGE FOR MARKETERS

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Alvin Toffler (1980), in his book The Third Wave, argues that consumers are a phenomenon of the Industrial Age. As society moves toward the Post-Industrial Age, so will the number of pure consumers decline. They will be replaced by "prosumers," people who produce many of their own goods and services. Although his prosumer theorizing has not attracted much critical comment, his concept is sufficiently provocative to merit the attention of consumer behavior scholars and marketing practitioners. If Toffler is right, we might have to retitile the field "prosumer behavior" and revise our notions of effective marketing.

My purpose is three-fold: first, to describe Toffler's prosumer thesis; second, to extend the prosumer concept further; and third, to examine its validity and implications.

The Prosumer According to Toffler

Toffler defines prosumers as people who produce some of the goods and services entering their own consumption. They can be found making their own clothes, cooking their own food, repairing their own cars, and hanging their own wallpaper. All of these services could be purchased in the marketplace. And in fact, most people today purchase these goods and services from others. This is the essence of being a consumer. The essence of being a prosumer, on the other hand, is to prefer producing one's own goods and services.

Underlying this is the distinction between production for use and production for exchange. When people produce for use, production and consumption are united in the same person. When they produce for exchange, then production and consumption are separated. In this case, people put their time into producing one thing and they use their earnings to buy all the other things they need.

Toffler argues that production and consumption activity became separated during the Industrial Age. In fact, he distinguishes between three stages or waves in human history.

In the First Wave, agriculture is the dominant institution (see Figure 1). According to Toffler, the vast majority of people are prosumers. They hunt or grow their own food, make their own clothing, and create their own amusements. They are Sector A, the largest sector of society. A few members of the community specialize in some mode of production, such as candlemaking, blacksmithing, and fishing. They trade their surplus output for things that others produce. They are consumers and make up a much smaller Sector B. The dominant process of First Wave societies is self production, the norm is survival, and the social nexus is kinship, friendship, tribe.

The Second Wave occurred with the Industrial Revolution in England. The factory became the dominant institution. An increasing number of people now spend their productive hours there. They work in factories (or offices) for eight hours a day and use their income to buy what they need in the marketplace. Most people produce for exchange, not for use. Sector A (prosumers) has grown small, while sector B (consumers) has grown large. The only prosumers are housewives who cook, clean, sew, knit and shop, while not getting paid for this. Prosumer activity is so undervalued in Second Wave Societies that these societies don't include homemaker activities in estimating the gross national product.

Toffler says that the dominant processes in Second Wave Societies are industrialization and marketization. Second Wave societies are marked by the establishment and elongation of exchange networks through which people obtain needed goods and services. Goods are produced under the norm of efficiency, and are consumed under the norm of indulgence. The social nexus holding people together are contracts and transactions in addition to kinship and social relationships. With industrialization and marketization, people increasingly become specialized producers and are increasingly unable to produce almost anything else, even cooking well.

Toffler sees the post-industrial age as moving toward a synthesis of First and Second Wave societies, which he calls the Third Wave. The dominant institution in Third Wave societies is the home, or electronic cottage, in which most people carry on their own production and consumption. For reasons which we will examine below, more people shift more of their time into prosumption. Sector A starts increasing in size relative to sector B. Because people now produce more of their own goods and services, markets become less important, since they exist to meet exchange needs in those societies where most production is for exchange.

Toffler sees the dominant process in Third Wave societies to be demarketization, including demassification as well. The norm of Third Wave societies is individuation rather than mass consumption. The social nexus is the family, and secondarily, the neighborhood.

Why will people move toward more prosumption activity? Toffler presents several arguments. First, the workweek will continue its long run decline, from 80-90 hours during the early days of the Industrial Revolution to 40 hours today to even fewer hours in the future. The scarcity of jobs will lead some companies to adopt share-the-work schemes. Furthermore, some people will volunteer to work less than 40 hours, preferring more leisure time.

Second, people will be more highly educated. They will not accept boring work as readily. Advancing technology, especially in computers and telecommunications, will tempt them to use their time in other ways.

Third, the rising cost of skilled labor — plumbers, carpenters, etc. — will drive more people to do their own work. And if they are unemployed or underemployed, they will have time to take care of these tasks. Thus, rising service cost will lead to more prosumption.

Fourth, people want more physical activity as their work becomes increasingly mental in a technologically advancing society. Those sitting at desks all day will seek physical activities, including some involving self-production.

Fifth, some people will feel that they can produce better goods and services than are available in the market, especially if manufactured goods and services decline in quality. Some groups — such as the Dutch and the Germans — have developed a high sensitivity to quality and a strong "instinct for workmanship." They will undertake projects at home that normally would be contracted for in the marketplace.

Sixth, more people will turn away from mass produced goods and seek individuation by producing their own goods and services. They will attend more courses on cooking, gardening, knitting, weaving, and painting. This pre-

diction follows Maslow's (1954) "hierarchy of needs" which argues that as people satisfy lower order needs, they will focus increasingly on self-actualization, much of which will take the form of prosumption activity.

In advancing these points, Toffler presents sporadic rather than systematic evidence. He likes to cite miscellaneous statistical anecdotes drawn from a variety of sources. He notes, for example, that whereas ten years ago, 70% of all electric power tools were purchased by professional craftsmen, today 70% are bought by "do-it-yourselfers." He notes that self-care items -- do-it-yourself pregnancy kits; throat cultures etc. -- have grown into a \$2.5 billion industry in 1981. He cites the rapid growth of self-help societies for overcoming problems of alcoholism, drug abuse, and the consumers' turning away from "professionals." He notes that more people are attending more colleges to learn more crafts and skills than ever before.

The Marketing Challenge

If Toffler is right about a swelling wave of prosumption activity, then marketers face a challenging, if not frustrating, future. They will find fewer customers for mass-produced goods and services and less consumer interest in brands. On the other hand, alert marketers will discover new opportunities in the areas of marketing research, product, price, place, and promotion. I would like to outline some of these new opportunities.

Marketing Research

Marketers will find it increasingly hard to sell those goods and services which people can produce themselves. Therefore, marketers need to research which goods and services people are most likely to start producing themselves. If more people learn how to repair their own automobiles, garages will have less work to do. If more people hang their own wallpaper, professional wallpaper hangers will face less work.

Prosumption activities that are likely to attract consumers will have four characteristics. They would promise high cost saving, require minimal skill, consume little time and effort, and yield high personal satisfaction. One activity, for example, that satisfies many of these criteria is house painting. The person saves the high cost of a painter; finds it easy to paint well with modern paint rollers; finds that it does not involve much effort or time; and feels some satisfaction while painting and when finished painting. We would therefore predict that house painting would move more into the prosumption camp.

On the other hand, auto repair is less likely to become a widespread prosumer activity. Although the potential cost savings are high, the person would have to spend considerable time learning about auto repair, expend substantial effort in making repairs, and generally not enjoy the activity very much in view of all the frustration that can occur, the dirtiness of the work, etc. Therefore, we would predict that consumers will be less drawn to auto repair.

Products and Product Designs

We would predict that people will want to play a larger role in designing or producing certain goods and services they consume. One is reminded of the homemakers who rejected a brand of cake mix that required only adding water because they wanted to add milk or fresh eggs themselves. They wanted to participate more fully in "giving birth" to the cake. We should also note that more people are buying and grinding coffee beans and brewing their own coffee instead of just adding boiling water to instant powdered coffee. Instead of moving toward task simplification, some consumers are moving toward task elaboration in the interest of achieving better quality.

In Japan, some of the "famous" scroll painters made their own brushes, mixed their own paints, and even made their own paper. These painters were thoroughgoing prosumers. Most painters, on the other hand, buy their paints, brushes, and canvases. Manufacturers will need to study which stages in the production value-adding process people might want to perform themselves.

Modern computers will permit people to participate more in the designing the products they want. General Motors' Saturn project visualizes car buyers entering a showroom, sitting down at a computer terminal and responding to questions about what they want in the way of the car's color, engine, seat material, radio, and so on (Newsweek, June 17, 1985). Their order is transmitted to the auto plant which proceeds to produce the desired car. Similarly, future home buyers will enter an architect's office, sit down at a computer terminal, specify room sizes and layout, examine the results, and modify them until satisfaction is achieved.

We can imagine further examples of consumer participation in designing manufactured goods and services. A person will enter a clothing store, stand before an electronic mirror and press appropriate buttons that will project various suits on him in different colors, style, and materials. After finding the most pleasing look, he will press another button and laser beams will cut and prepare the clothing (Newsweek, April 22, 1985). Still, in another case, people will call their travel agency, describe the kind of experience they want -- climb the Himalayas, conduct the Vienna Symphony Orchestra, etc. -- and the agency will arrange or design it for them (Kotler, 1984).

The fact that people enjoy participating in production is evidenced in a number of situations. Salad bars are increasingly popular in restaurants because many people prefer to "compose" their own salads. Certain ice cream parlors allow people to make their own sundaes. The success of the "Bradley GT kit" -- where a person can turn his or her Volkswagen into a sleek sports car -- shows the interest of some people in producing complicated goods. The author heard about a direct mail order company that sells step-by-step blueprints for making one's own helicopter.

Instead of marketers fighting prosumers, they should look for opportunities to facilitate prosumption activities. One way to facilitate prosumption is to create better tools for prosumers to use, including better electric power tools for carpentry work, better tools for farming small plots of land, and so on. Another way is to simplify the production process. Thus, "painting by number" kits allow "Sunday painters" to produce better looking paintings. "Adhesive wallpaper" allows more people to hang their own wallpaper.

One of the major growth markets spurred by prosumption will be the instruction market. More people will want to acquire skills for producing their own goods and services. They will attend day and evening classes in cooking, gardening, auto repairing and dozens of other subjects. "How-to-do-it" books, magazines, audio and video tapes, and computer-aided instruction will flourish. Some marketers will develop "cool lines" in which they will sell information over the phone on how to make or fix things.

Thus, prosumer-oriented marketers can seize on a number of opportunities. They need to identify the most popular prosumer activities and think through appropriate product and service responses.

Price

As prosumption activity increases, manufacturer value-adding activity will decrease. Whereas producers in Second Wave Societies continued to add new consumer benefits to an elementary offer (called "product augmen-

tation"), the tenor of Third Wave Societies will be to pare down the number of "built-ins" (called "unbundling"). The price of goods and services will therefore fall because their content has been reduced. The only marketers who will command premiums are those who add strong benefits that are valued by consumers which consumers cannot add themselves.

Place

Sellers will have to revise their place strategies. They will carry lower inventories of finished goods because people will want to individuate their goods. And with people spending more time in their electronic homes, more goods and services will have to be located reasonably nearby. We would predict a dispersion and deconcentration of retailing and a renewal of neighborhood life.

Prosumers will show preferences for certain forms of retailing. They will rent more goods to clean their rugs, repair their cars, and maintain their gardens. Car washing establishments in which people drive into bays and wash their own cars will boom. People will also drive their cars into do-it-yourself garages and rent the tools to fix their cars. They will enter picture framing workshops and rent the tools and materials to make their own frames.

Promotion

Marketers will have to direct their promotion appeals to themes stressing individuation, skill-building, and productiveness. They will find it hard to sell mass consumption goods and hedonistic values.

Specialized, as opposed to mass media, will continue to grow in popularity. People will want to follow their own interests, not mass interests. They will search for others with kindred interests, finding them and communicating with them through electronic media, such as computer networks and CB radios. Marketers will have to develop more specialized messages to reach these highly segmented target markets.

How Far Will Prosumption Go and How Fast?

Any movement or change is always the resultant of opposing forces. We have described several forces that would lead to more prosumption activity. Among them is the growth of structural unemployment, the rising cost of labor, the desire for higher quality goods and services, the development of new technologies that enable people to participate in the design of customized goods, and a general increase in education and therefore desire for self-actualization.

At the same time, we should not underestimate the forces that will inhibit prosumption. First, threatened interest groups will use the law to prevent people from producing certain goods and services themselves. Thus, construction trade unions will support the enforcement of building codes to prevent people from building their own garages and doing their own electrical work and plumbing. Physicians will want to discourage people from buying self-care and self-medication products. The teachers' union will oppose families who want to take over their own children's education. The goal of professionals is to sell people on buying their services rather than performing these services for themselves (McKnight, 1977).

Second, corporate America will continue to promote the hedonistic life style. They will appeal to people's interest in status goods and easy living.

The effect of rising incomes on prosumption activity is ambiguous. Consumers with higher incomes can buy more services they need. On the other hand, they could have more leisure time and spend it more productively.

We should recognize that few people will opt for 100% prosumption. The 100% prosumer would be a hermit living in the woods like Thoreau, producing his own drinking water, food, and clothing. Or they would model themselves on Robinson Crusoe or the Swiss Family Robinson.

We can, in fact, identify two major prosumer profiles that are found in society.

1. **The Avid Hobbyist.** These are people who spend most of their time producing for exchange but who fill their leisure time with one or a few dominant hobbies. The avid gardener, the versatile home repairer, and the skilled cook, describe people who are producers in two domains, their main occupation and their major hobby or hobbies.

2. **The Archprosumer.** These are people who practice a lifestyle of "voluntary simplicity" that is closer to nature and produce many things themselves. They grow and can their own fruits and vegetables, knit and sew their own clothing, and avoid the mass production, mass consumption society. Their themes are "small is beautiful" and "less is more."

Interpreting Changing Time Budgets

If Toffler is right, prosumerism will not suddenly burst on the scene. It is already foreshadowed in the activities of some people and in some places. We would see it reflected in people's time budgets. People would spend more time producing goods and services for their own use rather than buying them in the marketplace. People would favor "make" decisions over "buy" decisions. They would walk to work rather than "taxi" to work. They would cook at home rather than eat in restaurants. They would fix their own plumbing rather than call in a plumber.

At the same time, apparent increases in prosumer activity can easily be misleading. In the first place, the person who suddenly starts cooking a lot may have found the time to do it by giving up some other prosumer activity, such as no longer doing his own gardening and hiring a gardener instead. This means on net that he has not increased his prosumer activity; he has simply become a prosumer in one activity, and a consumer in another.

Second, many people who take up cooking (prosumers) at the same time like to eat at fine restaurants (as consumers). One activity does not exclude the other. Also, prosumers may bake their own bread but they don't want to do this all the time. They will still buy most of their bread at stores.

Third, many people take up cooking or other activities not out of individuation motives but simply to change their routine. Next week they might sew their own clothes or wash their own cars.

Fourth, people who take up prosumer activities such as cooking often buy a lot of equipment — blenders, culinets, woks. They also buy cookbooks and sign up for cooking courses. Thus more prosumption activity is often accompanied by more market purchase activity.

Fifth, an increase in the purchase of "do-it-yourself equipment," such as electric power tools, computers, etc., does not necessarily mean an increase in prosumer activity. Many of these tools are bought and not used.

Implications for Marketers

In order to learn more about prosumerism, we should study certain groups more closely. Do young archprosumers continue their lifestyle when they grow older? Do older retired people with time on their hands move toward more self-production or do they spend most of their time consuming television? Do poor people perform more prosumer activities?

In many ways, prosumers should be looked at as another market segment(s). We would want to identify those who have a strong need to produce their own goods and figure out ways in which marketers can help them meet this need.

The aim of marketers should not be to protect the exchange system. The purpose of exchange networks is to facilitate the pursuit of human satisfaction. If the market system is overextended, and if people want to meet more of their own needs, on what grounds should marketers object? The market, after all, is a human invention and it will last as long as it serves human needs. Before markets, there were other ways for goods and services to be created and distributed, including reciprocity and redistribution arrangements. Societies that move in new directions to meet human needs should not surprise us. Whether Toffler is saying that prosumerism spells the end of marketing or only a contraction in its scope, he has raised some worth while issues for marketers to consider.

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FIGURE 1
TOFFLER'S PARADIGM

	Thesis First Wave	Antithesis Second Wave	Synthesis Third Wave
Dominant Institution	Agriculture	Industry (factory)	Home
Mix of prosumers and consumers	Many prosumers (Sector A is large) Few consumers (Sector B is small)	Few prosumers (Sector A is small) Many consumers (Sector B is large)	More prosumers (Sector A gets larger) Fewer consumers (Sector B gets smaller)
Dominant processes	Self-production	Industrialization Marketization	De-industrialization De-marketization De-massification
Norm	Survival	Efficiency (as producers) Indulgence (as consumers)	Individuation
Social nexus	Kinship and friendship; tribe	Contracts and transactions; workplace	Family and friends; neighborhood

Source: This chart is not found in Toffler but prepared by the author to draw together his main ideas.

YUPPIES AS ARBITERS OF THE EMERGING CONSUMPTION STYLE

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Abstract

Yuppies are treated as both real and a media event in the recent history of U.S. consumption. This eighties consumption style is contrasted to those of the two preceding decades and a paradox is noted in yuppies' simultaneous dedication to career and leisure pursuits. This apparent paradox is argued to result from the demographic phenomenon of the baby boom and concludes that yuppies may be engaging in compensatory consumption, a practice previously associated with blue collar workers. Implications of yuppie consumption patterns are discussed in the context of world patterns of materialism.

A Brief Popular History of U.S. Consumption Since 1960

The Sixties

In examining recent patterns of consumption in the United States, the decade of the 1960s presents some interesting contrasts to adjacent decades. More accurately, starting in the mid-sixties and extending into the early seventies the U.S. saw the ascendancy of counter cultural consumer values that increasingly challenged the middle class materialism that had flourished since the end of World War II. Due in part to ill will generated by U.S. involvement in Vietnam, the world was increasingly critical of what was seen as the selfishly acquisitive lifestyle of U.S. consumers. Both conservationists and concerned economists began to argue that we must view world resources as finite and scale down our desires in order to save something for the rest of the world and future generations. The OPEC oil embargo of 1973 made this argument manifest for nearly all Americans. And hippies rebelled against middle class values and consumption patterns in a variety of ways. These included the rejection of achievement motivation and the work ethic, and the adoption of blue collar clothing (e.g., jeans, work shirts), Spartan furnishings, and unpretentious automobiles (Yablonsky 1968, Levin and Spates 1970, Lind and Roach-Higgins 1985; Hirschman 1985). Communal living rose in popularity and the Peace Corps and social service occupations were greatly esteemed. Perhaps we should have been curious that this new austerity was accompanied by more self-indulgent use of recreational drugs and sex but we weren't. In the late sixties, with growing domestic protest against U.S. involvement in Vietnam and much popular press coverage of hippies as the trendiest youth movement, predictions that altruistic and ascetic hippie values were harbingers of future mainstream values seemed highly plausible.

The replacement of materialistic acquisitiveness by non-materialistic love also seemed a distinct possibility to sociologists and other scholars during this period. Davis (1967) sought to explain "Why All of Us May Be Hippies Someday". Schumacher (1973) suggested that in consumption as well as production technology, "small is beautiful". Others warned that unless we scaled back our consumption ecological catastrophe was inevitable (e.g., Chamberlin 1970, Meadows, et al., 1972). Forecasts of a growing trend toward voluntary simplicity are partially based on this sort of reasoning (Elgin and Mitchell 1976, Center for Science in the Public Interest 1977, The Simple Living Collective 1977). In the VS lifestyle consumption is frugal, non-energy-intensive, and largely rejects symbolic product attributes in favor of utilitarian consideration. If not quite a return to Henry David Thoreau's Walden Pond or Thomas Jefferson's agrarianism, voluntary simplicity at least questioned the necessity of economic growth, high technology, and mass consumption.

Blumberg (1974) and Felson (1976) concluded that with consumer abundance and affluence the status symbols that motivated our materialism were dead or dying. A more basic argument was that abundance in material goods would soon sate us and eventually make consumption an odious

task (Weisskopf 1966, Piel 1974). This argument is illustrated in the short story "The Midas Plague" by Frederick Pohl (1954/1982). It involves a future society in which there is such an abundance of goods, produced by robots, that it is a burden to consume them. To solve this problem the privileged "rich" are allowed to consume in moderation and live in modest homes with simple food. The underprivileged "poor" however are made to acquire large amounts of clothing, jewelry, and furniture, eat heavily, own numerous cars, live in large homes, and use ration books to show that they have acquired their mandatory quotas of consumer goods.

The underlying hypothesis here may well be Maslow's (1954) proposed need hierarchy suggesting that material needs are "lower order" and that when they are satisfied "higher order" needs such as those for self-esteem and self-actualization become the most compelling. This was the explicit assumption of Inglehart (1971) who hypothesized that a generation brought up in affluence and without a world war would feel secure enough to begin to satisfy higher order, less materialistic, needs. Presumably as lower order needs are met material goods provide decreasing amounts of satisfaction and are decreasingly important to us (Scitovsky 1976).

Logical as these consumption hypotheses may seem, their formulation based on observations of the decade of the sixties appears to have been premature. For instance, contrary to Elgin and Mitchell's (1977) projection that by 1987 over one-third of the U.S. population would be full or partial voluntary simplifiers Mitchell now (1984) classifies VS as a minor lifestyle that may or may not have some potential for the future. Similarly, after some initial support, tests of Inglehart's hypothesis of decreasing material emphasis have failed (Ike 1973, Marsh 1975, Flanagan 1979). The communes of the sixties have largely disbanded and the free stores have long since closed. Counter-culture poet and former voluntary simplicity advocate Gary Snyder explained or rationalized, "I ask you, which is the real simplicity: a person who owns almost nothing but is obsessed with it, or one who owns a great deal but is unattached to it?" (Dardick 1985). Whether or not the underlying cause for these failures is the untenability or lack of universality of Maslow's need hierarchy as some have suggested (Nevis 1983), the proximate cause seems to have been a change in consumption patterns beginning in the decade of the seventies.

The Seventies

The seventies have been called (Weber 1974, Wolfe 1976) "the 'me' decade". While this suggests a reemergence of self interest or selfishness, the 1970's appear to be something of a searching transitional decade in the way that this self interest affected consumption. Rather than an immediate reemergence of fifties-style materialism, it appears to have been a time of inward turning self-fulfillment seeking. As Yankelovich (1981) concludes from his firm's tracking of value trends, the use of exercise, health foods, self-help books, and self-awareness programs (e.g., Esalen, Est, primal scream therapy) all represent a searching for a meaningful self definition. The emphasis was largely experiential (Holbrook and Hirschman 1982), emphasizing the acquisition of services and non-durables over significant increases in durable expenditures. This is still potentially consistent with a self-actualization drive rather than a return to a material need focus.

To the extent that the seventies saw an increase in material expenditures, it seems to have been subtle rather than blatant. For instance, jeans became less blue collarish when they were replaced with expensive designer jeans in what Brooks (1979) calls parody display. Parody display involves the use of reverse status symbols or status symbols

based on ostensibly low profile consumption. There was status competition, but the association of bigger and more with better was removed or reversed. A small car under these circumstances might be more desirable than a large car. Perhaps such practices reflected a desire to return to materialistic ostentation that was inhibited by guilt from the residual mores of the sixties and the energy crisis of the seventies. Thus in 1979, U.S. News and World Report headlined "Status Symbols: U.S. Swings Back to Basics" (U.S. News and World Report 1979). The following year the headline was an even more austere "Goodbye to Our Good Life?" (Maloney 1980).

The Eighties

Interestingly, one year later U.S. News and World Report ran the nearly opposite headline, "Flaunting Wealth: Its Back in Style" (U.S. News and World Report 1981). It may well be significant that between these two headlines Ronald Reagan was elected to his first term as President of the United States. Not only was he perceived as a staunch ally of the rich, but some of first lady Nancy Reagan's first acts were to spend extravagant amounts on new china and decorations for the White House. If such symbolic acts did not by themselves mark the death of sixties altruism and idealism, the "defection" of former counter-cultural heroes such as Jerry Rubin, Tom Hayden, and Eldridge Cleaver into the ranks of the establishment did.

The result, at least according to the popular press, was the emergence first of the preppie (with clothing emulating elite prep school garb and mass adoption of "signature goods"), followed by the yuppie (or young urban professional) with a whole pattern of elitist consumption. As Mason (1981) argued, conspicuous consumption had come within reach of the masses. To the searching egoism of the seventies was added hedonism, ostentation, and status-seeking materialism. By the end of 1984 the year had been designated "the year of the yuppie" in a Newsweek cover story (Andler 1984). Yuppies have also become the subjects of comics (Alter 1984), songs (Royko 1985), poems (Freundlich 1985), and advertising and marketing strategies (Advertising Age 1985, Morgan 1985). Reactions against threats of the "yuppification" of society have also emerged (e.g., Fotheringham 1985, Heard 1985, O'Reilly 1985, Samuelson 1985, Thornton 1985, L. W. 1985, U.S. News and World Report 1985), just as reactions against the "hippification" of society emerged in the sixties.

The fact that these trends in the recent history of U.S. consumption have primarily been dealt with in the popular press should not cause us to dismiss or discount them as either fictitious or beneath scholarly inquiry. Real behavioral insights are hardly the sole province of the academic scholar or scientist (Belk forthcoming). In addition, as will be argued more fully, it is possible that popular press coverage of a lifestyle legitimizes it, makes it a concrete symbolic pattern to emulate, and hastens its adoption. And one need only look to the reawakened consumption ethic emerging in the People's Republic of China to appreciate the potential impact of such a change in consumption attitudes (e.g., Schell 1984).

The Yuppie

What is a Yuppie?

The yuppie is much more than a media fiction, even though precise criteria defining who is and is not a yuppie are somewhat arbitrary. The Newsweek cover story defined yuppies as age 25 to 39, earning \$40,000 or more in professional or managerial positions (Andler 1984), which would mean there are 1.2 million yuppies in America. By more liberal definition, estimates go as high as 12.2 million (Fisher 1985). Even the largest estimates make it clear that yuppies are a minority, even among the baby boom generation of which they are a part. A study by Market Facts estimates that less than one-fifth of the baby boom generation meets the financial criteria to be considered yuppies (Marketing News 1985b) and a zip code based classification estimates that young urban professionals comprise just over three

percent of U.S. households (Marketing News 1985a). But both because of their large incomes and the media lionization that makes them a socially distant reference group (Cocanougher and Bruce 1971) to be emulated by others, the impact of yuppies on U.S. consumption greatly exceeds their numbers. The Market Facts study finds that half of the baby boom generation (born 1945-1960) think and act like yuppies, not to mention the impact on those younger and older. For instance, one recent study (Sporkin 1985) found that the most desired possessions among college students included VCRs, compact disc players, Filofax organizers, and skis--all stereotypical yuppie items.

Thinking and acting in unique ways are the key to defining a yuppie more than mere demographic qualifications. Only partly satire, The Yuppie Handbook defines a yuppie as "A person of either sex who meets the following criteria: (1) resides in or near one of the major cities; (2) claims to be between the ages of 25 and 45; (3) lives on aspirations of glory, prestige, recognition, fame, social status, power, money or any and all combinations of the above" (Piesman and Hartley 1984, p. 12). This attitude is summarized in the updated view of Maloney titled "Success! The Chase is Back in Style Again" (Maloney 1983). More than anything else, the yuppie is distinguished by pursuing both quality and status symbolism in selecting products and services. For instance, the male on the cover of The Yuppie Handbook is shown with a Cross pen, pin stripe suit, Rolex Watch, squash racquet, Burberry trench coat, Gucci briefcase, co-op offering prospectus, and L. L. Bean duck hunting boots, while the female yuppie is shown with a Sony walkman, Ralph Lauren Suit, Cartier Tank Watch, coach bag, fresh pasta, gourmet shopping bag, and running shoes (Piesman and Hartley 1984).

Nor are yuppie consumption patterns limited to the United States. In Great Britain there are the very similar Sloane rangers and similar satirical consumption handbooks are available (York 1980, Barr and York 1983). And in France the yuppie's counterpart is the bon chic bon genre who can find Thierry Mantoux's Bon Chic Bon Genre Handbook (Patterson 1985). Although Sloane rangers and the bon chic bon genre differ in some respects (e.g., concern with titles) from yuppies, they share the same purpose in using consumption to make a statement about their success and status. Significantly, these phenomena seem to be confined to the wealthy post-industrial countries of the world; the very countries where declining materialism was predicted a decade ago (e.g., Inglehart 1971, Bell 1973). Not confined to a single race, marital status or religion, the ability and willingness to spend in a particular fashion that shouts success seems to be their hallmark. Subgroups and imitators are to be expected. Piesman and Hartley (1984) identify buppies (black urban professionals), guppies (gay...), hippies (Hispanic...), Juppies (Japanese...), and puppies (pregnant...). Others have suggested additional variations. These cultural and subcultural variations merely highlight the significance and impact of yuppie consumption patterns.

In order to clarify the distinguishing conceptual characteristics of yuppies, it is useful to compare their traits to those of the hippies of the sixties. The following list is distilled from the few empirical studies of these groups and the abundant journalistic accounts of each:

	Hippies	Yuppies
Value of clean, neat appearance	Low	High
Value of success/achievement	Low	High
View of conspicuous consumption	Negative	Positive
Relationship to others	Altruism	Egoism
Primary activity emphasis	Leisure	Work and Leisure
Focus of gratifications	Immediate	Mixed -- Delayed and Immediate

	<u>Hippies</u>	<u>Yuppies</u>
Stereotypical consumption preferences:		
Residence	Rural Commune	Urban Co-operatively Managed Apartment
Vehicle	Old Psychedelic Van	New BMW, Saab, Small Mercedes, Volvo
Beverage	Annie Green Springs	Perrier, wine spritzer
Drugs	Marijuana, LSD	None, cocaine
Exercise	None	Running, Squash, home gym, health club
Music	Grateful Dead, Jefferson Airplane, Doors	Anything on Windham Hill label, James Galway
Travel	India, Nepal by backpack	Alps (Ski), Mazatlan (beach)
Retail Outlets	Free stores, head shops	Brooks Bros. Sharper Image

Other distinctions such as clothes and food have already been noted.

Why this Consumption Emphasis?

For the most part, the consumption distinctions just noted can be explained in terms of a shift toward greater materialism and more conspicuous consumption. However, two of the distinctions above require further explanation: the suggestions that yuppies seek both immediate and delayed gratifications and that they value both work and leisure activities. To understand these seeming anomalies and to understand the reversion to materialistic patterns of consumption in what was forecast to be an age of voluntary simplicity typifying the postindustrial era (Bell 1973), it is necessary to further consider the origin of yuppies in the baby boom generation.

Being a part of the U.S. baby boom generation has created unique problems for yuppies and their poorer or less urban cohorts. While those born during the low birthrate years of the thirties through World War II had a relatively easy time competing for jobs and promotions opened by the retirement of the larger generations that preceded theirs, the situation has been just the opposite for the baby boom generation (Ahlburg and Kimmel 1985, Easterlin 1980, Fisher 1985, Jones 1980, Levy and Michel 1985, Population Bulletin 1980). Not only are they unable to advance as rapidly because of the number of baby boomers they are competing against, the economy has stopped growing at the rates of the 1950's and 1960's, and real income has actually declined in the past ten years for the first time since World War II. Furthermore, while their parents who grew up during the Depression had modest expectations of financial success, the baby boomers who grew up during the strong economic growth of the fifties and sixties had high expectations for their futures; expectations that made their inconsistent actual futures all the more disappointing.

And this may paradoxically be the key to understanding the hedonistic consumption patterns and simultaneous career success orientation of yuppies. In order to enjoy the

income they expected to earn and might have earned a generation earlier, yuppies have postponed marriage, relied more on two incomes when they do marry, and had fewer children at a later age (Levy and Michel 1985). They have also been willing to take on more debt than earlier generations (Fisher 1985). Debt and an upward, if slower than hoped for, job mobility have kept yuppies dedicated to careers, at least until recently. It is delays in job gratifications that yuppies have tolerated rather than consumption gratifications. If it were merely a case of sacrifice for the sake of career, yuppies would simply be a reincarnation of the organization man of the 1950's (Whyte 1956). But the yuppie appears far less dedicated to the organization than to their consumption (Maloney 1983). Lately career sacrifices such as long hours of work are being examined more critically, with yuppies increasingly asking themselves whether it is worth it (e.g., Prince 1985, Schwartz 1985). If career sacrifices are increasingly scrutinized, the question remains as to why yuppies make the sacrifices they do for the sake of consumption.

The reason for their greater materialism may lie in the same baby boom job pressures that require them to sacrifice family life for the sake of purchasing power. The phenomenon is called compensatory consumption and has previously been observed only in lower class occupations for which job advancement is blocked by lack of skills, lack of education, and prejudice (Chinoy 1952, 1955; Gorz 1967; Best and Connolly 1976; Gronmo 1984). With the traditional blue collar situation, given no opportunity for further advancement on the job, aspirations are deflected to consumption (Nicosia and Mayer 1976). The analogous situation among yuppies may not arise because of lack of job mobility as much as slow job mobility relative to aspirations and preceding generations, coupled with lesser prospects for gains in real income due to the same job market competition slowing their advancement. Looking for some reward to justify their work effort and lives, and not finding it often enough in their careers, yuppies have increasingly turned to consumption to seek their gratifications. From this perspective, while yuppies may indeed be materialistic, they are not necessarily more greedy and selfish than others. They just have fewer opportunities to derive the same ego-enhancement from careers than were available to their parents.

Thus the explanation advanced for the simultaneous commitment to careers and consumption by yuppies is that job competition from the large number of other baby boomers forces sacrifices to (often dual) careers in order to accrue earnings anything like those expected; at the same time slower than expected career advancement has deflected their search for ego fulfillment into the realm of consumption. What remains is to consider what yuppie consumption patterns mean for more general consumption trends.

The New Materialism

It is important to recognize that the yuppie phenomenon is to some degree a media phenomenon, just as were the hippie phenomenon of the sixties and the me generation of the seventies. While yuppies and meism, and to a lesser degree hippies, are relatively upper class phenomena engaged in by a minority of the population, there exists a strong possibility of trickle-down effects when the media pay such great attention to the consumption patterns involved. Besides specific consumption fads, it may be more significant that the general sanctioning of materialism may spread throughout the population of the U.S. and quite possibly to other countries as well.

Besides attention to yuppies qua "yuppies", U.S. mass media have generally portrayed a very upscale portrait of consumption. Analyses of magazine portrayals of occupations and consumption styles have found a consistent upscale bias (Berelson and Salter 1946, Johns-Heine and Gerth 1957), and magazine biographies which featured the heroes of production in the first part of this century were featuring instead the heroes of consumption by the 1940's (Lowenthal 1961). Television programs have been found to show a similar bias (DeFleur 1964, Fox and Philliber 1978, Gerbner

and Signorelli 1982, O'Guinn, Faber, and Rice 1985, Smythe 1954, Stein 1982). Prime time television programming has largely abandoned featuring the minorities and lower class characters of the sixties for instead featuring the higher class characters of the eighties. Both here and abroad the potential heroes presented nightly are now mostly millionaires living and loving in a very selfish fashion (Gunderson 1984). The foreign influence is due mostly to the wide distribution of U.S. television series like "Dallas" on other continents, but France now has their equivalent of "Dallas" or "Dynasty" called "Chateaufallon" (Tuttle 1985). Research reviewed by O'Guinn, et al. (1985) suggests that those exposed more heavily to such programs tend to overestimate the wealth and consumption patterns of the society represented. Shows like "Dallas" and "Dynasty" (both highly popular) are indicative here, but the epitome of such shows may well be "Lifestyles of the Rich and Famous" (MacKenzie 1984, Greenfield 1985, VerMeulen 1985). Belk and Pollay (1985) also find a generally escalating pattern of materialism themes in twentieth century U.S. magazine ads. A similar trend was found in Japanese magazine and television advertising since World War II (Belk, Bryce, and Pollay 1985). Friedman (1985a, 1985b) has found evidence of increasing materialism in popular U.S. and British plays, songs, and novels. In this context yuppies may be seen as merely the latest catalyst for a continuous parade of materialistic lifestyles before the American consumer, with hippies the sole recent exception to this trend. And yuppies themselves may be seen less as arbiters of consumption styles than as interpreters helping such styles to trickle down to the masses and simultaneously reinforcing and legitimizing such consumption. Their greatest importance may lie in the fact that they have a name and thus form a label that people may try to affix to themselves via consumption.

Taking a longer view still, materialistic consumption patterns seem to follow cyclical ups and downs (McCracken 1985). High points and places of consumption since the industrial revolution that made mass consumption of luxuries a possibility include 15th and 16th century Europe (Braudel 1967/1973, Mukerji 1983), 17th and 18th century England (McKendrick, Brewer, and Plumb 1982, McCracken 1985), 19th century France (Williams 1981), and late 19th and early 20th century America (Boorstin 1973, Harris 1981, Lears 1983). While there have been fluctuations during some periods (e.g., depressions, the sixties), the overall trend is toward greater materialism. This rather than a less materialistic post-industrial consumer, seems to be the main lesson of historical studies to date. Yuppies are an interesting recent manifestation of this long run trend, but what has burst upon the scene in the eighties is perhaps more the label than the phenomenon.

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MODELING DISTANCE STRUCTURES:
PRODUCING USEFUL KNOWLEDGE FOR THEORY AND APPLICATION

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Abstract

This paper presents distance structure analysis as an alternative to more sophisticated techniques such as covariance structure analysis, with particular reference to two techniques, confirmatory multidimensional scaling (CMDS) (Lingoes and Borg 1980), and LISREL (Joreskog and Sorbom 1983). The paper highlights the differences between the two types of techniques, and discusses the applications and advantages of each.

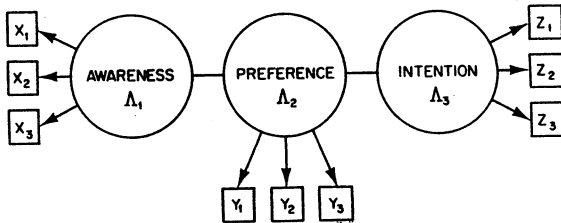
Introduction

Over the past few years, developments in structural modeling techniques based upon multidimensional scaling algorithms have made the conceptual similarity between MDS techniques and more sophisticated techniques based upon covariance structure analysis much more apparent (Bloxom 1978; Lingoes and Borg 1978; Lee and Bentler 1980; Carroll, Pruzansky, and Kruskal 1980; Borg and Lingoes 1980; Lingoes and Borg 1983). This paper discusses the conceptual similarities between these two types of techniques, as well as the differences, and makes suggestions about the conditions under which the two types of techniques are most appropriate, and most useful.

Earlier work on this topic (Fornell and Denison 1981; 1982; Denison 1982; Denison and Fornell 1985) has argued that the basic principles of structural modeling logically derive from the multitrait-multimethod logic first introduced by Campbell and Fiske (1959) and that convergent, discriminant, and nomological or theory-based validity can all be expressed within the context of confirmatory multidimensional scaling, with generally similar results to covariance structure analysis.

Within the general context of a theoretical model like the one in Figure 1, a procedure has been developed for expressing the structural characteristics usually associated with a "causal model" in terms of distance structures. Figure 2 shows a set of points in a two dimensional space which we will then use as an example of the representation of a theory in terms of distance relations.

FIGURE 1.
HIERARCHY OF EFFECTS MODEL OF CONSUMER BEHAVIOR



This simple example allows us to briefly illustrate our basic approach to operationalizing convergent-discriminant and nomological validity (Denison and Fornell 1985). Presentation of the specific formulae for the estimators, the procedures by which to express a set of theoretical constraints in MDS terms, and criteria for the fit between the model and the data, are beyond the scope of this discussion, but are clearly spelled out in the original paper.

FIGURE 2.
EUCLIDIAN DISTANCE ESTIMATES

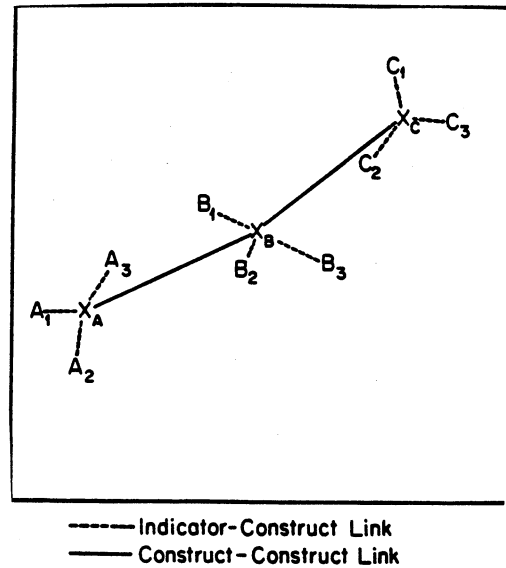


Figure 2 presents a two-dimensional configuration of a three construct model, where each construct has three indicators. X_A , X_B , X_C , are the geometric centroids representing the "true value" of each of the constructs. A_1 , A_2 , A_3 , are the three indicators of construct A. Euclidian distances between the indicators and constructs are analogous to factor loadings, and may also be taken as indications of measurement error. This system allows for the operationalization of indicator-construct relationships in a way that is conceptually quite consistent with the more sophisticated approaches used in the analysis of covariance structures.

Figure 2 also includes hypothetical estimates of relationships between constructs. The distance between X_A , X_B , for example, is a non-metric analogue to a path coefficient, and implies that the distance between the two constructs is a representation of the relationship between variables.

Thus, in a greatly simplified form, we have discussed the relationship between a theoretical model and a set of observed variables, and the manner in which confirmatory MDS techniques have attempted to conceptualize it using distance measures. MDS techniques also typically include an estimate of fit between a theoretical model and the data, to complete the range of considerations necessary for a causal modeling system. Now we turn our attention to a brief example of the application of these two types of techniques, followed by a broader discussion of the differences between these two approaches.

A Brief Example

Suppose that the same matrix represented by the two dimensional configuration in Figure 2 was analysed via LISREL. The matrix, presented in Table 1, was designed to produce an MDS configuration which would fit a CMDS model -- the clusters of indicators were clear, and the relationship between the clusters of indicators (and thus the underlying constructs) fit the theoretical relationships outlined in Figure 1. Will this matrix also fit the set of structural questions suggested by Figure 1?

TABLE 1.
SIMULATED CORRELATION MATRIX

A1	A2	A3	B1	B2	B3	C1	C2	C3
1.000	.770	.815	.611	.613	.775	.523	.508	.522
	1.000	.781	.659	.692	.707	.533	.523	.571
		1.000	.537	.585	.613	.481	.417	.493
			1.000	.875	.801	.740	.696	.668
				1.000	.820	.719	.659	.656
					1.000	.599	.578	.537
						1.000	.826	.825
							1.000	.808
								1.000

The answer, somewhat surprisingly, is no. Even though the parameter estimates are very strong, the LISREL fit is poor. With 25 degrees of freedom and a chi-square of 69.77 ($X^2/df=2.79$), the probability of these data actually fitting the theoretical model is .0000. The adjusted goodness-of-fit score is .791.

A second model helps to give further illustration of the differences between distance modeling and covariance structure analysis. Suppose that a matrix with an identical order, and an identical set of derived distances, but smaller correlations, was analysed via LISREL. How would this affect the fit of the covariance model?

When the correlations in Table 1 were multiplied by .5, there was a substantial improvement in the fit of the LISREL model. The chi-square fit measure dropped from 69.77 to 3.32 ($X^2/df=.13$) and the corresponding probability of fit rose from .0000 to 1.0000. The adjusted goodness-of-fit score also improved markedly from .791 to .993. Smaller correlations, with identical order and distance relations produced a markedly improved fit. Smaller correlations of course had no effect on the CMDS fit. The distance structure remained exactly the same since only the magnitude of the correlations was changed.

Comparing the Two Techniques

The first point of comparison must be the general conceptual similarity and purpose of the two techniques. Both require that a set of measures of a latent construct must converge on that construct, but that the measures must still show a relation to the measures of other constructs that is in keeping with a theory about the relation between the constructs. Both techniques are designed to solve a similar problem, and in most cases, give quite similar results. The example presented here was designed to highlight the type of situation under which the techniques would show different results.

Beyond this initial similarity the differences become much more apparent. These differences are outlined below:

First, the nature of constructs is quite different in the two systems. In CMDS constructs are represented by regions, and in the system developed by Denison and Fornell (1985) the "true value" of a construct is at least indirectly observable, since it can be approximated (assuming random error) by the central point (centroid) of the component measures of any construct. A construct, in LISREL terms is represented by a dimension, not a geometric region, and is truly unobservable. In practice, the "true value" of a latent variable is highly dependent upon the other constructs and indicators which are present in the system of equations.

Second, relationships in a CMDS model have no "functional form" per se. Proximity or similarity measures are converted to distances, but no functional form is implied by this procedure. LISREL, in contrast assumes a linear relationship, and both ordinal data and more sophisticated functional forms such as multiplicative relationships or polynomials violate the assumptions of the method.

Third, the two techniques differ enormously in the importance that they attach to inference. CMDS makes no claim to inferential power beyond that of the original proximity measures, and in general derives from a statistical tradition which places little faith in inference as a tool with which to develop theories. LISREL, in contrast, makes substantial claims to inferential power, and when the appropriate assumptions are met, allows for very powerful inference.

Fourth, one method responds primarily to ordinal relations among variables, whereas the other responds to interval relations. As the example illustrates, changing the size of the input correlations does not change the results of a CMDS analysis, unless the order relations are changed. While this insensitivity to changes in the size of input correlations is clearly one of the attractive features of this method, it can result in confusing examples. Negative correlations, extremely small or large correlations are all treated the same as long as the order relations are identical. LISREL, in contrast, is quite sensitive to changes in the size of input correlations, and relatively insensitive to changes in their order. Thus, larger correlations make a model more difficult to fit, and smaller correlations improve the fit tremendously.

This is in part due to a fifth consideration; the role of the null hypothesis. LISREL reverses the traditional role of the null hypothesis such that higher power leads to a higher (rather than lower) probability of rejecting a "true" model. Thus, a large sample size, and strong relationships among observed variables make it increasingly difficult to fit a model. By the same token, a small sample and weak relationships among observed variables make it very difficult to reject a faculty model. In contrast, CMDS takes a more traditional approach to hypothesis testing. Given a large sample, and strong relationships among observed variables, the convergence hypothesis is much more readily accepted for a given disparity between the model and the data.

Guidelines for Application

Several guidelines for the use of covariance and distance structure analysis seem to derive from the examples and discussion above. These can help to take advantage of the benefits of each of these methods, while avoiding some of their inherent problems.

1. CMDS is probably most useful when one is developing, rather than testing theories. Although the method does include a test, and an accept/reject decision rule, it is a less-precise, ordinal test rather than a metric test. If the data meet the assumptions necessary for covariance structure analysis, CMDS is still quite useful, but primarily as an exploratory technique.

2. CMDS is quite useful for assessing convergent-discriminant validity within the context of a multi-construct, multi-indicator model. The absence of a "true value" for a latent variable in LISREL sometimes makes this quite difficult. This guideline is related to the previous one, since convergent-discriminant validity should be resolved at the exploratory level, and should be a pre-condition for model testing.

3. Covariance structure analysis should be avoided when input correlations are either very small or very large. In these cases the outcome of the model testing is

largely determined by the size of the correlations, and CMDS presents an attractive alternative. An approach based on distance structures allows one to look at the structure of the data in relationship to a theory in a way which is unaffected by the magnitude of the correlations.

4. CMDS places very little weight on probabilistic inference, while retaining a good sense of the factors associated with the "efficacy" of a causal model. This combination has a lot of intuitive appeal, but nonetheless limits powers of inference. LISREL, in contrast, places tremendous emphasis on probabilistic inference, and offers lots of inferential power, when the assumptions are met. Inference is highly important at some points in the research process, and rather irrelevant at others.

Discussion

Research is basically a very disjunctive task; like a chain, a research design is only as strong as its weakest link. The tremendous interest generated by the development of covariance structure analysis, and the relative accessibility of LISREL, has probably resulted in the overuse of this very powerful and sophisticated technique in situations where a weaker, more intuitive technique with far less demanding assumptions would be more applicable. Our work on CMDS has attempted to develop this technique to fit the need for a less sophisticated technique that can be of greater utility at the theory-building stage of research.

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A FACET THEORETICAL APPROACH FOR TESTING MEASUREMENT AND
STRUCTURAL THEORIES: AN APPLICATION OF CONFIRMATORY MDS

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Abstract

The analysis of covariance structures has become a widely accepted tool to test measurement and structural theories in a holistic way. Due to underlying restrictive assumptions of the methodology, however, its usage is seldom justified in the analysis of behavioral data. This article proposes the use of facet theory and constrained multidimensional scaling as an alternative in confirmatory data analysis.

Introduction

During the last decade confirmatory methods in data analysis, especially methods which allow an integrative test of measurement and structural relations have attracted many social scientists. Marketing researchers have focused their attention particularly on one approach which is based upon the analysis of covariance structure (Joereskog 1981). The widely available software LISREL V/VI (Joereskog/Soerbom 1981, 1984) allows a simultaneous test of a measurement model and a model representing the causal hypothesis. In addition, Bagozzi (1980, 1984) provided philosophical arguments for the structural equation methodology and developed on this ground a general prospectus for theory construction in marketing. However, especially the LISREL approach in its maximum likelihood version has been widely criticized, due to its restrictive assumptions. Requirements like multivariate normal distributed variables or linearity etc. are seldom met by the data. The available test-statistic is affected by the sample size and violations of these assumptions (Fornell 1982, 1983). Later developed programs like EQS (Bentler 1984) or LVPLS (Lohmoeller 1985) do not have the restrictive distributional assumptions, but also assume linearity. The methods in general require metric data, although nonmetric extensions exist (Muthen 1983; Wold and Bartholet 1981).

The discussion about the application of the linear models is quite intensive. The facet theoretical approach, however, which is also based on an integration of measurement and theory testing is seldom discussed in consumer research. The methodology majorly is developed out of Guttman's (1954, 1957) work on scaling. Beginning with an investigation of the content of a theory, the statistical structure of the corresponding empirical observations can be predicted and tested by a multidimensional scaling procedure (see for instance Borg 1977, 1985).

Guttman's approach for theory testing can be distinguished from the methodology based on covariance structure analysis in two major instances. First, whereas the latter methodology begins with the integration of measurement and theory on the statistical and model specification level, Guttman's integrative approach starts on the research design level. Facet theory serves as a tool to explicitly define the measurement space on the basis of content. Metatheoretical rules additionally provide a set of structural hypotheses. Second, the proposed multivariate procedure to test the structural hypothesis is a nonmetric multidimensional scaling method based on soft assumptions. Correlations and other types of measures of contingencies and/or (dis-)similarities may serve to test the hypothesis. The method constrained monotone distance analysis (CMDA) to perform confirmatory multidimensional scaling (Borg and Lingoes 1980) is nonmetric and invariant to changes in the magnitude of the measures, as long as the order relation of the input data is maintained.

It should be mentioned that the methodology allows only derived causal interpretations of the results (see Denison and Fornell 1985). As in covariance structure analysis the available test-statistics should rather be interpreted as measures of fit. Instead of that a quasi-statistical model based on an efficacy coefficient can be used to evaluate a model (Lingoes and Borg 1983). In this article we will first introduce this methodology more closely. Then a worked-out example is performed, selecting items from an attitudinal study.

The Basics of Facet Theory

One element of Guttman's metatheoretical approach (1959) is the systematic research design based on facets as a prerequisite to test hypotheses. To clarify the concept of a facet or of 'facet theory', a definition outlined by Borg (1977, p. 65) can be used: "Facet theory is a general methodology for investigation in the social sciences: it provides a general framework for the precise definition of an universe of observations, which is directly related to both the specification of the various elements of empirical studies (stimuli, subjects, responses) and to theories about the structure of those observations".

The basic idea is that a theoretical problem can be decomposed into the number of underlying conceptual facets. The term 'facet' refers to a 'set consisting of a finite number of elements' (Foa 1965). The cartesian product of a finite number of facets for item construction corresponds to the factorial design for experimentation. Examples of facets include the set of components of an attitude, a set of attitudinal objects or a set of different methods to measure one attitude. As such the well-known design of an MTMM-matrix represents the combination of two facets: a method facet and a trait facet. The cartesian product of the two facets provides the basis for data collection (see also Mellenbergh et al 1979).

Based on facet theory Guttman also develops his concept of a theory as 'hypothesis of correspondence between a definitional system for a universe of observations and an aspect of the empirical structure of those observations, together with a rationale for such a hypothesis' (Gratch 1973, p. 35).

The definitional system has to explain the domain of observation and provides a meaningful basis for the replication of research and validation of results. The definitional basis for the measurement of the theoretical construct is provided by the use of a facet design related to the basis-paradigma of research in social sciences. This consists of three basic facets: a population (P), a set of stimuli or variables (S), and a set of responses (R). The population facet (P) describes the characteristics of the population. The second facet (S) defines the content of the variables under investigation. The third facet (R) specifies the categories of the answers.

As a framework to define the area under investigation serves the so-called mapping sentence (Guttman 1959; Shye 1978). A mapping sentence consists of a number of domain facets and a facet which represents the range of answers. The relation of the facets in the mapping sentence can be formalized as follows:

Let A_i be a set of elements and $S = A_1 \times A_2 \times \dots \times A_n$ be the cartesian set which can be built by A_k ($k=1, \dots, n$), then $s \in S$ holds, if and only if s is a structuple of the kind that

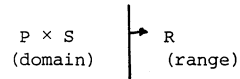
¹ Parts of the article were written while the author was a visiting professor at Auburn University in Alabama

$$s = a_{i1}, a_{i2}, \dots, a_{in}$$

having

$$a_{ik} \in A_k \quad (k=1,2,\dots,n)$$

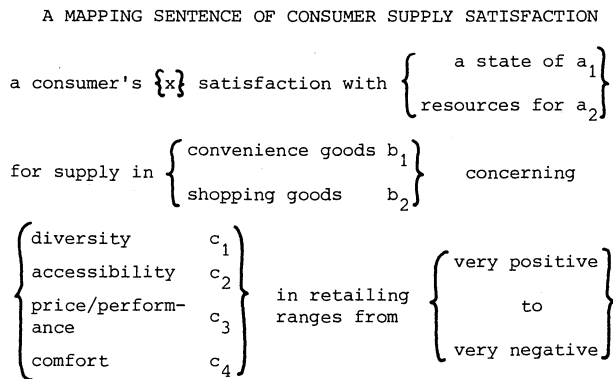
every A_k then is a facet of S . The whole mapping sentence can be formulated as:



where P is the population facet, $S = A_1 \times A_2 \times \dots \times A_n$ the cartesian set of the facets of content, which serves to define the stimuli, and R the range of answering. The elements of a facet are named structus, the elements of the cartesian product of the facets structuples.

The mapping sentence does not constitute a theory. The hypotheses are to be formulated according to the lawfulness of the empirical structure of the variables (Guttman 1959). An example of a mapping sentence from satisfaction research is given by figure 1. The construct under investigation is the consumer's satisfaction with different aspects of retailing in the consumer's area.

FIGURE 1



The cartesian product of the defined content facets $A \times B \times C$ provides all possible combinations of the facet elements which may be relevant to the domain under investigation. However, not all structuples (facet combinations) in general make sense (e.g. Jordan and Horn 1975). The system may serve as a basis for constructing items, but it can as well be used to select items from former empirical research. Using this approach, the researcher assures that also different types of studies are comparable on the general level, even if the focus of each single study may be different. The source of the construction of facets may be either theory or also ad hoc thinking (Borg 1985). Although the approach seems rather simple, it provides the ground to develop some metahypotheses.

Metahypothesis

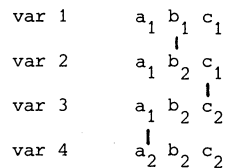
The systematic definition of variables according to underlying substantive knowledge enables us to test their structural relations. In addition, it is assumed that some of the concepts of facet theory are so closely related to psychological processes that they provide meta-theoretical rules concerning the statistical relationships of the variables involved. Foa (1965) suggests two principles for predicting results from a facet structure of the variables: the principle of contiguity, and the concept of semantic principal components.

The principle of contiguity states that variables which are more similar in their facet structure (e.g. on the level of content) will also be more related empirically. An example is given by a combination of three facets, where each facet consists of two elements. The cartesian product of the facets - the space of content - results in eight structuples $(a_i, b_j, c_k; i, j, k = 1, 2)$ to define the varia-

bles. If one uses correlation coefficients to capture the relations of three variables, the contiguity principle (under the assumption of equal weights of the facets) has to lead to the following inequality, if the data are valid:

$$r(a_1 b_1 c_1; a_1 b_2 c_1) > r(a_1 b_1 c_1; a_1 b_2 c_2)$$

Using the principle it is possible to derive an ordering from the variables which in the simplest case is linear. In a study of Guttman (1959) four variables (items) are measured, because of the underlying structuples it was possible to arrange the items according to their contiguity. Each structuple is different to its neighbour by one element:



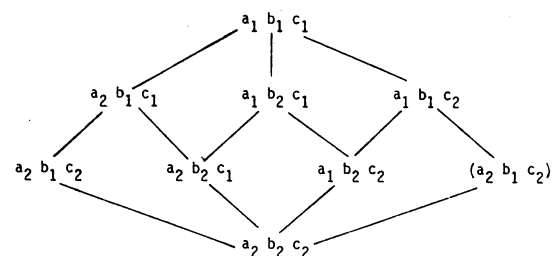
On the semantical (facet-)level we observe the following similarities: var 1 and var 2; var 2 and var 3; var 3 and var 4. Less similar are var 1 and var 3 or var 2 and var 4. Dissimilar are var 1 and var 4.

The principle of contiguity is confirmed empirically, if the correlation matrix of the variables shows a simplex structure. This structure is given if we have a decreasing ordering of the correlation coefficients in the off diagonal columns and rows toward the end points. The geometrical mapping of a simplex is a line or some linear ordering. This is exactly the same which is required if one builds a Guttman-scale. Therefore, the above example results in a scale, which is named 'semantic' Guttman scale by Foa (1965).

Contiguity, however, is only a necessary condition to predict a simplex structure. In a definitional system having three facets we are only able to define partial orderings. If we have dichotomous items, then the system of contiguity has the following structure (see also Guttman/Schlesinger 1967):

FIGURE 2

THE ORDERING IN A DEFINITIONAL SYSTEM OF THREE BINARY ITEMS



If all eight structuples are ordered so that each structuple is contiguous with its neighbour, and if there is only a difference in one element, then the first structuple becomes similar again with the last structuple. Each of the variables will correlate higher with its neighbours than with any other variable. The result is a circumplex structure in the data (Borg 1977 or Foa 1965). The geometrical representation of a circumplex is a circle.

In some cases, however, the principle of contiguity does not produce a unique order. If we assume equal weight of the facets, the facets are interchangeable. The order of the variables are dependent of the choice of the first facet and the first element. To solve this problem, Foa

Foa (1965) introduced the concept of the semantic principle component into facet theory, in analogy to Guttman's (1954) principle components of perfect scales. It states that in a sequence of several structures the facet which changes its elements the least (in general the first facet) serves as the first semantic principle component. If we have more than two facets, the frequency of the variation in the elements of a facet determines its relative weight. However, the concept of semantic principle components is defined very insufficiently. No order hypothesis can be derived without additional assumptions (Lantermann 1980).

Structural Hypothesis

Simplex and its extension, the circumplex, are basic structures and should be mapped only by using the relevant items (Borg 1981, p. 143). They have their importance primarily in scale construction.

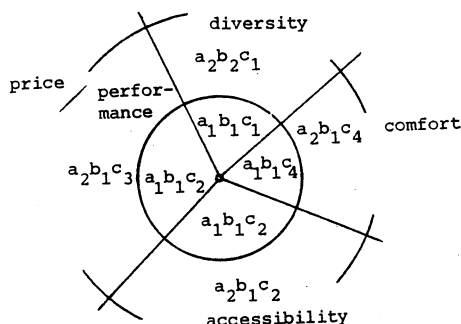
In consumer research it should be of more importance to test the more general hypothesis, if the discriminations created by the facets in S, P, and/or R correspond to empirical regularities. Less restrictive versions of contiguity serve as the basis to relate total configurations to the definitorial system of a facet design. In an ongoing study of Hildebrandt (1985) the mapping sentence of figure 1 served to define the domain of the items concerning supply satisfaction of convenience goods (b_1). The facet A can be regarded as ordered. Facet B is only represented by one element, and facet C is unordered. Using a weak conception of contiguity for a structural hypothesis it is required that

- a) items which have the same element in facet C should be represented in the same area or region of a two-dimensional MDS configuration, and
- b) facet A should discriminate items of type a_1 and type a_2 in this region. Both should lie in different partial regions. In addition a valid representation should discriminate facet A and facet C in a way that the areas or point clusters are non-overlapping and the representation is simple.

This spatial representation of the data is only possible in a two-dimensional space and a structure, which is called a radex (Guttman and Schlesinger 1967). The facet A serves as a modulating facet, facet C as a polarizing facet. The radex hypothesis which should be confirmed by the data using (N)MDS is represented in figure 3. The order expectation of the C facet is specified according to results from former studies.

FIGURE 3

A RADEX HYPOTHESIS OF SUPPLY SATISFACTION



Higher order facet structures and the development of complex spatial hypothesis as for instance the duplex, multiplex, cylindrex etc. primarily depend on Guttman's work and are discussed in a recent paper by Gorg (1985).

Testing Structural Hypothesis

Applying facet theory and developing a set of structural

hypotheses presents the first step to leave the stage of data reduction and exploration in multidimensional scaling. The hypothesized spatial structure based on a meta-hypothesis may be supplemented by some substantive assumptions about the relation of the constructs under investigation (see e.g. Fornell and Denison 1982). However, if we apply a classical (N)MDS method like MINISSA (Lingoes and Roskam 1975) to investigate if the empirical data confirm our structural hypothesis, we still remain in the theory formation process. Applying (N)MDS to our data, we leave the theoretical level and optimize a 'blind' stress which only accounts for the similarity structure. The resulting spatial representation then may satisfy the minimization criteria very well, but may not confirm our set of hypotheses. On the other hand we can not be sure whether there does not exist another configuration which satisfies the optimization criteria equally well and in addition confirms the structural hypothesis.

These interpretational difficulties in MDS solutions caused by local optima and indeterminacy are overcome by confirmatory MDS. Approaches for confirmatory MDS allow to put external constraints on a distance structure. The constraints might be derived from a facet design, from measurement requirements, and/or substantive theory (Fornell and Denison 1982). Constrained MDS solutions may be produced e.g. by programs like KYST (Carroll et al. 1980) or CMDA (Lingoes and Borg 1980). The last is applied in this article. Technically CMDA requires an acceptable ($K > .15$) solution of an unconstrained MDS, for instance by MINISSA. This unconstrained configuration is imposed by a set of constraints to produce a spatial solution according to our theory. In addition to the spatial representation of our data CMDA provides measures to decide, if the constrained and unconstrained distance configurations are equivalent representations of the original proximity data.

In their first approach Lingoes and Borg (1980) developed a statistical test based on Hotelling's t-test. This test is criticized because of its poor robustness against assumptional violations. In a more recent article instead of that Lingoes and Borg (1983) propose a set of decision criteria for the acceptance/rejection decision. However, it should be noted that the criteria are rather rules of thumb than strong statistical criteria. The following coefficients are relevant:

$\rho_c = \rho(X, Z, Y)$, the partial correlation between the order of the distances of the constrained solution (Z) and the unconstrained solution (X), where the order of the original proximity data is partialled out.

$K = \sqrt{1 - \rho_c^2}$, the coefficient of alienation defined as the proportion of variance not explained by the raw correlation ρ of X and Z.

As criteria for acceptance are proposed:

- ρ_c should be larger than $\sqrt{.5}$ (a good solution)
- ρ_c should exceed three times the alienation coefficient K or should at least be larger than 1

In cases where the ratio is between 1 and 3 additional criteria should be used to build a weighting factor A for K. For the calculation of this factor the reader is referred to Lingoes and Borg (1983, p. 47). The reason for the introduction of the multiplier A is that the condition of a larger sample size, larger matrix and a relative large number of constraints etc. should improve the chance for acceptance of a given model. It is proposed: If

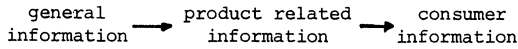
$$\rho(X, Z, Y) \geq AK \quad (1)$$

we accept the equivalence hypothesis.

Applying the Facet Theoretical Approach

The clarify the holistic way of data analysis using the facet theoretical approach an item selection procedure is carried out to test hypotheses about the information behavior of young consumers. The research bases on the

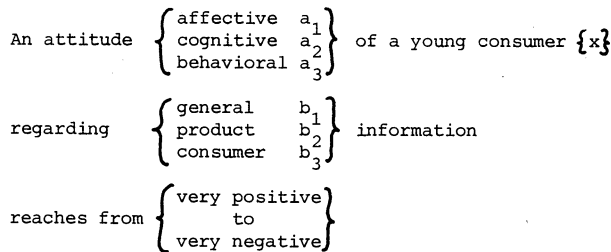
general hypothesis that consumers who are better informed in general are also better informed regarding product and consumer issues. A concept which tries to explain this relationship is 'the propensity to use information' (Wiswede 1975). In this study the concept is measured on the basis of attitudinal items toward different kinds of information. It is assumed that the better the attitude toward an information type, the better the information use behavior (resulting in a more rational buying behavior). The study then states a causal hierarchy for the 'propensity to use information' regarding three types of information :



Based on these conceptual considerations the following mapping sentence is used to define the area of investigation :

FIGURE 4

THE MAPPING SENTENCE



The attitude is defined as a three-partite concept. The cartesian product of the facets of content defines all possible combinations of facet elements. It serves as the frame of reference to select items out of an existing consumer study (Tschammer-Osten and Warnecke 1978).

FIGURE 5

THE CARTESIAN PRODUCT OF FACETS

Facet B \ Facet A		information		
		general	product	consumer
Attitude		b_1	b_2	b_3
cognitive	a_1	$a_1 b_1$	<u>$a_1 b_2$</u>	<u>$a_1 b_3$</u>
affective	a_2	<u>$a_2 b_1$</u>	<u>$a_2 b_2$</u>	$a_2 b_3$
behavioral	a_3	<u>$a_3 b_1$</u>	$a_3 b_2$	<u>$a_3 b_3$</u>

The items were selected by using a comprehensive system of categories with regard to the semantic meaning of cognitive, affective, and behavioral items. For the criterion set to distinguish different sources of information served the closeness of an information type to buying behavior. The selection procedure resulted in a set of nine items, which in part represent the same structuples, and on the other hand some of the structuples of the facet design were not available in the data set. The structuples covered by the available items are underlined.

We can now try to derive some structural hypotheses based on the facets represented by the items. The contiguity principle states that items with the same facet structure should be closest together. The derivation of an ordering depends on the definition of the first principle component and the specification of the first element in the ordering of the facets. Going back to our basic hypothesis we can assume that the facet B discriminating the information sources should be the dominant facet. Therefore, we specify that the attitude toward general information has

to be the first structuple of the ordering, and we derive the following scheme :

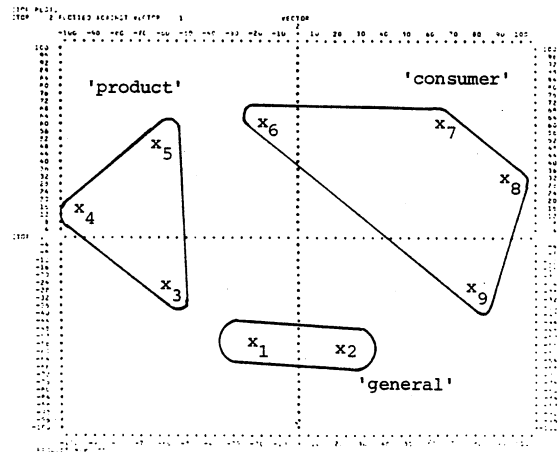
x_1	b_1	a_2
x_2	b_1	a_3
x_3	b_2	a_1
x_4	b_2	a_1
x_5	b_2	a_2
x_6	b_3	a_1
x_7	b_3	a_1
x_8	b_3	a_3
x_9	b_3	a_3

Variables with the same facet structures are x_3 and x_4 , x_6 and x_7 , x_8 and x_9 . They should be closest together. The largest dissimilarities are to be expected between x_2 and x_3 , and x_5 and x_6 . The facet structure in the items representing the same constructs are more similar than between the constructs. The information facet should generate clusters of items. If we apply the logic of an MIMM-analysis, we will get to the same assumption.

In addition we can formulate a simplex expectation between the items x_1 , x_2 , x_9 . To test the structural hypothesis we first generated a MINISSA solution, which produced a two-dimensional configuration based on an alienation $K = 0.9$, which is a good fit.

FIGURE 6

MINISSA-UNCONSTRAINED SOLUTION

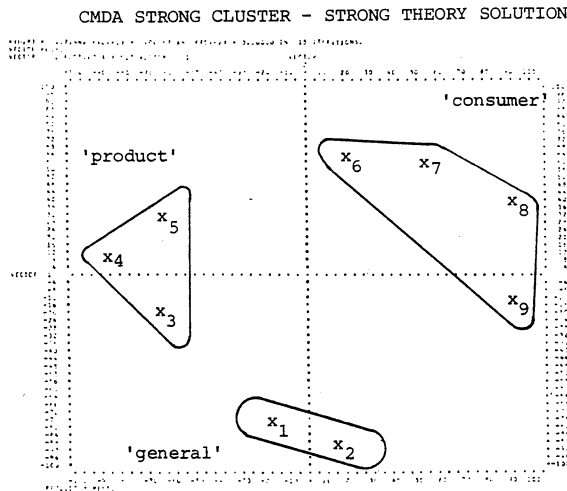


Analyzed were the Pearson correlations of the nine items of a 248 respondents' sample. The MINISSA solution does confirm the simplex expectation. Some of the expected similarities are also represented by the distances. However, the solution does not confirm a strong clustering expectation generated by the elements of the B facet. Especially for the item x_6 we can not decide, if it represents a 'product' related item or a 'consumer' related item.

For constraining the solution in a CMDA analysis according to our general research hypothesis and the structural expectation derived from the facet theory we use a strong concept of contiguity. The spatial solution should be constrained so that each point within an item cluster (representing the B facet) should be nearer to all other points within that cluster than to any point outside of that cluster. The relations between the clusters should

represent the assumed causal ordering. (see upper triangular in the correlation matrix).

FIGURE 7



The CMDA solution shown in figure 7 represents the clear clustering structure and also the stated hierarchical relation behind our three concepts. However, the solution does not satisfy the criteria for acceptance (see figure 8)

FIGURE 8

GOODNESS OF FIT CMDA SOLUTION

contiguity criteria	strong cluster strong theory	strong cluster weak theory
β_c	.67	.68
K	.42	.35
A	2	2

$\beta_c^2 \geq .5$	no	no
β_c/K	1.59	1.94
$\beta_c \geq AK$	no	no (borderline)

An additional analysis without relational constraints according to the assumed hierarchical structure generates a slightly better solution. However, the source of invalidity remains item x_6 . A possible strategy might be to accept a weaker type of Contiguity. If we find an acceptable solution we may calculate the centroids of the clusters as representations of the underlying constructs, and we can use (euclidian) distances to have a measure of their (causal) relations (see: Fornell and Denison 1982; Denison and Fornell 1985).

Discussion

The facet theoretical approach of Guttman integrates the basic steps of empirical research : design - measurement - hypothesis testing. It is more comprehensive than the 'holistic' methodology for the analysis of covariance structure. Shortcomings may be that there is only an indirect way for a causal interpretation of the results and the lack of a sufficient statistical test. But with regard to the last problem we should take into account that in social sciences the assumptions to apply a statistical test like the LISREL χ^2 are seldom met. If the assumptions however, are met, the theory testing part of the structural equation methodology is more powerful. The facet-theoretical approach using CMDA has its advantage if we can not assume linearity or if we do not have metric or quasi metric data. It also has advantages, if the researcher is involved in large variable sets.

THE MATRIX OF THE CORRELATIONS / ORDER RESTRICTIONS

x_1	.-	4	2	2	2	1	1	2	2
x_2	.38	-	2	2	2	1	1	2	2
x_3	.21	.21	-	4	4	2	2	1	1
x_4	.16	.10	.24	-	4	2	2	1	1
x_5	.14	.08	.46	.41	-	2	2	1	1
x_6	.18	.13	.20	.17	.29	-	4	3	3
x_7	.12	.15	.08	.11	.16	.19	-	3	3
x_8	.08	.15	.12	.07	.13	.14	.32	-	4
x_9	.19	.19	.14	.07	.12	.13	.20	.26	-

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GRAPHIC AND VERBAL PRESENTATION OF STIMULI: A PROBABILISTIC
MDS ANALYSIS

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Abstract

A probabilistic unfolding model is used to test a variety of hypotheses about the parameters underlying consumers' evaluations of graphic and verbal stimuli. Specific hypotheses concern the dimensionality of the space, the uncertainty with which stimuli are perceived by consumers, and the similarity of configurations derived from graphic and from verbal stimuli. Differences between configurations derived from graphic and verbal stimuli are explored.

Introduction

Applications of multidimensional scaling (MDS) implicitly or explicitly involve the assessment of a variety of hypotheses. Hypotheses concerning the dimensionality of the space that underlies the stimuli are perhaps most common. Other hypotheses might involve the equality of two or more configurations, order relations among stimuli on particular dimensions, and the nature of the distance function. Confirmation of such hypotheses requires the user to go beyond the calculation of a general loss function, such as Kruskal's stress, and to assess the "influence and balance of systematic and random effects in the data" (Heiser and Meulman 1984).

Statistical and quasi-statistical methods can be used for confirming MDS hypotheses. In the latter category, for example, would be the efficacy coefficient proposed by Lingoes and Borg (1983) for testing hypotheses with their constrained/confirmatory monotone distance analysis (CMDA) procedure. CMDA (Borg and Lingoes 1980) is a nonmetric MDS method which allows the user to impose order constraints on the distances among points in the estimated configuration. To determine if a constrained CMDA solution is equivalent to an unconstrained solution, the efficacy coefficient - a partial correlation of the ordered distances in the constrained and unconstrained configurations with the order of the original data partialled out - is computed. Unfortunately, the absence of an error model denies the authors the use of inferential statistical theory and requires them to develop a heuristic method for determining which values of the efficacy coefficient lead to the rejection of a hypothesis and which values do not.

To test hypotheses using the efficacy coefficient, a two stage decision model is used. In the first stage, the user compares the efficacy coefficient to the coefficient of alienation - the square root of one minus the squared correlation of the order of distances in the constrained MDS solution and the order of distances in the unconstrained MDS solution. The hypothesis of equivalence between the constrained and unconstrained MDS solutions is rejected if the efficacy coefficient is less than the coefficient of alienation. If the efficacy coefficient is more than three times the size of the coefficient of alienation the hypothesis of equivalence is accepted. If the efficacy coefficient is between one and three times the size of the coefficient of alienation, the user proceeds to stage two. Stage two reduces the value of the criterion required to accept the hypothesis of equivalence by computing instead an average of subjectively scaled factors which include items such as the sample size, configuration size, size of the matrix, etc.

Probabilistic models provide a different approach to confirmatory MDS. Development of probabilistic models has been motivated by the desire for an error model that will allow the use of test statistics for a wide variety of hypotheses. A number of probabilistic MDS models have been proposed, viz. (DeSoete and Carroll 1983), (DeSoete, Carroll and DeSarbo 1985), (Ramsay 1977), (Takane 1981),

(Zinnes and MacKay 1983). These models differ with respect to the types of judgments they handle, the measurement properties they assume, and the error models they posit. A review of several probabilistic models has been provided by Young (1984).

Instead of implicitly assuming a deterministic judgment process like CMDA, probabilistic models explicitly assume a probabilistic judgment process and make these assumptions intrinsic components of the model. A primary rationale for probabilistic models is the observed inconsistency of subjects' judgment processes. By assuming a probabilistic process, it is also often possible to make use of very powerful statistical procedures in the estimation of model parameters and the testing of a wide range of hypotheses. In addition, individual models may possess other attractive properties, such as the ability to account for Weber properties, asymmetric judgments, and nonisotropic spaces (Zinnes and MacKay 1981).

Probabilistic MDS models are, though, quite new and users are still faced with a number of open issues which are in need of further investigation. These issues include the sensitivity of the models to departures from their specific error assumptions and the effect of sequential hypothesis testing in accepting and rejecting hypotheses.

In this paper, a probabilistic model for consumer choice data is first defined. Then, an experiment is described which was designed to gather information on consumers' preferences for residential alternatives. Half of the subjects in the experiment received information on the stimuli in a graphic form and half of the subjects received information on the stimuli in a verbal (written) form. Finally, the probabilistic model is used to evaluate hypotheses concerning the dimensionality of the space, the homogeneity with which the stimuli are perceived by the subjects, and the equality of the configurations derived from graphic and verbal data.

A Probabilistic MDS Model

PROSCAL (MacKay and Zinnes 1982) is a probabilistic multidimensional scaling program for incomplete, complete or replicated data. The data are distance judgments between pairs of stimulus objects. PROSCAL represents stimuli as points in a multidimensional space and provides maximum likelihood estimates (MLE) of each point's location. In addition, dispersion parameters are estimated for the stimuli.

Originally defined only for proximity data, PROSCAL has recently been expanded to accommodate preference data as well (MacKay and Zinnes 1985). Preferences are evaluated by a probabilistic unfolding model in which the location coordinates of the stimuli and subjects are assumed to be normally and independently distributed in an isotropic r dimensional space. Standard deviations of the stimulus points are interpreted as measures of the heterogeneity of the subjects' evaluations of the stimuli. Standard deviations of the ideal points are interpreted as the amount of uncertainty in a subject's judgments.

Data for the PROSCAL unfolding model consist of preference ratio judgments. In collecting preference ratio judgments, subjects will typically be asked two questions for each pair of stimuli. First the subject will be asked to identify the stimulus of the pair which is more preferred and then to identify the degree to which that stimulus is preferred over the less preferred stimulus.

To use MLE methods, the density function (pdf) of the judgments must be computed. Given the probabilistic assumptions of the model, the squared standardized distance from an ideal point to a stimulus point can be shown to be distributed according to a non-central chi square distribution. If stimulus j is preferred to stimulus k by subject i , the preference ratio is represented by a ratio of distances d_{ki}/d_{ji} . Conversely, one may consider the ratio d_{ji}/d_{ki} as a measure of subject i 's disutility for stimulus j relative to stimulus k . Since the ratio of two noncentral chi-square distributions is a doubly non-central F distribution, F'' (Kendall and Stuart 1979), the pdf of the ratio $q = d_{ki}/d_{ji}$ can be defined (MacKay and Zinnes 1985).

Given the pdf, PROSCAL then finds the MLE of the parameters through numerical estimation. Initial estimates of the configuration are provided by a deterministic metric unfolding of I scales (Coombs 1950) estimated from the preference ratio data. The I scale for subject i 's evaluation of stimulus j is simply defined as the geometric mean of subject i 's preference ratio judgments involving stimulus j . Initial estimates of the variances are defined as a function of the squared differences between the preference ratio data and the initial configuration's estimates of the preference ratios.

An Experimental Evaluation of Graphic and Verbal Presentations

In a prior study (MacKay and Zinnes 1985), probabilistic MDS was used to evaluate subjects' residential preferences for residential alternatives that were defined on the basis of two dimensions, environmental level and time to work. Results from this prior study were the source of most of the hypotheses that were tested in the study that is described here.

Data

At the beginning of the experiment, subjects were told that they would be evaluating a new system designed to help realtors provide out-of-town clients with a list of residences for their consideration. After being introduced to the experiment, subjects were given a series of warmup tasks to assist them in making the required types of judgments.

To custom tailor the residential preference ratio questions to the prior interests of a subject, a graphic computer interactive data collection program was written. All information was conveyed to the subject by means of two color CRTs. One CRT was used for displaying instructions and receiving subjects' responses. A second high resolution CRT was used for displaying the stimuli.

Each subject expressed preference ratios for all pairs of twelve stimuli. A balanced incomplete block design was used to define the twelve stimuli on the basis of three variables commonly cited in the residential preference literature: environmental quality (three levels), price-quality (four levels) and distance to work (four levels).

The opening scenario told subjects that they were moving to a new town and that they would be working in the central business district (CBD) of a medium sized American city. In the warmup phase of the experiment, subjects were asked whether they were interested in renting or purchasing a house or in renting or purchasing an apartment (condominium). Specific values of the variables defining the stimuli depended upon the type of residence preferred by the subject. If the subject chose to rent or purchase a house, the four levels of time-to-work were 10, 20, 30 and 40 minutes. If the subject chose to rent or purchase an apartment (condominium), the travel times were 5, 10, 15 and 20 minutes.

Environmental level was conceptualized as a compound variable consisting of two parts - population density and level of local services (schools, parks, local retail outlets, etc.). For subjects stating a preference for a

house, the density levels were given as one, two and three thousand persons per square mile and the service levels were defined as low, medium and high. For subjects stating a preference for an apartment/condominium, density levels were stated to be three, four and five thousand persons per square mile and the service levels were again defined as low, medium and high. Density levels were described for the community in which the subjects resided to provide a benchmark.

The four price levels, utility costs plus mortgage payments or rent, were the same for all stimuli - \$300, \$450, \$600 and \$750 per month. Subjects were told that their desired level of quality should also be considered when evaluating the price level of a residence.

While the experiment constructed residential stimuli from only three variables, it was obvious from pretests and the literature that more than three variables were involved in actual residential decision making. To make the task more realistic, subjects were also asked to specify the number of bedrooms they required. All of the residences subjects evaluated were said to be drawn from a list of available properties that met their size requirements.

Thirty-eight subjects took part in the experiment. All of the subjects were graduate students in an MBA program. MBA students were selected because they were about to go into the housing market at salary levels which were high enough for many to contemplate purchasing a house or condominium. In addition, the scenario of working in a CBD and having to communicate with a realtor in a distant town was a scenario which many of the students would soon, if not already, experience.

In the main phase of the experiment, subjects were shown pairs of residential alternatives and asked to first indicate which alternative they preferred and then indicate the degree to which they preferred that stimulus over the other. Half of the subjects had the stimuli displayed graphically on a map of the city. The city was divided into different zones which contained different environmental levels. Time to work was proportional to the distance of the residence to the CBD. Price levels for the two residences in each pair was indicated in the legend. Subjects touched a light pen to the residence on the map they preferred more for the first part of the preference ratio judgment.

The other half of the subjects were presented with a verbal (written) description of the residences. For each judgment, two residences, A and B, were defined by the values of their three descriptive variables. Subjects indicated their preference by touching a small box underneath the description of the preferred residence with a light pen.

After designating their most preferred residential alternative, subjects indicated their degree of preference for the preferred alternative by touching the light pen to any position on a seven inch bar at the bottom of the screen. The bar was labeled on the left with a one and on the right with a five. The label one meant that they preferred the two residences equally and the five meant that they preferred one residence five or more times as much as the other residence. Each subject made these judgments for all sixty-six pairs of the twelve stimuli. Response times for all judgments were recorded.

To minimize anchor point problems, subjects rated extreme pairs of stimuli (very similar and very dissimilar residences) in the warmup phase of the experiment. Temporal bias was controlled by randomly ordering the pairs of stimuli and by balancing the order of the stimuli within each pair so that each stimulus appeared as the first stimulus to the subject approximately half the time. At the close of the session, subjects were asked to evaluate the realism of the experiment.

Analysis and Results

The experiment that has been briefly described above and the one that preceded it were designed to investigate both the nature of subjects' residential preferences and the impact of pictorial and verbal cue presentations. A large number of analyses were done using standard metric and nonmetric MDS procedures as well as PROSCAL for a variety of segments. Comparisons of multidimensional scaling analyses were also made to analyses using other multivariate methods, such as logit analysis.

A rather small subset of the analyses undertaken in the study are reported in this paper. Those that are used are chosen for their ability to illustrate the confirmatory use of probabilistic multidimensional scaling.

Tests of Dimensionality

With MLE programs, such as PROSCAL, tests of dimensionality are done quite easily. To compare a r and a $r+k$ dimensional solution, for example, solutions are derived in both r and $r+k$ dimensions. Log likelihoods of the two solutions are then compared in a likelihood ratio test. Since the quantity

$$Q = 2(L_g - L_s), \quad (1)$$

where: L_g = the log likelihood of the general $r+k$ dimensional solution

L_s = the log likelihood of the specific r dimensional solution

is asymptotically chi-squared distributed with the degrees of freedom equal to the difference in the number of free parameters estimated by the two models, a statistical test of the null hypothesis of a r dimensional solution is available. Thus, unlike most hypothesis tests in CMDA and confirmatory covariance structure analysis, the specific model is assumed to be true unless the data are strong enough to confirm that the general model is worth the cost of the added degrees of freedom it uses. In CMDA and confirmatory covariance structure analysis, the research interest is usually not in providing evidence for a more general model, but in showing that the simple constrained model with fewer free parameters is as good as the general model.

In this study, the data of the nineteen subjects who said they preferred apartments/condominiums, were evaluated in two, three and four dimensions. The resulting values of Q (1) are given in Table 1.

TABLE 1

LOG LIKELIHOOD DIFFERENCES FOR TESTS OF DIMENSIONALITY

Dimensions Compared	df	Q^1
2-3	31	58.54
3-4	31	8.44

¹ Q is defined by (1)

Critical values for Q include:
 $\chi^2(df = 31, \alpha = 0.01) = 52.21$
 $\chi^2(df = 31, \alpha = 0.99) = 15.64$

From Table 1, it is clear that there is ample evidence at the 0.01 level that the data are strong enough to reject a two dimensional model for a three dimensional model. However, there is almost no evidence for a four dimensional model and the three dimensional model is thus confirmed. Since the data were defined as three dimensional, one would not expect any more than a three dimensional solution, though a solution of lower dimensionality might be appropriate if subjects were combining dimensions in their evaluations of the stimuli.

Tests of Homogeneity

PROSCAL assumes that each stimulus and each ideal point has a variance that is the same on all dimensions but which may differ from point to point. (This restrictive assumption of an isotropic space that requires equal variances on all dimensions and independence of observations has been relaxed in the most recent version of PROSCAL. This generalization, which requires going to a distribution other than the double non-central F distribution described earlier, was not available when the analysis for this study was conducted.) In the preceding tests of dimensionality, it was assumed (though not stated) that the variances of all the stimuli were the same. Thus, only one variance was estimated. Other conditions could, of course, have been assumed.

The PROSCAL model allows great flexibility in modeling the variances of the stimuli and ideal points. Three general submodels for allocating variances exist; these are referred to as set, partition and distance submodels. More complex models can also be estimated (MacKay and Zinnes 1985).

In this study, the use of the set model for allocating variances is illustrated. The set submodel allocates variances to individual stimuli or ideal points. Each point may have its own unique variance estimated or the analyst may have a variance estimated for a set of points.

The set submodel was used here in two different ways. The first way was by appropriating a finding from the earlier study (MacKay and Zinnes 1985) on two dimensional residential stimuli that subjects attributed significantly different variances to stimuli according to their level of time from the CBD. This finding was evaluated in the present study by estimating five variances instead of one for the subjects choosing apartments/condominiums. Four unique variances were estimated for the stimuli, three stimuli in each set, and one variance was estimated for the ideal points. A likelihood ratio test then compared the log likelihoods of the five and one variance models.

The second application was to see if the variance for subjects exposed to graphic stimuli differed from the variance for subjects exposed to verbal stimuli. This was accomplished by simply dividing the ideal points into two sets and estimating one additional variance. A likelihood ratio test was again used to compare the likelihoods of the general six and specific five variance models.

Results of the likelihood ratio tests are given in Table 2. It is obvious that the increase in the number of variances from one to five was highly significant but that the increase from five to six was not. In the test of one versus five variances, it will be noticed that only three degrees of freedom are used instead of four. This is because only four of the five estimated variances are free parameters. The uniqueness properties of the unfolding model used by PROSCAL are such that ideal point variances cannot be uniquely distinguished from stimulus variances. The program accommodates this problem by scaling the minimum variances for stimuli and ideal points equally.

TABLE 2

LOG LIKELIHOOD DIFFERENCES FOR TESTS OF HOMOGENEITY

Number of Variances Compared	df	Q^1
5-1	3	103.84
6-5	1	0.50

¹ Q is defined by (1)

Critical values for Q include:
 $\chi^2(df = 3, \alpha = 0.01) = 11.34$
 $\chi^2(df = 1, \alpha = 0.01) = 6.63$

These results differ from those obtained in the earlier study of two dimensional stimuli where it was shown that the variance for graphic stimulus displays was significantly higher than that of verbal stimulus displays. A tentative explanation for this finding is that as the complexity of the stimuli increase, the relative benefits of the graphic display also increase, thus lowering the relative perceived heterogeneity of the stimuli. Estimated variances for the graphic and verbal stimuli were 0.42 and 0.41 respectively.

Tests of Configurational Similarity

An analyst will often want to determine if two or more stimuli or ideal points could indeed have the same estimated location. In product evaluation, for example, one would like to know if two or more brands are perceived to be the same. In this study, we were interested in determining if graphically displayed stimuli were perceived the same as verbally displayed stimuli.

To test the similarity of the configurations for verbal and graphic displays, separate PROSCAL analyses of subjects exposed to graphic and verbal displays were conducted for the apartment/condominium subjects. In both analyses, the configuration was constrained to be identical to the configuration obtained in the previous section when all apartment/condominium subjects were evaluated at once with a model involving five variances. Five variances were again estimated in both analyses. (These constrained analyses are the same as what is usually termed an external analysis. However, PROSCAL is able to keep any number of parameters free or fixed.)

Results of the hypothesis tests are given in Table 3. Here it is seen that the general unconstrained configuration of the verbally displayed stimuli differs significantly from the specific model in which the configuration of the stimuli was constrained to be the one obtained when subjects chose apartments or condominiums for all, graphic and verbal, stimuli.

TABLE 3
LOG LIKELIHOOD DIFFERENCES FOR TESTS OF
CONFIGURATIONAL SIMILARITY

Type of Display	df	Q ¹
Graphic	36	43.78
Verbal	36	82.19

¹Q is defined by (1)

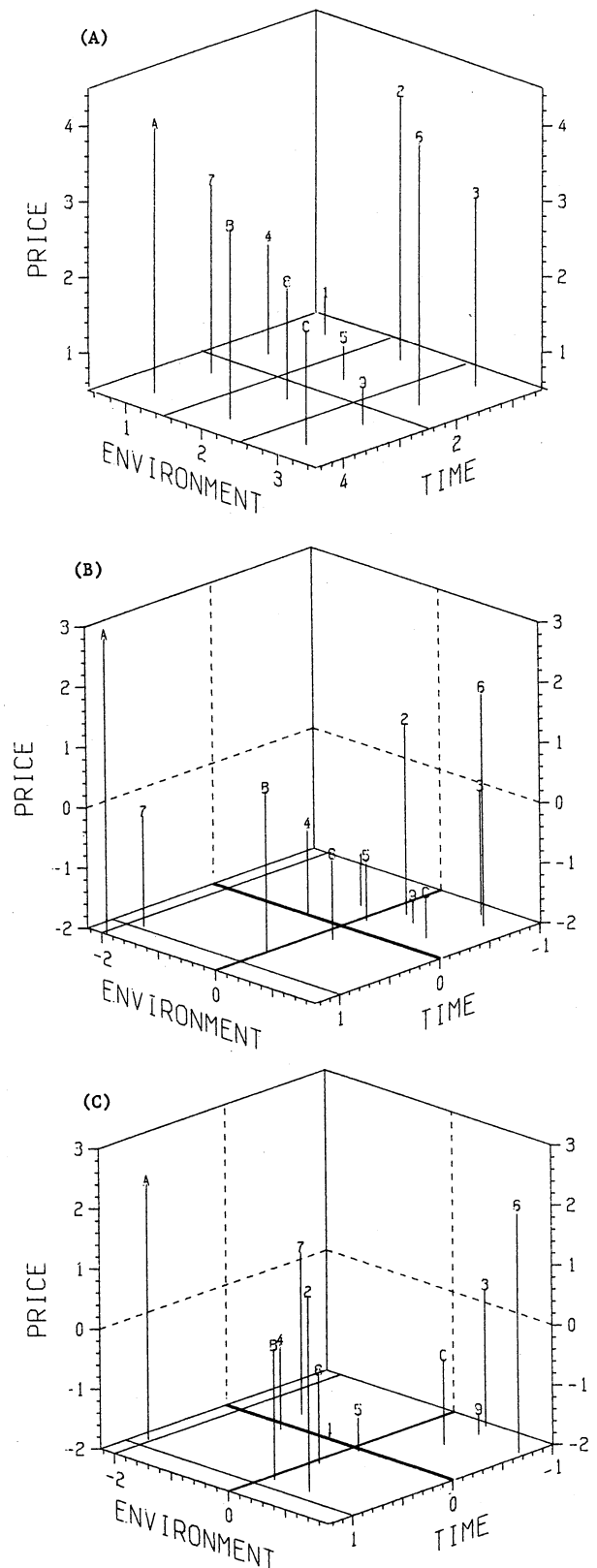
Critical values for Q include:
 $\chi^2(df = 36, \alpha = 0.01) = 58.64$
 $\chi^2(df = 36, \alpha = 0.05) = 51.01$

Stimulus Display and Attribute Covariation

Figure 1 shows three configurations. In panel (A), the configuration of the objectively defined stimuli are portrayed. Panel (B) shows the configuration estimated from the judgments of the subjects exposed to the graphic displays and panel (C) shows the configuration of stimuli for subjects exposed to the verbal displays. Estimated ideal points are not shown.

Evaluation of the differences in the two display modes could proceed in different ways. Perhaps the simplest would be to select a single criterion, such as the correlation of interpoint distances between an estimated configuration and the known "true" configuration of physical coordinates in the first panel of Figure 1. If this is done, the resulting correlations are about equal, 0.56 for the graphic display and 0.62 for the verbal display, with a slight edge for the verbal display.

FIGURE 1
CONFIGURATIONS FOR (A) THE PHYSICAL STIMULI,
(B) THE GRAPHIC STIMULI, AND
(C) THE VERBAL STIMULI ALONG
THE DIMENSIONS OF PRICE,
ENVIRONMENT AND TIME



Examination of the configurations for the two sets of apartment/condominium subjects showed an interesting difference. For the subjects exposed to the graphic stimuli, the correlation between the attribute values of the stimuli on the environment and time axes was of a greater absolute magnitude than that for the subjects exposed to the verbal stimuli. For graphic and verbal displays, the respective correlations were -0.91 and -0.24. The corresponding covariances were -0.41 and -0.24 ($p < 0.05$).

Attribute covariation has been studied both in marketing and psychology, viz. (Chapman and Chapman 1971, Huber and McCann 1982, Jennings, Amabile and Ross 1984). A consistent finding is that even when presented with data which exhibit no covariation, subjects will report their pre-conceptions about covariation of the stimuli. The same phenomenon appears to be happening in this study, so the presence of covariation itself should not be taken as an indication that the graphic method is less satisfactory than the verbal method. It might even be argued that the abstractness of the verbal display dilutes the subjects actual preconceived covariation and that the greater covariation of the graphic display is a better representation. (How preconceptions overcome immediately available data is not known. Jennings, Amabile and Ross (1982) speculate on a number of possibilities - subjects may "see" the relations they report, subjects may weight subjective impressions and expectations, etc.)

Since the covariation affects the criterion of correlation among interpoint distances, other criteria, which are less affected by the covariation, should be considered. One criterion would be to simply correlate the projections of the stimuli on the axes with the corresponding physical values, after rotating the MDS configurations to maximum congruence with the physical configuration.

Results from correlating projections on individual axes, shown in Table 4, indicate that a primary difference in the graphic and verbal displays was that the verbal displays were much less successful in capturing the time dimension than the graphic displays. Correlations of projections on the other two axes are not significantly different from each other.

TABLE 4

PRODUCT MOMENT CORRELATIONS OF PROJECTIONS ON ESTIMATED AND PHYSICAL AXES

Axis	Graphic Display	Verbal Display
Environment	.87	.90
Price	.90	.97
Time	.82	.22

From Table 4, one might conclude that graphic displays enable subjects to retain a greater amount of information in their decision making. Such a conclusion, though, would be premature. Additional study of the effects of graphic and verbal displays are needed. To test hypotheses about the differences in graphic and verbal displays, the methods of confirmatory MDS are well suited.

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AN EXCHANGE THEORY MODEL OF INTERPERSONAL COMMUNICATION

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Abstract

A new model of interpersonal communication is proposed based on social exchange theory. This conceptualization is proposed as an alternative to the prevalent "two-step" model and is offered in order to encourage new research directions.

Overview

The consumer behavior literature on interpersonal communication is dominated by the Katz and Lazarsfeld (1955) "two-step" model. This conceptualization represented a major contribution in dispelling the "direct effects" model, which was prevalent in the late 1940s and early 1950s and which attributed considerable unmediated power to the mass media. Katz and Lazarsfeld's research recognized the importance of horizontal communication among peer groups in mediating the effects of mass media.

Nevertheless, Katz and Lazarsfeld may also have overstated the role of social processes, especially for low involvement products where information-seeking and social legitimation may be minimal and direct media effects may be common (Krugman 1965; Ray 1973; Robertson 1976). They may also have overstated the role of social processes for innovators, who must rely to a greater extent on mass media sources of information about innovations--given the lack of information among peers (Bass 1969; Gatignon and Robertson 1985).

The two-step model is very one-sided in its structure. It suggests a dominant opinion leader in-touch with the mass media who exerts homophilous influence on a set of passive followers. The limitations of this model are well-documented (Weimann 1982; Gatignon and Robertson 1985) but central to these limitations is the one-way direction of influence. It assumes only opinion giving; however, opinion seeking and opinion sharing are also prevalent.

The model which we propose (Figure 1) has its foundations in social exchange theory (Homans 1961; Blau 1964, 1974). The central construct is reciprocity; that is, social interaction will continue only if mutually rewarding. In Blau's view: "Social exchange...is limited to actions that are contingent on rewarding reactions from others and that cease when these expected reactions are not forthcoming" (p. 6). As related to interpersonal communication, influence is an exchange relationship with associated costs and benefits for both parties. The continued occurrence of personal influence is contingent upon an exchange equilibrium whereby both parties benefit approximately equally from the influence transaction.

Personal Influence as Exchange

Most personal influence for consumer products and services occurs at an informal peer group level. There may be exceptions to this, particularly for visual influence (such as fashion and automobiles) which spans diverse social environments. It might be suggested, however, that even visual influence is most powerful at an informal peer or reference group level, rather than among strangers. For high technology innovations consumers may have to go beyond the boundaries of their peer group in order to find adequate information and expertise. In professional and industry domains, these consumers may be more likely to seek influence in an industry-wide social domain (Czepiel 1974; Leonard-Barton 1985).

The stability of personal influence over time depends on reciprocity. An individual who supplies information to another person obligates the recipient. The recipient must, therefore, furnish benefits in return. These benefits may be tied to providing information for other product categories, since most research suggests the situational nature of influence; that is, opinion leadership varies by product category. The reciprocal benefits might also be based on voicing explicit gratitude in order to reduce the level of debt.

Figure 1 schematically represents our exchange theory model of interpersonal influence. The left side of the model takes the role of the influencer and examines the benefits and costs of providing influence; the right side takes the role of the influencee and suggests the associated benefits and costs of seeking information from personal sources. The center of the model conceptualizes a set of factors which enhance the probability of interpersonal influence.

Information Giving

The transmission of influence is a function of the cost/benefit analysis by the potential influencer. This analysis is rarely explicit, as in economic transactions, but is subject to the same rules of utility maximization as in economic decisions. Indeed, Blau (1974) has suggested that diminishing marginal utilities apply, in that if an influencer is constantly asked for information, the social value of being asked declines over time. Similarly, from the point of view of the influencee, initial advice is worth more than later advice (diminishing marginal utility), assuming equivalent information content.

The potential rewards from assuming the influencer role relate to decision support and justification and to social status and power. The potential costs include the social obligation incurred, the time commitments made to information giving and the risks of providing inappropriate advice.

Benefits of Information Giving

A major incentive for assuming the influencer role is to gain support and justification for a purchase decision. In a sense, the information giver may be seeking the legitimation of friends in order to overcome cognitive dissonance. Previous research has tended to show that information giving is at its height immediately following purchase and declines with the passage of time.

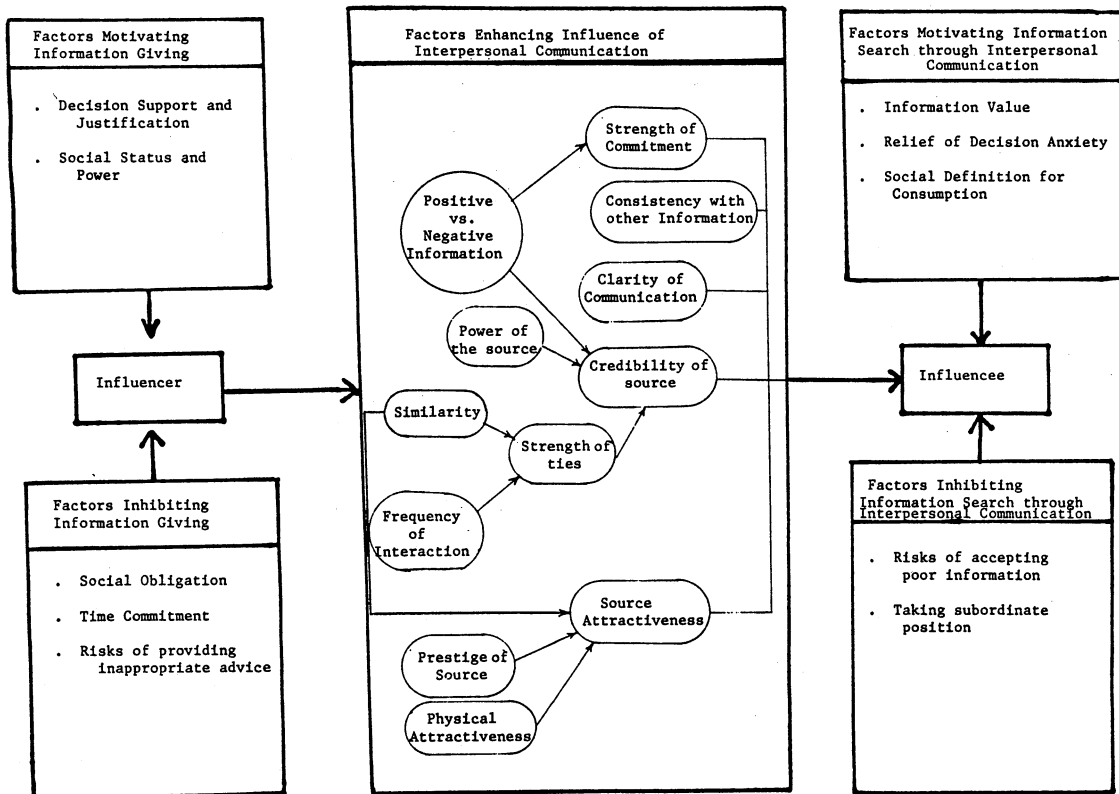
A second major benefit from information giving is social status and power. The act of information giving places the influencer in a superior position. By providing information, the giver makes a claim for recognition and status. Influencees, in turn, incur obligations and must demonstrate gratitude for information received or provide other services in return.

Costs of Information Giving

Much as influencees incur a social cost for receiving information, influencers may also incur a social cost "for being listened to." If the influencer has been given free rein to demonstrate knowledge in one domain of

FIGURE 1

AN EXCHANGE THEORY MODEL OF INTERPERSONAL INFLUENCE



consumption, it might be expected that he or she should reciprocate by receiving knowledge in another domain of consumption. Alternatively, any social relationship which is one-sided will be unstable, since the costs of information for the receiver will be too high. This will lead to resentment at constantly being in a subordinate position and to a breakdown in communication.

There are also time commitment costs associated with information giving. These costs may be high in a work environment, as studied by Blau, where "experts" may be accessed unduly and information giving may come to be resented. It is conceivable that this could also occur in certain high technology areas of consumer behavior. Rogers, Daley and Wu (1982), for example, found that the most likely influentials (persuaders) for personal computers had the highest levels of experience/expertise. Such individuals would seem least likely to receive purchase decision justification benefits and might be less interested in social status benefits. If so, the costs of continually providing personal computer advice could quickly exceed the rewards.

Finally, there are risks associated with the provision of information. These risks include the probability of inappropriate advice for a particular recipient and the resulting problems if recipients hold the influencer accountable. These risks may be assessed to be high for friends whose utility functions are unclear or for new technologies where long-run performance is unclear.

Information Seeking

The reception of information is also governed by cost/benefit analysis. The potential rewards relate to the value of the information, the relief of decision anxiety, and the social definition provided. The potential costs include the risk of poor information and the assumption of a subordinate position.

Benefits of Information Seeking

The most obvious benefit of soliciting information is the value which it provides for decision-making. Information from personal sources may be of particular value if objective non-social information is lacking or is conflicting. It may also be perceived that interpersonal communication is less biased than change advocate information, such as advertising and sales personnel.

Interpersonal communication may also relieve decision anxiety. The recipient may be able to gain confidence from the prior experience of peers, or may be able to avoid extensive information seeking and processing by relying on personal influence. Blau (1974) has suggested a decision value in simply being able to "think-out-loud" with a peer.

Information seeking from friends may also be important in defining group standards for the recipient. This suggests that various consumption domains are socially defined, as in fashion and automobiles. The individual may check with relevant others in order to determine the appropriateness of certain consumption decisions. Such information seeking, or social checking, will be most prevalent when the individual has high identification with the group or a high desire for assimilation with the group.

Costs of Information Seeking

As in all information seeking, the information gained may be poor; that is, erroneous, biased or incomplete. The decision value of personal sources for many products may be overstated due to the small sample sizes of experience which informal opinion leaders generally possess. This raises the interesting question of the relationship between opinion leadership and expertise. In consumer research on stereos, Jacoby and Hoyer (1980) found a

strong positive correlation between opinion leadership and expertise. In research on home computers, Rogers, Daley and Wu (1982) found that the opinion leaders most likely to persuade later adopters were those who were most experienced and highest on expertise. In research with a professional group (dentists), Leonard-Barton (1985) focused on national experts rather than local opinion leaders, implicitly suggesting that friendship-based opinion leadership may not correlate highly with expertise in this professional domain. The Leonard-Barton research is useful also in focusing on negative influence, whereas most research on interpersonal communication focuses on positive recommendations.

Information seeking also incurs the cost of assuming a subordinate position. Individuals may have different levels of tolerance for taking this position, but for almost all consumers it will be intolerable in the long-term unless reciprocity occurs. Such reciprocity could result from taking the opinion leadership role in other consumption domains or from more general patterns of social exchange and reciprocity, not necessarily tied to consumption.

Factors Enhancing the Influence of Interpersonal Communication

The relative influence of interpersonal information exchange is moderated by the set of factors specified in the center of Exhibit 1. The essence of these factors is that the potential for influence is a function of the level of motivation in information search combined with the level of incentive in information giving. The degree of influence depends on the perceived attributes of the source and the perceived nature of the communication message.

Perceived Source Characteristics

Two aspects of the source explain the extent to which an individual influences others. The first deals with the credibility of the source, and the second with the attractiveness of the source. Both notions have been developed in communication theory. However, the individual nature of interpersonal communication adds new elements to the theory, beyond those which are typically pursued in the mass communication context. In general, the degree of interpersonal influence increases as the source is perceived as more attractive and as the source credibility increases.

Source attractiveness. The attractiveness of a source is determined by the individual's prestige, similarity to the receiver, and physical attractiveness. The mechanism by which attractiveness enhances interpersonal influence is the greater attention paid to the communication (Sterthal and Craig 1982).

Source credibility. The source credibility literature borrows more from cognitive theories. A highly credible source is typically more persuasive than a less credible source (Brock 1965) because the high credibility of the source inhibits counter-argumentation (Sterthal, Dholakia and Leavitt 1978).¹ This corresponds also to the implications of a Bayesian model of information integration (Gatignon 1984). The two main determinants of credibility are the power of the source and the strength of ties between the source and the influencee.

The communication literature has concentrated on the power of the source as the major determinant of source credibility (Aaker and Myers 1982). The main type of power that has been studied is the expertise level of the source. It is clearly an essential determinant of the credibility of a source as the uncertainty associated with information is lower for a knowledgeable source than

generate a greater support argumentation in the receiver's cognitive responses.

a novice. However, although the source is an expert, the information must be communicated at a technical level which can be understood by the recipient. Therefore, personal influence will be more readily accepted if the information is communicated at the technical level at which the potential recipient is knowledgeable and comfortable.

Other types of power, such as coercive power, can also moderate the degree of influence of interpersonal communication when dealing with communication between parents and children or between group members (including family) where certain levels of coerciveness can exist. This type of power might not lead to a greater credibility of the source, but can determine the extent to which the information will be used by the recipient of the information.

Further determinants of the credibility of a source can be derived from the concept of the strength of ties (Granovetter 1973, 1983). The strength of an interpersonal tie is defined as the "combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal sources which characterize the tie" (Granovetter 1973, p. 1261). The stronger the tie, and therefore the greater the emotional intensity and intimacy between two individuals, the greater the credibility of each of these individuals to the other. According to Granovetter, the strength of the interpersonal tie is greater between individuals who are similar and between individuals that interact frequently. Consequently, personal influence will be more readily accepted from sources who are perceived to be similar to the recipient. Also, personal influence will be more readily accepted from sources who interact frequently with the recipient. These similarity and frequency of interaction concepts are, in fact, indicators of a more general level of social integration which provides an individual with access to information available within the social system. More specifically, the credibility of the source depends on the past experience that a recipient has with the advice and information given by the source. Therefore, personal influence will be more readily accepted from sources who have low variance in their previous recommendations. In other words, potential recipients will extrapolate from their previous experience and the accuracy of prior recommendations by the source (Barone and Byrne 1984).

Communication Characteristics

A message contains information which is being given to the recipient. However, there is uncertainty as to what the information really means. The degree of uncertainty or confidence associated with a piece of information acts as a weight determining the degree of persuasion of the message. There are three main determinants of the uncertainty associated with a message: the clarity of the message, the consistency with other information, and the strength of the source commitment.

Clarity of the message. Personal influence will be more readily accepted if the signals sent by the source are high in clarity. High in clarity refers here to the lack of ambiguity in the communication, or the absence of noise in the communication (Shannon and Weaver 1949). As indicated earlier, in terms of the power of the source, technical expertise is not sufficient for information to be used by the recipient. Adapting the message so that the information is communicated at the technical level at which the recipient is knowledgeable and comfortable leads to a clearer message and therefore to a lower uncertainty associated with the message.

Consistency with other information. The degree to which information from one source is compatible with other information that the receiver has is a determinant of influence potential. The consistency of the information with other information enhances the acceptance of the

1. Although Sterthal, et. al. (1978), have hypothesized an interaction of source credibility with prior opinions, a less credible source would be more persuasive if the receiver's prior opinion is positive because it would

information by the receiver (Howell and Burnett 1978). In fact, the recipient will evaluate new information against the prior opinion and the strength of (uncertainty associated with) this opinion (Wyer 1974). The consistency is important since previous information creates expectations and individuals react differently to confirmation or disconfirmation of expectations (Oliver 1977).

Strength of source commitment. The uncertainty attached to the message depends on the strength with which the information giver has committed himself or herself to the recommended behavior. The greater the commitment that the influencer has made to the recommended behavior, the greater the acceptance of the recommendation by the receiver. For example, if the source has bought the technology, the weight given to the information by the receiver will be greater. This, however, depends also on the type of information being given.

Positive information might be discounted, particularly, if the source has committed to the innovation. The reason for the discounting lies in the possibility of attributing the information to the source's motivation to reduce cognitive dissonance. This explains why negative information is more important in influencing the decision to adopt an innovation. In addition, the role of negative opinions of experts in blocking diffusion has been empirically demonstrated (Leonard-Barton 1985), as well as the importance of negative information when making a decision to adopt under time pressure or distraction (Wright 1974). Therefore, the nature of the information and whether it supports or negates an adoption decision has a major impact on the degree of influence.

Conclusion

This paper has developed a basic concept of diffusion theory: interpersonal influence. The proposed model offers explanations as to (1) why individuals give information to others, and (2) why individuals take information from others. The model also predicts the extent to which the information communicated influences recipient behavior.

We have systematically integrated a set of factors into a model explaining and predicting interpersonal communication effectiveness. This element of diffusion theory is crucial to understanding the rate of adoption of innovations, when affected by social imitation.

This model is the first stage in a research program centered on the role of interpersonal influence in the diffusion of innovations. The model remains to be tested. This can proceed in two complementary directions. The first direction consists of separately testing each of the relationships hypothesized in this paper. The second direction is an overall test of the model. Although the first approach would involve experimental research designs in the laboratory, the overall test of the model should be performed in the field to take advantage of the natural variation in the constructs of the model. This would also enhance the external validity of the model.

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PRODUCT ENTHUSIASM: MANY QUESTIONS, A FEW ANSWERS

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Abstract

Product enthusiasts represent significant marketplace forces because of their high levels of information seeking, innovativeness, and opinion leadership. Enthusiasm is described and placed within an involvement theory context. A number of additional issues are addressed, including differences among enthusiasts, motivations for product enthusiasm, and influences of the enthusiast on the marketplace. Particular emphasis is placed on enthusiasts' role in the diffusion process.

Introduction

The prevalence of low involvement among consumers has certainly attracted considerable research attention (see Bowen and Chaffee 1974; Houston and Rothchild 1978; Robertson 1976; Tyebjee 1979). This attention is not surprising since even casual observation will reveal that consumers do not deeply care about most of the products they own and use. Additional investigation, however, uncovers instances of high product interest and involvement. For example, consider the following statements by a person highly involved with guns:

The thing about shooting, you see, is that if you're serious about it, it tends to be an all-absorbing kind of sport. It's like you're a computer and its filling up all your memory, it's eating up all your thinking time. And after a while, shooting becomes the only thing that's interesting anymore. (Carr and Gardner 1985 p. 36).

Other examples of high product involvement include the personal computer buff who spends hours hooked into on-line bulletin boards and the clothes horse who owns 75 pairs of shoes. A simpler, generic term referring to high levels of product involvement is product enthusiasm.

Enthusiasts are significant for a number of reasons. First, they constitute important market segments. For example, cooking enthusiasts are predicted to spend over \$62 billion on gourmet foods and cooking equipment by 1990 (Zenka 1983).

Enthusiasts are also important for what they do as well as for how much they buy. These individuals tend to be information seekers, innovators and opinion leaders for the product classes of interest. As a result of these behaviors, enthusiasts play a potentially important role in the transfer of new product technology to other consumers. In exploring product enthusiasm, a number of questions arise including what is the nature of product enthusiasm, are there different types of enthusiasts, and what is the impact of this force in the marketplace. These and other questions are discussed below.

What Is Product Enthusiasm?

Product enthusiasm reflects product involvement at high levels. Thus in defining enthusiasm, it is necessary to define involvement which generally concerns the amount of interest or concern a consumer has with a product at a given time (Mitchell 1979). In considering the nature of involvement, Tyebjee (1978) devised a very succinct approach. He posited that levels of involvement are represented by the amount of time a consumer spends thinking about the product class. Thus, product involvement represents a continuum. Canned corn, scissors, light bulbs and the like have been termed low involvement goods and typically occupy one anchor of the continuum. Such

products may be depended upon or used frequently, yet the consumer does not care or think much about the product.

Durable goods such as freezers, office furniture, and cars are commonly termed high involvement products (see Chaffee and McLeod 1973). If one applies Tyebjee's rule, however, similarities between low involvement and high involvement items are often more striking than their differences. For consumers spending little time thinking about light bulbs and the corn, there is an almost permanent state of low involvement. For cars, freezers, and furniture, there is likely to be involvement, but only at certain times: when the product fails or a purchase is contemplated. High financial stakes are involved in such cases and most consumers will be concerned about the product class due to the high purchase risks. Outside of these specific situations, however, low involvement tends to dominate. Most of the time, freezers, cars, and furniture do not intrude on consumers' thoughts any more than the canned corn does.

Moving up from low involvement, there is a region characterized by moderate consumer interest. Here, the consumer thinks about the product more frequently and at occasions outside the purchase domain. For example, a person may enjoy taking photographs and using a camera; however, this activity may only occur during travel or special occasions. The person is not an avid camera buff, but has a moderate interest in photographic equipment and may occasionally enjoy talking about the product class with friends or looking at camera magazines.

Product enthusiasm, which is the focus here, refers to the high end of the involvement continuum. Webster's definition of enthusiasm helps provide a portrayal of the concept: "a strong excitement of feeling on behalf of a cause or subject; ardent zeal or interest." In the case of enthusiasm, the product in question plays an important role in the consumer's life. Product usage may be a hobby for the consumer and a source of pleasure along sensory or aesthetic dimensions. Another gun owner gave an example of the strength of the relationship between an enthusiast and the product:

My gun is practically my best friend. It goes with me from room to room...It's my buddy (Carr and Gardner 1985, p. 98).

Product ownership should also be considered in elaborating product involvement or enthusiasm. Very low levels of involvement may or may not be associated with product ownership. For example, interest or involvement in the product class of staplers may be low among those who do not own or use staplers as well as among those who do. On the other hand, product ownership is not required for enthusiasm. For example, a nine year old boy may care a great deal about motorcycles and many thousands of people maintain high enduring involvement with sports teams. In both of these cases, the object of the enthusiasm is not possessed or owned, yet high involvement exists.

Are There Different Types of Enthusiasts?

One way to examine whether different types of enthusiasts exist is by focusing on the duration of a particular enthusiasm. In particular, one might distinguish between a constant and rotating enthusiasms. In the first case, involvement with a particular product is maintained at high levels for a long period of time. In the latter case, a consumer may be prone to enthusiasm, but the target changes over time. For example, some consumers are technology buffs, enamored with a series of different

products as new types of electronics gear come on the market. For such consumers, enthusiasm may move over time from personal computers, to compact disc players, to video equipment. Here the involvement is based in the general characteristics of high technology products, rather than in the benefits of any one product class. In the case of constant enthusiasm, a product's benefits are highly valued and considered to be uniquely associated with that one good.

Other differences among enthusiasts may also be speculated upon. While research has not examined the question, it is doubtful that car enthusiasm is fundamentally different from camera or stereo enthusiasm. In these cases, the product is the focal point. However, there may be differences between product-based enthusiasm and activity-based enthusiasm. For example, automobile enthusiasm may have a different character or intensity than a skiing enthusiast's involvement with ski equipment. Enthusiasm for intangible products such as sports teams also may be different than other types of product attachments. The question of enthusiasm types certainly warrants additional study.

Why Become and Remain a Product Enthusiast?

Product Usage Satisfactions

Based on the work of Csikentmihalyi (1975) and other researchers (Bloch and Bruce 1984; Bryan 1977), several possible motivations for product enthusiasm may be proposed. The first motive reflects the satisfaction derived from product usage. A gun enthusiast described a first shooting experience as follows:

The first time, it was so funny, I never shook so hard in my whole life, about anything. The adrenaline rush is really something (Carr and Gardner 1985, p.8)

It is likely that wine connoisseurs and yachtsmen also arrive at their state of enthusiasm at least partially via the experience of product usage satisfactions. In these cases, the attachment to the product seems to be a conditioned response to the pleasure obtained during product usage.

Mastery Needs

Product attachment may additionally result from desires for skill development or competition with an ideal self (Fleishmann 1981). For example, if a person performs well at tennis, this satisfies an achievement need and the consumer may develop an enthusiasm for tennis equipment as well as for the game itself. Similarly, getting a difficult BASIC program to run successfully on a home computer may heighten levels of involvement with computer equipment. Thus, product enthusiasm can occur as a conditioned response to the feelings of mastery. The acquisition of a body of product information also may lead to feelings of mastery. The development of expertise can enhance the self and make the enthusiast feel more in control of his/her environment.

Uniqueness Needs

The role of enthusiast can augment an individual's feelings of uniqueness (Snyder and Fromkin 1980); that is, being known as an expert or enthusiast for a particular product is one way to feel distinctive and become noticed. For example, being introduced at a party as a wine connoisseur or a classic car collector can stimulate conversation, provide attention, and enhance feelings of superiority. In such cases, the enthusiasm, rather than the product, provides important benefits for the consumer.

Affiliation Needs

Product enthusiasm also seems to occur as a result of needs for companionship: interest in a product class can

provide convenient access to groups and a circle of friends. Membership in a computer users', garden, or canoeing club may be more important than the products themselves to many consumers. In addition, many people take on their spouse's involvement as a way to spend time with their otherwise preoccupied partner.

Enthusiasm also occurs as a response to reference group influence. As noted by Tauber (1972):

If group status is associated with one's knowledge of the product category and nature of holdings (e.g., size of record collection), then peer group influence may motivate the person to develop an interest in the product (p.48).

In such cases, the involvement may not be as high because it is less voluntary. Likewise, some product interests seem to result from sex role demands. Examples include fashion involvement for women and automobile involvement for adolescent males.

How Does Product Enthusiasm Affect Technology Transfer?

Although product enthusiasm itself may prove to be an interesting consumer state, its importance to consumer researchers is primarily based in its outcomes that influence the diffusion of new products and new technology. These behaviors include information search, innovativeness, and opinion leadership.

Information Search/Product Knowledge

As a result of strong product interest, the enthusiast engages in active and continuous information search pertaining to the product (Bloch and Richins 1983; Corey 1971; Csikentmihalyi 1975). For instance, the audiophile subscribes to stereo magazines, visits electronics stores frequently, and seeks product information from other stereo buffs. In terms of time expenditures, information seeking may be more significant than product usage for the enthusiast. The yachtsman, for example, may devote considerably more time to reading sailing books and magazines than in sailing itself. This ongoing information hunger underlies the success of special interest magazines such as Gourmet, Road & Track and Cycle. As a further example, consider the field of personal computers where new magazines were introduced at the rate of one per week in 1984 and where the top 25 computer magazines have a combined circulation of 5.9 million (Reiling 1984).

Information seeking provides significant satisfactions for the enthusiast. Besides developing expertise, search may substitute for purchase when budgets are tight. Hirschman (1980) suggests that information gathering allows vicarious adoption of new products that the enthusiast would very much like to own, but cannot for one reason or another. For example, car magazines are dominated by roadtests of new cars, many of which are expensive exotics (e.g. Ferraris and Lamborghinis costing \$75,000 or more). It is reasonable to assume that subscribers are not reading these roadtests to assist in upcoming purchase decisions, but to vicariously own and drive cars that arouse them. An even clearer portrayal of enthusiasts' innovativeness pertaining to information is provided by Infoworld, a weekly personal computer magazine (with an appropriate name), that recently began air shipment to subscribers in response to their demand for the most current product class information.

Along with the active information search noted above, enthusiasts also tend to be vigilant and sensitive for product information to which they are exposed in an accidental manner (Spence and Engle 1970). For example, the car enthusiast is often quick to spot new or unusual vehicles on the road that go unnoticed by others less involved in the product class.

Information seeking, whether through the media, retail visits or personal sources, results in increased product class expertise, a common distinguishing feature of the enthusiast. This specialized knowledge aids product

selection, provides negotiating power when in the marketplace (Brucks 1985; Moore and Lehmann 1980), and makes the enthusiast influential among other consumers (Leonard-Barton 1985). The expertise of the enthusiast also enhances the ability to recall and process product information (Johnson and Russo 1984; Sujana 1985). According to Alba (1983), product experts recall more advertising information and more sophisticated and important information than do less knowledgeable consumers. Product enthusiasts are also better able to evaluate new product information because they have superior understanding of how new information relates to their existing knowledge base (Beattie 1982).

Innovativeness

In addition to the vicarious innovativeness possible through information search, there is also a positive relationship between enthusiasm and actualized innovativeness (Baumgarten 1975; Feldman and Armstrong 1975; Tigert, Ring and King 1976). The involvement/innovativeness connection is not surprising because persons with strong product class interest are likely to learn of an innovation soon after it is introduced during the course of ongoing information gathering. Awareness of an innovation is, of course, the minimum prerequisite for adoption of the new product. In addition, the enthusiast's concern with the product class increases performance expectations that may only be met by the latest, most advanced products (Beattie 1982; Fleischmann 1981).

One may also speculate that innovativeness is influenced by a satiation effect on enthusiasm. Since the product class in question provides the enthusiast with satisfaction and excitement, frequent adoption of new product offerings may be necessary to renew the desired product "high." This need for the newest goods may be particularly pronounced in categories where product changes are noticeable and frequent (e.g., fashion goods, high technology goods).

It is not the purpose here to make product enthusiast a new term to describe innovators, however. When enthusiasm is centered on product classes where change is frequent and new product introduction is common, then the enthusiast is likely to be innovative due to high awareness levels, desires for the latest technology and high performance standards. There are cases, however, where product enthusiasm is not associated with innovativeness. An antique furniture buff may have a great deal of enthusiasm, but little apparent innovativeness. In looking at innovators, one may find individuals who are highly involved with products, individuals who are involved with newness, and individuals who are involved with both.

Opinion Leadership

Not only are enthusiasts likely to be innovative, but they also tend to disseminate news about the innovations they discover. A number of years ago, Dichter (1966) described how product enthusiasm results in opinion leadership.

Experience with the product (or service) produces a tension which is not eased by use of the product alone, but must be channeled by way of talk, recommendation, and enthusiasm to restore the balance (provide relief)... In many instances it is talk about the product which confirms for the speaker his ownership and joy in the product, or his discovery of it (p. 148-149).

Since this statement was made, several other researchers have examined the connection between product involvement and opinion leadership (Bloch 1981; Summers 1970; Tigert, Ring and King 1976). Corey (1971) reported that opinion leaders are distinguished by their:

...unique involvement with market topics. Compared to nonleaders in a particular topic, opinion leaders read more media about related consumer issues; they are more knowledgeable about related new consumer

product developments; they participate more often in related consumer activities; and they derive greater satisfaction from those activities (p. 52).

Researchers have long noted that consumers rely on opinion leaders for prepurchase information; only recently, however, has the extent of such reliance been noted (Hirschman and Wallendorf 1982; Leonard-Barton 1985; Price and Feick 1984). Because enthusiasts enjoy talking to others about the source of their enthusiasm, they are readily identifiable, and potential buyers may seek them out to borrow needed product information rather than conducting an extensive search from scratch. One could argue that the low levels of prepurchase search found in many studies are the result of consumers' efficient consultations with enthusiasts rather than reflecting a lack of motivation or effort.

Can Enthusiasm be Harnessed?

Product enthusiasts are considered here to be significant forces in the marketplace, particularly in the case of new product acceptance. This point begs the question of how enthusiasm can be harnessed to benefit providers of new products. In this vein, it is useful to consider ways in which marketing strategy can be tailored to enthusiast segments. It should be noted, however, that enthusiasm is not relevant to all product classes.

Enthusiast Products

While consumers can become enthusiasts for nearly any sort of good, certain product classes seem to generate a disproportionate number of aficionados. Complex products and hedonic products are two product categories that generate relatively high levels of enthusiasm.

For most consumers, a high level of product complexity is undesirable. Complexity increases buyer uncertainty and risks of disappointing product performance after purchase. In examining enthusiasts, however, one may find that these consumers are attracted rather than repelled by product complexity. In fact, product classes offering complexity and variety are among the most likely to attract enthusiasts (Fennell 1978). Such products offer considerable potential for knowledge acquisition and dissemination as well as for sensory stimulation. Since product enthusiasm implies a hobby-like interest in the product, more complex products would seem to hold the consumer's interest longer.

It is also expected that complex, high performance brands within a product class will be most appealing to the enthusiast. For example, the camera buff is likely to prefer Nikon's or Canon's 35mm models, with their many settings and accessories, over Kodak's Instamatics. While product complexity can be indicative of superior performance, complexity in and of itself may be a more important characteristic. This is particularly likely in product classes such as compact disc players or sports equipment where objective product performance is difficult to assess. For enthusiasts, complexity may be a surrogate indicator of quality much as price is used by many consumers. Product planners should also note that product complexity can be introduced to relatively simple products. Audio cassette manufacturers, for example, have successfully called attention to brand differences and complexity in a product class which at first glance appears quite basic.

Traditional theories of new product diffusion may have to be modified in the context of product enthusiasm. These theories posit a negative relationship between product complexity and new product acceptance, assuming that complex innovations puzzle consumers and forestall adoption (Derow 1982; Rogers and Shoemaker 1971). It might be a significant mistake, however, to direct research departments to design the simplest new products possible when the target market is comprised of a significant number of enthusiasts. The complexity of an innovation can in fact be the heart of its appeal to enthusi-

asts. For example, in 1984 the largest selling new video game for personal computers is a flight simulator that entails dozens of control functions and a thick manual of operations (Infoworld 1984).

Recreational or hedonic products are also likely targets of enthusiasm, provided that their usage is also varied, pleasurable, or stimulating (Csikentmihalyi 1975; Neulinger 1974). For example, a tennis buff may be highly involved with nearly every type of tennis gear except tennis balls because of the simplicity and uniformity of the product across brands. In sum, products having a recreational component that also offer novelty and complexity are strong candidates for product enthusiasm. Product Development

To successfully reach enthusiasts and take advantage of their influence, marketers must be prepared to innovate and improve their products or risk market share losses. Adidas and Puma, once strong competitors in the American running shoe market, lost considerable share in the late 1970's when they failed to keep pace with the technological advances offered by competing firms. On the other hand, enthusiasts' willingness to try a new brand if it promises superior performance helped a small firm, New Balance, move from obscurity to a strong competitive position in the running shoe industry (Merwin 1981). Brand name apparently does not offer a great deal of protection when serving enthusiasts. This is because enthusiasts' advanced knowledge of products and product attributes puts them in a good position to spot technological advances even in unfamiliar brands.

Other Strategic Issues

In encouraging enthusiast adoptions, pricing issues become salient as well. In some instances, enthusiast demand is inelastic. As noted by Kotler (1980), some buyers stand ready to pay a higher price than others because the product has high present value to them. The present value of new products to enthusiasts may be very high, being based on access to the latest product features and possible self-enhancement resulting from the scarcity of the product (Snyder and Fromkin 1980).

It is also possible that enthusiasts are relatively insensitive to price hikes. Once a desired performance level is achieved, it is doubtful whether price increases will cause an enthusiast to accept lower performance standards (Fleishmann 1981). In cases where performance gains are perceived as substantial at a concomitant price increase, the enthusiast also appears willing to make the additional outlay. State of the art running shoes now cost \$80 to \$120 as compared to \$50 or less a few years ago; nevertheless the avid running enthusiast has absorbed the price increase to remain at the leading edge of technology (Runner's World 1984).

New product developers are likely to find the task of reaching enthusiasts with promotional messages to be a relatively easy one. As noted earlier, product enthusiasts are distinguished from other consumers by their hunger for product information. Thus, messages targeted at an enthusiast audience are more likely to be attended to and can have higher information content than that aimed at general audiences (Beattie 1982; Tyebjee 1979).

In considering the importance of the enthusiast in the marketplace, the following statistic provides a summary example. A study by Car and Driver (1978) magazine found that 78% of its enthusiast readership gave automotive advice an average of 19 times a year. It is reasonable to assume similar rates of information transfer with other types of enthusiasts and other product classes.

Can Enthusiasm be Created?

Because of its impact in the marketplace, encouraging product enthusiasm can be a legitimate marketing objective. Chevrolet dealers sponsor Corvette clubs and Lotus Development, a major software producer, supports both a magazine and an on-line users group for personal

computer enthusiasts. These activities reinforce existing enthusiasts and provide resources and support for relative newcomers to the product involvement.

Note that pricing also plays a part in creating new enthusiasts in a product category. Obviously, the higher the initial outlay to become a product user, the smaller the number of participating enthusiasts. There are certainly fewer sailboat enthusiasts than movie or car stereo buffs. This conclusion results from the trialability attribute in determining adoption (Rogers and Shoemaker 1971). If a product is affordable and product usage proves especially enjoyable, enthusiasm can grow. Later, such enthusiasm elicits information seeking and increased expertise. This expertise may in turn raise performance demands and motivate the purchase of more advanced and expensive versions of the product in question. Simple power tools may be replaced by a woodworking shop, the aluminum tennis racket with a graphite model, and the video game machine with a home computer.

Conclusions

There are certainly other important questions regarding product enthusiasm that warrant research attention. Perhaps the most intriguing is the ways in which enthusiasm develops in a consumer. While some consumers become highly involved with a product as an adult for reasons noted above, others appear to develop significant product interests and attachments early in life. Therefore, concepts such as consumer socialization and family influence play a part in furthering the concepts of involvement and enthusiasm. For example, many car enthusiasts point to the origins of their interest in childhood, the building of car models or the racing of slot cars or go-karts. Clothing, gun, and sports enthusiasm also are likely to start in childhood. Speculating further, the extent to which enthusiasm begets enthusiasm bears investigation. It would be interesting to determine the proportion of product enthusiasts who have parents with the same interests.

Along with specific product enthusiasms, the issue of involvement proneness and its development are of interest. Some people seem to need an enthusiasm of some type, with the product choice being of less significance. Again the role of parental and peer group influence could be linked to this more generic question.

Taking the notion of enthusiasm to its highest extension may also provide important research directions, but more for sociologists or public policy makers than for marketers. At highest levels, product enthusiasm might be considered product obsession where the product is essentially all that the individual thinks about. Examples might include the somewhat mild case of a teenaged boy who thinks so much about his car, and cars in general, that his grades suffer, all the way to the bulimic who is preoccupied with food, and the drug addict who is obsessed with finding the next fix. In general, the study of high consumer involvement and product enthusiasm is one where there are many questions and many options.

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THE EFFECT OF TV PROGRAM INVOLVEMENT
ON INVOLVEMENT WITH COMMERCIALS

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Abstract

The present study examines the effect of the audience involvement with TV programs on their involvement with the commercials. Two different types of TV program, cognitive and affective, were experimentally created with three different levels of involvement. The results strongly support the debilitating effect of a higher audience program involvement (both cognitive and affective) on their involvement with the commercials.

Introduction

The contextual facilitation of human information processing has been well documented in the area of cognitive psychology. Several studies have focused on how contextual aspects affect learning (Anderson & Ortony 1975; Barclay et al 1974; Tulving & Thompson 1973) and retrieval (Roediger 1983; Smith et al 1983; Glenberg et al 1973), illustrating the degree to which human memory and language understanding are sensitive to the context within which exposure to a message occurs.

The importance of contextual facilitation is particularly noted in assessing the program effect on audience reactions to advertising (Bandes 1983; Barclay et al 1965; Bello et al 1983; Crane 1964; Davis and Welsch 1983; Kennedy 1971; Krugman 1965; McConnell 1970; Mattes & Cantor 1982; Murphy et al 1979; Soldow and Principe 1981; Webb and Ray 1979; Worchel et al 1975). A principal goal of a television viewer is to view a program in order to fulfill certain underlying needs, rather than to view the commercials aired within the program. As an embedded element in the TV program, a commercial's effectiveness not only depends on its own production merit (initial effectiveness) but also greatly on the audience's reaction to the program. To the extent that contextual cues are important for human information processing and that a TV program affects the audience's commercial viewing, advertising research which is void of the program consideration suffers an ecological validity problem.

Hypothesis Development

The effect of a TV program on an advertisement's effectiveness can be understood with the consideration of: (1) the level of audience involvement with the program and (2) the congruence between program contents and commercial contents in terms of an audience's processing mode (e.g., cognitive and affective processing, Park and Mittal 1985; Park and Young 1986). The present study focused on the former while addressing the implication of the latter in the discussion section.

As audience involvement with a program increases, they are typically expected to allocate more attention to commercials embedded in the program. The relationship between audience program ratings and costs to air commercials in a program are essentially based on this expectation. Findings of television viewers' attentional inertia during program breaks (Anderson 1983) may justify this expectation. The present study suggests that this expectation should be, however, examined in terms of the moderating role of the audience's level of program involvement. Individuals do have control over the amount of attention devoted to a particular stimulus whenever such decision is deemed necessary (Kahneman 1973). Jacoby, for example, argued that consumers

will not generally be overloaded because they are highly selective in how much and just which information they access. When audience involvement with the program is high, thus requiring a greater processing demand, such needs become genuine. In this situation they will allocate higher levels of attention to the program at the expense of commercial attention. This will lead to lower involvement with commercials than would be expected on a pure attentional inertia basis. We therefore expect a curvilinear relationship between program involvement and commercial involvement: subjects' involvement with commercials will be highest at moderate rather than a low or high level of program involvement. (Subjects' commercial involvement initially increases with increases in program involvement up to a moderate level, thereafter commercial involvement decreases with increases in program involvement.)

This curvilinear pattern is expected to hold across the two types of program involvement. Specifically, previous studies distinguished two types of involvement: cognitive and affective (Park & Mittal 1985; Park & Young 1986). The cognitive motive is utilitarian in nature while the affective motive is experiential (Holbrook & Hirschman 1982). Describing these two motives in the context of a TV program, one watches a TV program to gain knowledge about the particular subject matter, to examine his/her perspective relative to others, to take one's position about an issue, and to entertain his/her intellectual curiosity in the case of the cognitive motive. In the experiential view, the reasons for watching a TV program are essentially aesthetic in nature and hinge on an appreciation of the program for its own sake, apart from any utilitarian function that it may or may not perform. The criteria for experiential viewing encompasses a wide spectrum of feelings and emotions which are not utilitarian in nature, including the value-expressive motive (Park & Mittal 1985; Park & Young 1986). When one indulges in fantasies and aesthetic thoughts by role playing of the character or self-identification with a character, he/she is affectively involved with the program. In an information processing context the cognitive motive fits well with piecemeal processing (Fishbein & Ajzen 1975; Anderson 1963) and the affective motive fits holistic processing (Gestalt school's field dependent processing). Emotional arousal is assumed to precede the information processing in the affective motive (Clark 1982; Bower and Cohen 1982; Leventhal 1982) while such is not assumed in the cognitive motive case. It should be noted that programs may not be clearly cognitive or affective and often they are mixed. The present study, therefore, approaches this more in terms of relative dominance rather than exclusive categorical classification.

When an individual's underlying motive for high program involvement is cognitive, the implication of difficulty in processing commercial information is evident. This is due to the heavy processing demand resulting from the piecemeal method of processing program information. When the underlying motive for high program involvement is affective, such processing difficulty will not be as extensive as is the case with cognitively motivated program involvement. This is attributable to the category-based information processing of program information (Fiske 1982; Mandler 1982). However, the emotional arousal created from the high affective program involvement will make it difficult for the viewer to get involved with the commercial (continuously paying attention to commercials). This is expected since high emotional arousal tends to last long (Clark 1982) and interferes with the adjustment process required for commercial information processing. Therefore, for two different reasons, we expect a curvilinear relationship between the level of program involvement and the level of commercial involvement for both types of program.

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Methods

This section provides a general overview of the selection and assignment of subjects, the experimental design utilized, and the operationalization of involvement in terms of type and level.

Subjects for the Experiment

One hundred two female subjects were recruited from the general population for the experiment. Subjects were randomly selected from the telephone directory and contacted by phone. A follow-up letter with directions, confirmation of the scheduled time and reiteration of the level of remuneration for participation was then mailed.

Experimental Design

Two factors are examined in this study for the effects of the subjects' program involvement on their commercial involvement: the specific type of program involvement, and the intensity (level) of program involvement. The experimental design for this research is a 2 X 3 fixed-effects model employing two types of viewer involvement with the television program at three levels of involvement intensity. The subjects were randomly assigned to one of the six treatment conditions.

The two types of viewer involvement with the television program were operationalized as:

(a) Cognitive - where the subject is processing issue-oriented information from the television program. Subjects in the cognitive groups will be processing the specific position taken by the main character and/or evaluating the character's position.

(b) Affective - where the subject is identifying with the main character in the television program. Subject's role playing through identification with or projection into the character's situation was manipulated.

The program segments used in the experiment were selected after a review of a series of possible segments by three expert judges. The cognitive program selected for use in the experiment was a 30 minute sequence from Donahue. The affective program selected was a 30 minute sequence from a daily soap opera. The Donahue sequence was a discussion with Maureen Reagan regarding the political implications of the gender gap. The soap opera sequence was from Another World consisting of minimal dialogue with a series of love and relationship scenes embellished by a romantic musical score. The general contents of this program (from the early beginning to the end) consist of the main character recalling pleasant memories about her past love affair with her husband.

Three different television commercials, all representing different brands of hair shampoo, were inserted for each program. One commercial was a fictitious commercial which was created professionally while the other two were real ones. The commercial insertions in the program followed the same sequence as in the real program.

Experimental Manipulation

Experimental manipulations on the type and level of program involvement were performed by asking the subjects to follow the specific instructions noted below. For the low involvement manipulation, no distinction was made between the cognitive and affective program involvement (the same manipulation was performed as noted below).

(a) Low Involvement--cognitive and affective:

Thank you for agreeing to participate in this study. I am interested in what people select to read from magazines. To help create a more natural setting I will turn the television on while you are reading from the selection of magazines that have been provided. You may walk around and stretch if you wish, I only ask that you not leave the

room. Select two magazines and read at least one article from each of the magazines you have selected. I will return in about 30 minutes to ask you questions about your choice of reading(s) from the magazine(s) that you have selected.

(b) Moderate Cognitive Involvement:

Thank you for agreeing to participate in this study. While viewing the following program I would like for you to watch a discussion between Maureen Reagan and Phil Donahue. I would like for you to try to come to an understanding of Maureen Reagan's viewpoint.

(c) Moderate Affective Involvement:

Thank you for agreeing to participate in this study. I would like for you to watch a program where the main character is called Rachel. While you are watching the program try to identify with Rachel and think about how you feel. Rachel will be the first character you will see.

(d) High Cognitive Involvement:

Thank you for agreeing to participate in this study. While viewing the following program I would like for you to pay specific attention to the arguments advanced by Maureen Reagan and the sequence of events. Her arguments, the subsequent discussion with Phil Donahue, and your position concerning the discussion will be an important part of the questions I will ask you after the program.

(e) High Affective Involvement:

Thank you for agreeing to participate in this study. I would like for you to watch a program where the main character is called Rachel. While you are watching the program try to identify with Rachel and think about how you feel. Rachel will be the first character you will see. The program starts at a point in time where Rachel's husband is missing and assumed dead. Try to think about a situation in your past where your loved one has been missing. Imagine you are Rachel as you are watching the program and go through Rachel's experience to the fullest of your ability.

Measurement Instruments

Prior to the main experiment each subject was asked to indicate their level of interest in watching a particular type of programs. Subjects' level of interest in watching daytime soap operas, talk shows, television, movies, and business news were measured on a 7-point scale ranging from "very uninterested" (1) to "very interested" (7). In addition, subjects were asked their date of birth to determine their age.

After viewing the program subjects were asked a series of questions including the involvement measures. Subjects were asked to respond to a series of descriptive scales according to how they perceived the television program. The items consisted of 7-point semantic differential descriptors relating to irrelevant/relevant, means a lot to me/means nothing to me, matters to me/doesn't matter, uninterested/interested, significant/insignificant, vital/superfluous, essential/nonessential. Subjects were then asked to respond to the same descriptors according to how they perceived the commercials.

Results

Manipulation Check of the Subjects' Random Assignment

Tests for the randomization of subjects across the 2 X 3 design consist of measures in two key areas (1) the degree

¹It should be noted that at the beginning of this 30 minute sequence it became evident that her husband was still alive. The balance of the program was dedicated to a romantic memory sequence.

of interest in television watching, and (2) age. The mean differences (the degree of interest in television watching) across groups were not significant ($F = 1.00$, $p < .39$) with an overall mean value of 17.88 (28 represents the highest possible score). The respondent group's overall expressed interest in television viewing was slightly above the neutral level of 16. The second test of random assignment was to examine age differences between and within groups. A random distribution of age was thought to be important because of the possible difference in the sensitivity of the issues (both of cognitive and affective program issues) to subjects of different ages. The average age of respondents was 30 with 5 nonresponses. There was no significant difference in the age of respondents across the six treatment conditions ($F = .952$, $p < .419$).

Manipulation Check of the Experimental Group

Two experimental manipulation checks are called for in the present study. They are the type of program involvement (cognitive vs. affective), and the level of involvement (low, moderate, and high). Pretesting of the manipulations consisted of several stages from relying on 'expert' judgments for prescreening to pretesting with subjects which were not part of the main experiment. The results reveal support for a conclusion of effective manipulation as discussed in the following sections.

Type and Level of Involvement Manipulation. An array of approaches have been utilized in the manipulation of subject involvement from increased payoffs to levels of personal relevance. Measures of the effectiveness of these manipulations have consisted of single item measures of level of interest, importance, personal relevance, or multiple item scales (e.g., Zaichkowsky 1985). These traditional measures of involvement may not be equally sensitive to differences in the underlying motives for involvement such as cognitive and affective motives. These measures are expected to be more sensitive to cognitive involvement as opposed to affective involvement. For example, to go through emotional experiences by projection into the situation of a television character may not be viewed as 'important' though the intensity of emotion may be high when compared to the political ramifications of the gender gap. However, the emotional experience from projection into the characters role will still be sensitive to measures of importance across levels of increasing affective involvement. This leads to an expectation of higher scores on the measures of involvement for the cognitive involvement group than in the affective involvement group although the measures will still capture relative differences in the level of involvement.

A 7-item involvement scale, which was adapted from Zaichkowsky's recent work, was applied for the manipulation check of the type and level of program involvement. The results (Table 1) show higher involvement scores ($\bar{X} = 29.22$) for the cognitive group than for the affective group ($\bar{X} = 19.53$) with a significant effect ($F = 19.95$, $p < 0.001$). Equally interesting is the difference in the involvement scores across the three levels of involvement. For both types of program involvement there is a significant increase in the involvement score in accordance with the level ($F = 9.26$, $p < 0.001$).

TABLE 1
PROGRAM INVOLVEMENT

	Type		
	Cognitive	Affective	Mean
L Low	24.12	13.59	18.85
E			
V Moderate	29.18	18.82	24.00
E			
L High	34.35	26.18	30.26
Mean*	29.22	19.53	24.37

*maximum possible score 49.00

Hypothesis Testing

To test the hypothesis, analysis of variance was performed using the degree of involvement with the commercials shown during the television program as a dependent variable. The results (Table 2) reveal a significant main effect of level of involvement ($F = 4.03$, $p < 0.02$) and an interaction effect of level and type of involvement ($F = 5.113$, $p < 0.01$). An examination of the main effect reveals, however, that there is an overall curvilinear relationship between commercial involvement and the level of program involvement. The mean scores show an increase in involvement with the commercials as subjects' involvement with the affective program increases from the low (15.82) to the moderate level of involvement (29.29). There is a decrease in subjects' expressed level of involvement with the commercials at the high level of affective program involvement (to a level of 26.47). The mean scores show a marginal decrease in the level of commercial involvement as cognitive program involvement goes from low to moderate (24.88 to 24.82). There is then a decrease in the expressed level of commercial involvement (to 22.65) as program involvement increases to the high level.

TABLE 2

	COMMERCIAL INVOLVEMENT		
	Type		
	Cognitive	Affective	Mean
L Low	24.88	15.82	20.35
E			
V Moderate	24.82	29.29	27.06
E			
L High	22.65	26.47	24.56
Mean*	24.12	23.86	23.99

*a maximum possible score 49.00

The relationship between the cognitive program involvement and involvement with the commercials at the low and moderate levels is in an interesting contrast from that between the affective program involvement and involvement with the commercials at the same levels. The reason why there is no increase in involvement with the commercials from the low to the moderate level may be due perhaps to the subject's greater sensitivity to cognitive strain with the cognitive program than with the affective program. However, for the cognitive program the hypothesis of the present study concerning the effect of the high program involvement on involvement with the commercials is still supported.

The directional presence of the interaction effect is accounted for by the difference in commercial involvement between the subjects in the two types of programs and their level of involvement with the program. When the subjects watched the cognitive program at a low level of involvement, their involvement with the commercials was higher than those who watched the affective program ($t = 2.52$, $p < 0.0017$). This may be due to the fact that at a low level of involvement, it is easier to process information of the cognitive program than the affective program since the former does not require emotional arousal, which is difficult to achieve at a low level of involvement. This appears to have carried over into involvement with the commercials. However, at the moderate and high levels of involvement, the direction of involvement with the commercial is reversed ($t = -1.28$, $p < 0.211$, and $t = -1.27$, $p < 0.212$ for the moderate and high levels of program involvement, respectively). This is due perhaps to difficulty in maintaining attentional focus on both the program and its commercials by subjects who watched the issue-oriented TV program.

Summary and Implications

Program involvement and involvement with commercials do not necessarily coincide. The relationship between the two is subject to the level of involvement with the program.

At a high level of involvement with the program subjects, involvement with commercials was reduced, compared with subjects who were moderately involved with the program. The curvilinear relationship between program involvement and involvement with the commercial suggests that high involvement with the program has a mitigating effect on subjects' involvement with the commercials.

Several important implications for brand and advertising managers are evident from the results of the present study. Particularly at issue is the question of ad placement within a specific program to maximize ad effectiveness. This issue cannot be adequately addressed by utilizing program ratings and audience demographics since an essential aspect of program-commercial message processing relates to the intensity of viewer involvement with the program and advertisement. To address this issue the advertiser must carefully examine the intensity of viewers' involvement with the program within which an ad will be aired.

Although the results of the present study suggest that high involvement with the program has a mitigating effect on subjects' involvement with the commercials, their expressed involvement with the commercials and the effectiveness of the commercials may not necessarily be equated. The relationship between the two may be further mediated by the degree of congruence in processing mode between the program and commercial while being subject to the level of the subjects' program involvement. This needs to be addressed in future studies.

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EFFECTS OF OVER-TIME MEASURES OF VIEWER LIKING AND ACTIVITY DURING PROGRAMS
AND COMMERCIALS ON MEMORY FOR COMMERCIALS

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Abstract

Memory for commercial information was examined as a function of liking and change in liking measured over time during television viewing. Four categories of measures were taken during commercials and surrounding programs: mean liking; variance in liking, trend in liking across a segment; and change in liking between programs and commercials. Correlations were examined for simultaneous relations (memory and liking measures at the same point in time), and for proactive and retroactive relations. Significant variance in recall and recognition was explained by the over-time measures, independent of program or commercial content.

Introduction

There appears to be an inverse relationship between the cognitive involvement potential of material presented immediately prior to and subsequent to the critical message and retention of message content. (Bryant and Comisky 1978, p. 73)

Based on an initial sample of 18,000 viewers..., Burke found a direct correlation between the viewer's expressed opinion of the program and this viewer's ability to recall part of the test commercials. (Priemer 1983, p. 3)

Research about program-context effects on commercials is summarized by the two results described above. When program involvement was operationalized by viewer self-report, placement in highly involving programs inhibited memory for commercials (Kennedy 1971; Bryant and Comisky 1978; Soldow and Principe 1981). When liking was similarly measured, commercials in well liked programs showed stronger memory (Priemer 1983; Krugman 1983).

The present study was designed to reconcile these findings using an "on line" measure of program involvement and liking that could be matched with memory for embedded commercials. In addition to an overall assessment of the level of liking in surrounding programs, effects on memory were hypothesized to depend on three measures of activity during viewing: (1) the variability of surrounding judgments; (2) trends over time; and (3) changes in level, variance and trend that occurred between programs and commercials. Finally, effects were not limited to proximal influences of program judgments on memory. Three different processes were hypothesized: (1) simultaneous effects (influences of message involvement on memory for commercial information at the same point in time); (2) proactive effects (influences of prior programs on subsequent memory); and (3) retroactive effects (influences of later programming on memory for earlier commercial information).

Time-dependent analyses of television viewing are not new in marketing and communication research, although few citations can be found. The most typical application in mass communication has been the study of children's responses to television and movies. In an early study by Dysinger and Ruckmick (1933/1970), children's emotional responses were indexed over time by galvanic skin response during movie watching. More recently, Krull and Husson (1979) and Anderson and Lorch (1983) have correlated visual orientation (i.e., time when eye gaze was directed at the screen vs. competing stimuli) with memory and comprehension of television programs. Although most research on program-context effects in advertising has not used time-dependent analyses, the Bryant and Comisky study

cited above varied involvement of segments in a program, and noted their differential effects.

The scarcity of these studies stands in stark contrast to theoretical discussions about the importance of time-dependent processes in communication (Kline 1977; Krull and Paulson 1977). The extraction of meaning from television messages is best conceptualized as a series of interdependent evaluations. The successful uses of psychological concepts such as priming, serial position effects, and the processing of serial patterns (Jones 1974), attest to the importance of contextual information in encoding. Consequently, a primary assumption in this research is that mental activity occurring before, during and after the processing of a target message can dramatically influence the information retained, the length it is remembered, and the associations with past experience.

Lack of research about over-time processes probably results less from theoretical neglect than from a shortage of appropriate methods for assessing on-going reactions. The assumption that program and commercial messages are interdependent and that evaluations are mutually influential over time, suggests that exclusive use of post-viewing measures is inappropriate. Nevertheless, recording reliable evaluations of a quickly changing stimulus is difficult. In this study, subjects were asked to turn a dial as they watched television. They turned the dial up from 50 to 100 to indicate degree of liking and down from 50 to 0 to indicate dislike. A potentiometer setting was registered for each subject for every two seconds of viewing, and the over-time patterns of these mean settings comprised the measure of liking.

Two kinds of measures were examined in the dial patterns. The most obvious measure was the mean level of the settings. This level provided an indication of how much subjects liked what they were viewing during significant time segments. Mean level of liking was defined for commercials, commercial pods, and four different parts of programs (mean level for the entire program segment, and mean level for the last two minutes, one minute, and half minute before the commercials).

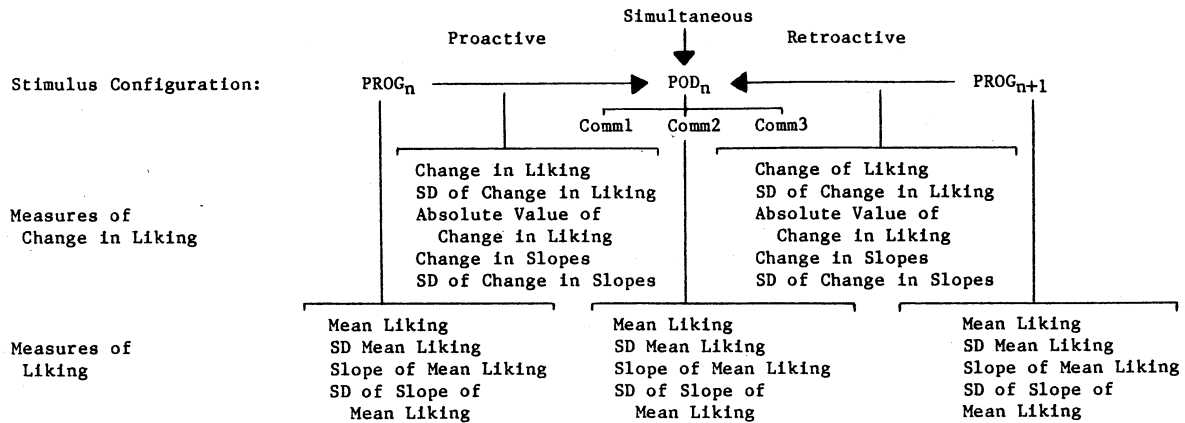
A second measure was how much dial-turning subjects showed during significant time segments. Except for the possibility that extremely riveting material might "freeze" or slow dial-turning, more turning seemed likely to index mental involvement in viewed materials. Change in liking was indexed by eight measures. The first was the standard deviation of mean liking, a measure of the over-time variation around the mean for each program and commercial. Subjects who exhibited large changes in how much they liked what they were viewing would have large standard deviations.

The second change measure was the difference between means for contiguous units. The time periods used were whole programs (PR), last two minutes (TM), last minute (1M), last half minute (HM), first (C1), second (C2), and third commercial (C3), and the commercial pods that combined three commercials (P). Rather than including all possible pairwise combinations, only the following pairs were examined: PRC_x, PRP_x, TMC_x, TMP_x, 1MC_x, 1MC_x, HMC_x, and HMP_x. All eight pairs were examined for each of the three program-commercial pairs in the experiment.

The third change measure was the standard deviation of each of the change scores. These were again defined for each of the eight time segment pairs mentioned above and for each of the three program-pod pairs.

FIGURE 1

PROACTIVE, SIMULTANEOUS, AND RETROACTIVE LIKING AND CHANGE IN LIKING MEASURES



The fourth change measure was the absolute value of the change scores. The previous change scores included both positive and negative values; however it may be important to consider the magnitude of the changes, regardless of valence. The absolute value measures provided this index.

The fifth change measure was the mean of the differenced series for liking, or, more intuitively, their slopes. The differenced series were calculated by subtracting contiguous time points. Positive values indicate increasing scores. Negative values indicate decreasing scores. The sixth measure was the standard deviation of the slopes or the amount of change in the slopes over different time periods. The seventh measure was the difference in slopes from one time segment to the next. These were defined for the same eight program-commercial or program-pod combinations as the change scores, and for each of the three program-pod pairs. The final measure was the standard deviation of the difference in slopes, which indicated how much the trend changed during each segment. High values for this measure indicate relatively more change in the upward or downward trend of evaluations during and between segments.

Over-Time Measures and Memory for Commercials

Over-time processes have not been similarly treated in past studies and consequently, expectations about effects of the over-time measures on memory were exploratory. All hypothesized effects were conceptualized in terms of a time relation with target commercials. Liking and change in liking could be correlated with memory for subsequent commercials (proactive influence), with preceding commercials (retroactive influence), or they could be correlated with memory for commercials at the same point in time (simultaneous influence). Figure 1 summarizes the design. There are three program segments and three commercial pods. The first, second, and third pods vary in numbers of proactive, retroactive, and simultaneous influences that can potentially occur. Hypothesized effects were also conceptualized in terms of valence (positive or negative correlations between the time-dependent variables and memory).

Predictions about direction and valence of memory effects were based on assumptions about how liking and change in liking operate at two different stages of information processing: attention and memory. Program liking should enhance attention to the television screen and hence increase attention to subsequent commercials. This would in turn lead to enhanced memory for the commercials. Program liking was hypothesized to operate on input processes, which should produce only proactive effects.

Hence,

H1: Mean liking should have positive proactive effects on memory for commercials.

The effect of level of liking during commercials (simultaneous effect) was harder to predict. To the extent that liking is determined by commercial execution, greater liking should be associated with stronger memory (Thorson and Friestad, in press). However, to the extent that liking commercials is determined by program context, level of liking during the commercials may be unrelated to memory. Ambiguity here precluded a specific hypothesis about simultaneous effects of level of liking.

Hypotheses about the effects of change in liking were also difficult because more dial turning (indicated by the variance and change measures) was assumed to affect both attention and memory. Viewers were presumably more attentive to television information when they showed greater dial activity (there were no instances where the programming became so compelling that the dials were "frozen"). At the same time, however, more dial turning may have indicated greater arousal, which could increase memory capacity. Dial changing during commercials, then, should be positively associated with memory:

H2: Indicators of change in liking simultaneous with commercials will be correlated positively with memory for the commercials.

Proactive and retroactive relations between change in liking and memory operate differently. Proactive effects are thought to result from interference between information in long-term memory and new material entering from a short-term buffer (Klatzky, 1980). Retroactive effects are thought to result from interference of new items with previous items in the limited slots of the short-term buffer or in the interference caused by the transfer of old items to long-term memory (Saltz, 1971). If dial-turning enhances encoding of commercial information occurring simultaneously, then when turning occurs before a commercial, it should lead to increased competition with the incoming commercial. Competing information could be either from previous material currently in short-term buffer or material in the process of being consolidated into long-term store. When dial-turning occurs after a commercial, it should also lead to more competition with prior information. Prior material is either occupying the short-term buffer or is itself being consolidated into long-term store. New information could preclude either of these processes and lessen the probability of creating a successful long-term trace of a previous commercial.

Hence:

H3: Proactive and retroactive indicators of change in liking will be correlated negatively with memory for commercials.

The predictions are constrained to the presentation of commercial pods in various program segments. Here, three pods of three commercials each were embedded in comedic, violent, and sexual program segments presented to viewers in counterbalanced orders (Thorson, Reeves, Schleuder, Lang, and Rothschild 1985). This allowed determination of degree, valence, and direction of relations between the time-dependent variables and memory.

Method

Subjects

Forty-six middle-class adults (number of males = 19), from Madison, WI, were tested. The subjects ranged in age from 20 to 50 and were members or friends of a community group. Payment for their participation was donated to the group.

Commercials and Program Sequences

The stimulus sequences consisted of 27.5 minutes of material: two minutes of TV black, 21 minutes of program segments (approximately 7 minutes each of comedy (Happy Days), violence (A-Team), and sexual content (segments from the movies Peter Proud and Shampoo), and 4.5 minutes of 30-second commercials. The order of presentation was: TV black (one minute), Program 1, Pod 1 (3 commercials), Program 2, Pod 2, Program 3, Pod 3, and TV black (one minute). Three orders of the programs and commercials were used to counterbalance for order effects.

Procedure

Groups of one to 10 subjects were instructed to use the potentiometer and were given the opportunity to practice. Before viewing the stimulus videotape, subjects watched two five-minute segments of feature stories and sports to acclimate to the viewing room. Each of the practice segments was followed by three thirty-second commercials.

After viewing the practice tape and the stimulus tape, subjects were asked to complete a questionnaire about the three program segments. A second questionnaire asked for free recall of the nine commercials in the stimulus tape. Subjects were asked to list for each commercial the appropriate product category, brand name, claims made, and executional information about the scenes, actors, and stories. Subjects were asked to include any information recalled even if not all information was available. To encourage thorough recall, a bonus of 10¢ was added to the participation fee for each commercial recalled.

A third questionnaire asked for recognition of the nine commercials. There were three pages for each commercial, each page presenting five selections, one of which was the target. The first page listed product categories, the second, brand names, and the third, claims.

In a final activity, subjects responded to an adjective checklist test for each advertised product (the results of which are not relevant to the present analysis). After completion of all the questionnaires, subjects were thanked and excused.

Analyses

The recall and recognition questionnaires were scored for accuracy. This resulted in eight memory measures for each commercial pod: total recall plus recognition score, recall of product category, brand name, claim, and execution, and recognition of product category, brand name, and claim.

The potentiometer data were standardized for each subject. Time series for each of the time-dependent

variables were then constructed. For mean liking, standard deviation of mean liking, trend, and standard deviation of trend, there was a score generated for each commercial, each pod, and four program means for each of the three programs: whole program, last two minutes, last minute, and last half minute. For changes in mean liking, absolute value of the changes, and standard deviations of the two variables, there were eight scores generated for each pod by combining the four program intervals with pods or the first commercial in each pod.

Results

Potentiometer Patterns Over Time

Figures 2 and 3 show the means of the potentiometer values across 825 2-second time intervals in the first order. These data are presented to illustrate visually the nature of the over-time changes in liking. In each series there is a clear distinction between the commercials and the program segments. These aggregate changes indicate that program-commercial break points represent significant shifts in the series and that there is substantial individual variation in the type of change present. For the males, there was always a large drop at the beginning of each commercial pod, with a slow rise across the ensuing 90 seconds. The pattern was more complicated for the females. The first pod produced a marked drop, the second pod, a marked increase, and there was a small drop in the third pod. There were also differences in the mean level of the standardized readings, with females lower for sex and violence and higher for comedy. The figures also show more up and down movement for females than males.

Recall and Recognition as a Function of Pod Position

Mean memory levels also varied across commercial pods. There was a strong serial position effect, with memory significantly higher ($p < .05$) for Pods 1 ($\bar{X} = 8.0$) and 3 ($\bar{X} = 9.1$) than for Pod 2 ($\bar{X} = 6.4$).

Mean Level of Liking and Memory

Hypothesis 1 suggested liking would have positive proactive effects. Because change scores from the whole program, the last two minutes, one minute, and half-minute were highly correlated, only one of the four was counted if there was a significant correlation with memory. As can be seen in Table 1, 15 mean level of liking variables were correlated significantly with the memory measures, and all were positive. There were, however, also simulta-

FIGURE 2

MEAN STANDARDIZED POTENTIOMETER SCORES
FOR MALES: ORDER 1

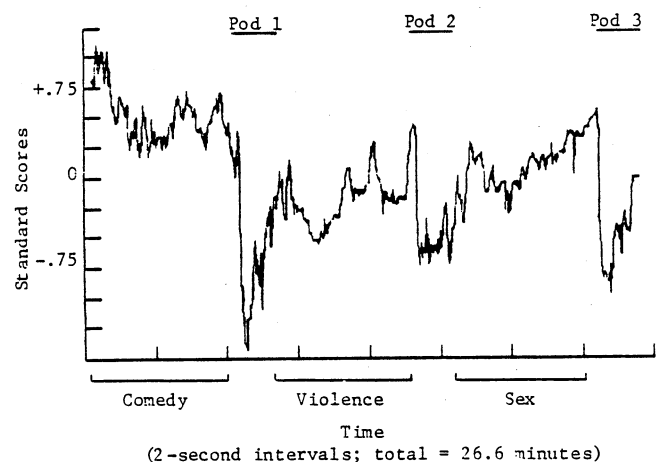


FIGURE 3

MEAN STANDARDIZED POTENTIOMETER SCORES
FOR FEMALES: ORDER 1

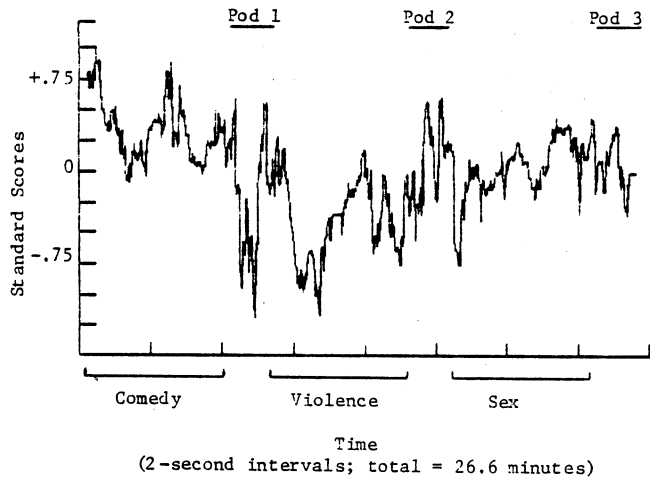


TABLE 1

NUMBER OF SIGNIFICANT ($p < .05$)
CORRELATIONS BETWEEN OVER-TIME MEASURES AND MEMORY

Over-Time Measure	Direction of Relations					
	Proactive		Simultaneous		Retroactive	
	+	-	+	-	+	-
Program Mean Liking	2	0	0	3	0	0
Commercial Mean Liking	13	0	5	1	8	2
Total Liking Scores	15	0	5	4	8	2
SD of Mean Liking	1	7	2	1	3	1
Change in Liking	1	7	0	0	0	3
SD of Change in Liking	4	2	0	0	2	3
Slope of Liking	0	0	2	1	0	1
SD of Slope of Liking	0	1	3	0	2	1
Change in Slope of Liking	1	0	0	0	0	3
SD of Change in Slope of Liking	1	5	0	0	0	3
Absolute Value of Change in Liking	1	7	0	0	2	7
Total Change Scores	9	29	7	2	9	22

neous and retroactive correlations, and while the retroactive ones were primarily positive, the simultaneous relations were both positive and negative. This result is inconsistent with the notion that liking operates only proactively on attentional processes. The simultaneous effects are particularly puzzling because liking during a commercial can apparently damage memory for it. It may be, however, that if the memory measures had been at the level of the individual commercial rather than pods, the liking would have been positively correlated with one or two of the commercials, and the negative correlations have resulted from within-pod retro- or proactive relations.

Changes in Liking and Memory

Hypothesis 2 suggested that change in liking simultaneous with commercials should be positively associated with memory for them. Again, Table 1 shows support for the hypothesis. Because change scores from the whole program, the last two minutes, one minute, and half-minute were highly correlated, one of the four was counted if there was a significant correlation with memory. While there were only nine significant correlations between simultaneous change in liking variables and memory, seven of them were positive.

Hypothesis 3 suggested that retroactive and proactive change-in-liking values would be negatively associated with memory. As can be seen in Table 1, this prediction was supported. Of 38 significant proactive correlations, 29 (76%) were negative. Of 31 retroactive correlations, 22 (71%) were negative.

Comparison of the number of significant correlations for each of the eight change measures shows absolute value of the change scores and the standard deviation of mean liking to be strongest (15 significant correlations each). Both the change in liking and standard deviation of change in liking showed 11 significant correlations. The standard deviation of the difference in slopes had 9 significant correlations. The other three measures were weaker.

Prediction of Memory from Mean Liking and Change in Liking

Table 2 shows the squared multiple correlations for each of the preference measures. To reduce the number of independent variables entered in the equations, only scores for entire programs, commercial pods, and changes between programs and pods were used. These variables were entered stepwise into the equations (F-to-enter criterion was $p < .05$). Each multiple correlation was significant with between one and ten predictors of performance. These

variables accounted for between 11 and 83 percent of the variation in performance ($R^2 = .51$). The predictions for recall were marginally better than those for recognition (R^2 for recall = .52; R^2 for recognition = .48) even though there was greater variation in how well recall performance could be predicted in the three different pods. Most notably, the predictions of recall performance in Pods 1 and 3 were better than for Pod 2 for information about product, brand, and scene. As noted before, Pod 2 also had the lowest level of performance in all three viewing orders.

Discussion

The most important results in the present study were the strong proactive and retroactive relations between memory and the time-dependent variables, mean level of liking,

TABLE 2

SQUARED MULTIPLE CORRELATIONS FOR REGRESSION
EQUATIONS PREDICTING MEMORY PERFORMANCE FROM
TIME-DEPENDENT LIKING MEASURES

Recall Measures	R^2	Adj. R^2	Recognition Measures	R^2	Adj. R^2
Product Recall			Product Recognition		
Pod 1	.52	.42	Pod 1	.17	.11
Pod 2	.15	.12	Pod 2	.72	.59
Pod 3	.43	.34	Pod 3	.70	.58
Brand Recall			Brand Recognition		
Pod 1	.55	.42	Pod 1	.50	.42
Pod 2	.11	.08	Pod 2	.59	.50
Pod 3	.62	.54	Pod 3	.46	.32
Claim Recall			Claim Recognition		
Pod 1	.70	.61	Pod 1	.51	.41
Pod 2	.69	.56	Pod 2	.22	.19
Pod 3	.83	.75	Pod 3	.54	.46
Scene Recall					
Pod 1	.57	.46			
Pod 2	.46	.35			
Pod 3	.69	.60			
Total Recall			Total Recognition		
Pod 1	.25	.22	Pod 1	.27	.22
Pod 2	.47	.37	Pod 2	.47	.37
Pod 3	.61	.53	Pod 3	.41	.32

All equations were significant at $p < .05$; $n = 31$ for all equations

and measures of change in liking. Mean liking showed predominantly positive effects, while the change in liking measures showed mostly negative effects. Further, liking and change in liking predicted significant percentages of the variation in performance scores, independent of commercial or programming content.

Most research in advertising and mass communication assumes that evaluations of messages as they occur are independent of prior and subsequent judgments, and that memory for media information can be predicted by consideration of simultaneous judgments alone. In contrast, the present study emphasized the influence of the viewing process. The time-dependent effects argue that watching television is best conceptualized as a series of interdependent program segments and messages, each influential backward and forward in time, as well as at the same point in time. In fact, the present study showed a greater number of significant predictions that were distant compared to predictions that were proximal.

It is also important to note that the success of the performance predictions was not dependent on the products, brands, arguments, or executions of the commercials. The results were unchanged for three different viewing orders in which each of three programs and nine commercials occupied different positions. A substantial amount of variation in performance was attributable merely to the position of messages relative to other content, and to the nature of an individual's reaction to surrounding messages. It is likely, therefore, that studies that do not approximate a natural viewing situation by providing a context for the evaluation of messages could possibly overemphasize content effects at the expense of effects attributable to over-time processes.

Evaluations of commercial messages are typically assessed using judgments attributable to entire messages or to a portion of particular interest (usually content features like language, judgments of people, etc.). These evaluations are similar to the calculations of mean levels of liking in the present study. These are not the only relevant judgments, however. The present results indicate that the structure of evaluations--regardless of the particular messages to which the evaluations apply--are also significantly related to performance. The important structural evaluations were variability in response (standard deviation measures), trend of response (mean of differenced responses), and the change measures.

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Note. The authors thank the American Broadcasting Companies, Inc. and Guy Lometti, Director of Social Research, ABC, for their support of the research. Thanks are also due to Annie Lang for her assistance with the data files.

EFFECTS OF THE COOPERATIVE GROUP DECISION-MAKING CONTEXT
ON THE TEST-RETEST RELIABILITY OF PREFERENCE RATINGS

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Abstract

An approach to modeling test-retest measurement error as a function of contextual factors is presented. Two situational factors are proposed that may contribute to low reliability when a subject provides preference ratings independently and then with the knowledge that he or she will be making a decision on the same stimuli as a member of a cooperative group. These factors are the group's decision history and empathy.

Introduction

Unless the reliability of measures used in studies of consumer behavior is established, it is not possible to demonstrate the validity of the instruments used or determine the reason for low correlations among constructs (Peter 1979). The test-retest method of reliability assessment is designed to establish the proportion of systematic variance in a measure by administering it twice to the same subjects under conditions that are as similar as possible. As it is rarely possible to exactly duplicate measurement conditions, it is useful to attempt to identify the differences in context from one administration of an instrument to the next. This paper proposes that the inconsistency found in test-retest measures can be partly explained by identifiable changes in the measurement context.

Specifically, it suggests that preference ratings that members of long-term cooperative groups (e.g., families and buying committees) provide when they are questioned individually (with no reference to the group) will differ from those they provide when they know they will shortly be making a decision about the same stimuli with their group. The latter situation will be referred to as the cooperative group decision-making context. It is proposed that these differences are due to the group's decision history -- the effect of the outcomes of the group's past decisions on the way a group member values or rates the alternative he or she prefers in future decisions (Corfman, Lehman and Steckel 1985) -- and to the empathy members may have for each other and each other's preferences (Burns and Granbois 1977, Davis 1976).

Reliability

Classical reliability theory suggests that a subject's observed response to a measurement scale is composed of two parts, a true and an error component (Guilford 1954, Kerlinger 1973). The true component is presumed to be stationary over time and neither component can be observed alone. What is observed is the true score plus or minus an error score.

This error has been termed either random or nonrandom (systematic) error (Carmines and Zeller 1979). Nonrandom error has a systematic biasing effect on measuring instruments, causing them to register consistently high or low scores. Test-retest measures of reliability cannot assess the level of this kind of error because it is present in both the test and retest settings. They can, however, measure the amount of random error. This is because it is assumed that random error is equally likely to move the observed score up or down from the true score, so that over a very large number of admini-

strations of an instrument the mean score will be very close to the true score.

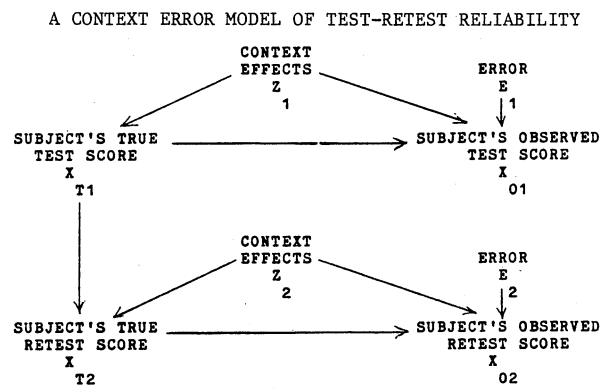
In this paper another kind of error, context error, is discussed which tends to show up as random error in test-retest methods. This error is not a consistent biasing of responses either higher or lower than the true score, nor is it random and equally likely to move the observed score higher or lower than the true score. It is caused by factors which vary from one administration of the instrument to the next (and, perhaps, from subject to subject). Context error is systematic in the sense that it is a function of changes in the situation or context.

Basic Model

Figure 1 represents the basic model. It differs from the usual representation of the test-retest method (Carmines and Zeller 1979) in two ways. First, due to changes in the context, what we are attempting to measure in the retest may be the true score of another phenomenon -- a different set of preferences for a different situation. Preferences may have changed due to the measurement context. (An alternative way to view this is that the true score has changed.) Therefore, there is a potentially different true score for each period. The second difference is that in both the test and retest conditions the context may affect how the subject reports his or her true score. If the contexts are different, even if the same true score is being measured, the observed score may change. (Random error will also contribute to changes in observed scores).

For example, a husband may have a different true preference score when questioned alone than when he is questioned with the knowledge that he will shortly be evaluating the same stimulus with his wife. Concern for her preferences may cause him to incorporate what he thinks she would prefer into his own rating. This may reflect either genuinely different preferences or simply a desire to accommodate his spouse.

FIGURE 1



If X_{T1} and X_{T2} are the subject's true test and retest scores, and X_{O1} and X_{O2} are the subject's observed scores, the traditional model is,

$$X_{O2} = b_1 X_{T1} + e \quad (1)$$

If changes in context affect response, the model in (1) is underspecified. If these changes are measured, their con-

¹The author wishes to thank Donald R. Lehmann and Punam Anand for their helpful comments on earlier drafts of this manuscript.

tribution to lower test-retest reliability can be estimated. Z_1 is the effect of the context in the first administration of the instrument. Since the difference between the contexts of the two tests is of interest, Z_1 is set to zero and the value of Z_2 indicates the change. (Clearly, as many context factors as are appropriate may be specified.) The following equations result from the model depicted in Figure 1:

$$X_{01} = b_1 X_{T1} + e_1 \quad (2)$$

$$X_{T2} = b_2 X_{T1} + b_3 Z_2 \quad (3)$$

$$X_{02} = b_4 X_{T2} + b_5 Z_2 + e_2 \quad (4)$$

Substituting (2) and (3) into (4) produces (5).

$$X_{02} = b'_1 X_{01} + b'_2 Z_2 \quad (5)$$

It will not be possible to determine whether the new context is eliciting a new true score or whether it has simply changed the way the subject reflects the true score in his or her rating. It will, however, show the relative importance of different environmental or contextual factors to test-retest reliability.

Group Decision-Making

Many models of group choice weight individual preferences with the group members' relative influence to predict what the group will choose (Choffray and Lilien 1978, Davis 1973, Keeney and Kirkwood 1975, Krishnamurthi 1981, March 1966). Whether individual preferences are assessed alone or in the presence of the group will lead to important differences in interpretation of results if the context affects the observed preference scores.

The cooperative group context often causes a subject to give different responses than he or she would in an independent (non-group) context. In a recent examination of how individual preferences relate to group decisions, Corfman (1985) had 124 spouses (62 married couples) individually rate a set of 54 stimuli by assigning from 0 to 100 points to each. These ratings were used to create a unique set of 12 to 18 stimulus pairs for each couple so that the items in each pair were ranked differently by the spouses (i.e. one spouse preferred the first alternative and the spouse preferred the second). An average of 19 days later the experimenter met with the couple and presented the stimulus pairs one by one. As each pair was presented, the spouses first rated the alternatives individually on 100-point constant sum scales (group context ratings) and then made a joint decision on which of the two to acquire.

All together the spouses rated 1668 stimulus pairs (124 spouses each rating 12 to 18 pairs). Since the first set of ratings was on a different scale from the second (a 0 to 100 point scale for each stimulus vs. a 100 point constant sum paired comparison of the stimuli in the pair) only the cases in which the preferred alternative changed are examined. Of the 1668 rankings, 541 (32%) changed from the first to the second test. This undoubtedly underrepresents the total number of rating changes, some of which did not result in rank changes.

Some of these changes may have been due to the differences in the way subjects used the two rating scales or to changes in preference with time, although the number is large enough to suggest there are other explanations. To investigate this possibility, 24 spouses provided extra sets of individual group context ratings on the 100-point scales used in the first test. Immediately before the sequence of decision pairs was presented to the spouses in each of the 12 couples, they provided extra ratings of those stimuli which were about to appear in

decision pairs. These couples provided a total of 312 pairs of individual ratings (24 spouses each rating an average of 13 pairs). The average point change from the first to the extra test was 21.47 points. The following rank changes occurred for this group of 24 subjects in their ratings of the decision pairs used in the group task:

Between the	AVERAGE TIME BETWEEN RATINGS	RANK CHANGES	PERCENT OF POSSIBLE CHANGES
Test ratings and extra ratings	19 days	51	16 %
Extra ratings and retest ratings	1/2 hour	56	18 %
Test ratings and retest ratings	19 days	96	31 %

This illustrates the potential importance of context to the correct interpretation of the scale responses. If subjects are questioned alone and the group context affects their true scores, a model's parameter estimates may be biased and it may not perform as well as it would were the relevant preferences measured. If subjects are questioned in the group context and the model estimated, it should not be assumed that preference ratings obtained from members in isolation will predict as well. This paper suggest two factors, decision history and empathy, that may affect members' preferences and preference ratings in the cooperative group decision-making context.

Decision History

The first situational factor that is considered is the group's decision history. Assuming our interest is in groups that are not newly formed (such as families, committees, and buying centers) a particular decision made by a group is likely to be one of a sequence the group has made in the course of its existence. If there has been conflict, the outcomes of past decisions will represent wins and losses and may affect members' feelings about future decisions. Specifically, decision history is the effect of the outcomes of past decisions on the way the group member values the alternatives he or she prefers in future decisions. As a result of having lost in the past an individual may exaggerate the value of his preferred alternative in a subsequent decision and rate it more highly than he would have out of the context of the group decision (Corfman 1985, Corfman, Lehmann and Steckel 1985). Conversely, having had his choice adopted by the group, an individual may express future preferences less extremely. These effects may occur because individuals genuinely value the alternatives differently -- their preferences have changed -- or because the desire to win or restore equity (Adams 1965) is being reflected in the preference ratings. In either case, the preference ratings will differ from those provided outside the context of decisions made by the group.

Decision history can affect preferences and preference ratings in another way. A group member who has had his selection adopted by the group in the past may place higher values on the alternatives he prefers the more he gets his way. Having his preferences confirmed may give him confidence and lead him to express his preferences more firmly, or winning may be addictive and the desire to win reflected in the ratings. Similarly, a member who has lost in the past may respond with decreased confidence or a sense of futility and rate his preferred alternatives more moderately. Again, changes in ratings may be due either to real changes in preferences or to the reflection of desire to win.

Empathy

The other context effect that will be considered here is the empathy group members may have for each other and each other's preferences (Burns and Granbois 1977, Davis 1976, Greenhalgh, Neslin and Gilkey 1984, Olson 1969). This effect will be particularly important in primary groups

(Faris 1937), such as families, and other groups such as social clubs and even some work groups that are characterized by strong commitment or attachment bonds (McCall 1970). In these groups, the satisfaction of other members and preserving relationships with them may be as or more important to a member than having his way in a decision. When asked alone which of several alternatives a husband (or wife) prefers, he may give a different response than he would in the context of making a decision with his wife where he may be less able or willing to distinguish his preferences from hers. Empathy may actually cause changes in individual preferences or it may just reflect the desire to accommodate a spouse. In either case it will contribute to the difference between ratings given independently and those given in the group context.

If a decision history or empathy effect is present and important, then use of independent preference ratings in models of group choice is not appropriate. Even if true independent preference scores are the same, these independent ratings will not reflect subjects' preferences at the time the joint decision is made, due to the group decision-making context.

Model

The general model in (5), modified to include the effects of decision history and empathy in a two-person group, appears in (6). It may be generalized to larger groups by using the subject's perceptions of other members' average preference if the analysis is performed across groups, or by adding a term for each additional member if the analysis is performed across decisions made by a single group. Presented this way, decision history is a variable and empathy is b_3 , the parameter associated with the member's perception of the other member's preferences.

$$X_{02} = b_0 X_{01} + b_1 \text{ DECISION HISTORY} + b_2 \text{ PERCEPTION OF OTHER'S PREFERENCES} + e \quad (6)$$

X_{01} and X_{02} are the subject's ratings of the stimulus alone and in the group context, respectively. If an experiment is used and the group context ratings are provided all together before the group decisions begin, no effect of decision history will be apparent, although it may well play a part in the group's decisions. For the most accurate measures of the individual preferences that will contribute to the group decision, the ratings should be provided immediately preceding the corresponding group decision.

Given that the outcomes of a sequence of decisions made by each group have been recorded, decision history may be operationalized in at least two ways. It may be simply whether the member had the alternative he or she preferred chosen by the group in the preceding decision. Alternatively, it may be the proportion of preceding decisions in which the alternative he or she preferred was chosen.

The subject's perception of the other member's preferences may be solicited directly, although reactivity may present a problem. If the subject is asked first what he believes the other member prefers it may encourage the use of this information in the subject's reporting of his own preferences. If asked afterward, the subject may bias his report of the other member's preferences. An alternative approach would be to use the other member's self-reported preferences. In a pre-existing cooperative group whose members are well-known to each other and have established preferences for the decision alternatives, this may be a better solution.

Hypotheses

H1: The subject's initial observed score, X_{01} should clearly account for the largest portion of the variation in the rating he gives in the group context, X_{02} . The

parameter b_1 is an indication of the measure's reliability and should lie between zero and one. It should be less than one because when looking across a large number of ratings, a regression to the mean effect is more likely than consistently more extreme ratings.

H2: The DECISION HISTORY parameter, b_2 , should be negative: the less the subject's preferred alternative has been chosen in the past, the more highly he will rate his choice in future decisions (and vice versa). The alternative hypothesis suggested earlier is also plausible: the more the subject has had his way in the past the more highly he will rate his choice in the future. Exploratory research indicates that the former is the more likely phenomenon in cooperative groups (Corfman 1985, Lehmann and Steckel 1985).

H3: Due to empathy, b_3 should be positive -- the subject's rating of his preferred alternative in the group context will be positively related to the way he perceives the other member's preference for the alternative. If member A believes that member B likes the alternative A prefers even more than A does, A will rate the alternative more highly in the group setting than he does independently. If he thinks B likes the alternatives less, he will rate it lower in the group setting.

It is possible that "empathy" will be stronger for some subjects and groups than others due to personality and relationship characteristics. Subjects who are generally more caring, accommodating, or dependent, or who dislike conflict may tend to alter their preferences or preference ratings more. The more cooperative group (due to a longer relationship or greater interdependence) may be generally more empathetic. These possibilities could be investigated through interaction terms with the perceived preference of the other group members.

Conclusions

Although the data requirements for estimating group choice models are great, collecting the additional preference data needed for this analysis seems reasonable when the added insights that can result are considered. If the context factors examined here contribute to the change in preference ratings given by group members when they are moved from the independent to the group setting, it is clearly important to measure preferences in the appropriate context and to understand how measurements taken in other contexts differ.

There may be other context factors affecting preferences and preference ratings in these and other kinds of groups which have yet to be identified -- a useful direction for further research. In some organizational groups, for example, the threat of veto or possession of much greater influence by another member may result in preference rating changes similar to those associated here with empathy. The group context may also affect the riskiness or conservatism of individual ratings provided in anticipation of a group decision on the same issues. In a non-cooperative bargaining situation it may be to a participant's strategic advantage to misrepresents his or her preferences. This might be reflected in individual ratings provided before the exchange begins.

This kind of investigation into the effect of context on test-retest reliability may be useful in areas other than group decision-making. Depending on the instrument, stimuli, and subjects, such factors as differences in the time of day (relating to fatigue), recency of consumption of or contact with the stimuli, and discussion or consideration of the stimuli or instrument may affect true retest scores and the way they are reported. If some of the measurement error produced in situations in which the environment cannot be completely controlled is found to be systematic in the sense that it can be modeled, data may be adjusted to accordingly and, hence, more reliable measures used.

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PERSUASION AS DIRECTED INFERENCE

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Abstract

The paper argues that persuasion by advertising is, at least in part, the result of directing an audience's inferences from evidence. Points at which inference is vulnerable to this influence are identified. Studies offering empirical support for the model are reviewed.

Introduction

There is ample evidence that some messages, under some contingencies, will persuade their audiences more after the lapse of time than at the moment of exposure. The phenomenon is intriguing, because it offers the possibility of insight into at least some of the processes of persuasion. When message exposure can be temporally separated from persuasion, we can examine to what extent persuasion depends on the intervening contingencies.

The contingency studied in this paper is evidence. The paper presents a model of a process of persuasion in which the message acts to direct the path of the audience's subsequent inferences from evidence that bears on the message's claim. Phrased differently, the model envisages that one of the ways messages can persuade is by shaping the sense we make of data.

This model of persuasion seems, on the face of it, to have application to persuasion by advertising. It may account for some odd properties of advertising. The contradiction is often noted, for example, that consumers deny that advertising affects them, yet advertisers see value in using it. To the extent that advertising is influencing sensemaking, rather than presenting argumentation, its influence will not be accessible to introspection by its audience and these contradictory reports can be reconciled.

Another curious property of advertising is the fact that it is often used to promote low-cost, frequently purchased products and services to consumers who are already users. The use of advertising to retain the loyalty of existing consumers has been noted by Ehrenberg (1974) and Harper (1976) among others. To the extent that advertising acts by shaping the interpretation of experience, it is plausible that its most responsive audience will be those who are already users of the advertised product or service. Thus the marketing of high-share brands like McDonald's or Coke will be more successful if it can influence existing customer's satisfaction with the next purchase than if it can persuade the small proportion of their market who have never tried the product to do so. The question addressed in the next section of this paper is: how can persuasive communications influence the experience of consuming a product or service?

The Model: How Inference is Directed

The model applies to ambiguous consumption environments: those in which the consumer is not compelled by the event itself to attach to the event one meaning or another. The sense a consumer makes of an ambiguous consumption experience owes more to promotion than to the native event. Consider two kinds of ambiguity to illustrate this claim.

In the first, ambiguity is the result of the bland, uncontroversial nature of the experience. No prominent features of the product intrude themselves on the consumer's attention: there is little information available from the experience. Eating a slice of bread might be such an experience. Unpromoted, the event has little meaning. Promoted, the very blandness of the event allows it to support many assertions: "builds bodies seven ways," or "see how light and airy it is!," or "taste the wheat!"

In the second, the experience is not bland, but its distinctive features may serve as evidence for a variety of interpretations without conclusively eliminating any of them. Here, in contrast to the previous example, the experience offers considerable information, but little diagnosticity. The purchase and wearing of clothing, for example, generates for the wearer a complex set of data. By asserting claims consistent with some of this data and not contradicted by others, a marketer may shape the experience of wearing the clothing in directions not guaranteed by the experience itself.

The purpose of the model is to explain how advertising shapes the meaning consumers ascribe to such ambiguous events. By "meaning" is meant a set of beliefs and evaluations inferred inductively by the consumer from the consumption event. The ascribing of meaning is modeled as the inducing of inferences. The model seeks to identify points in the inductive process at which advertising can be said to direct inference, or influence it to deviate from the canons of classical statistical induction.

To decide what an experience means, the stream of sense data that makes up the experience must be broken into units needing interpretation, and one potential interpretation must win favor over others. In this model of the sensemaking process, advertising plays at least two roles. First, during exposure, it forms an expectation. Second, during experience with the product, it directs inference toward confirmation of the expectation.

In the first step, the audience learns, rather passively, what the advertiser is claiming. It would be wrong to assume that the audience accepts the claim, and probably more accurate to describe the claim as merely entertained. One interpretation of the experience of using the product becomes more salient than others. As McCombs and Show (1977) claimed of the press with respect to politics, advertising cannot determine what we think. But it can influence what we think about.

Because the expectation aroused in the first step is weak, particularly if the audience is sensitive to the partisan nature of advertising, measurement of the expectation is difficult. A subject who fails to report the expectation may do so either because the ad failed to create it, or because the ad succeeded but the subject was reluctant to admit to belief in the claim on such slight evidence. If the subject does report the expectation, it may not exist as a psychological state of expectation but merely as demand-induced verbal compliance. Thus simple pre-post exposure copy testing is likely to be a poor predictor of advertising performance.

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The second step, from "thinking about" to "believing," depends on experience. Without wholly accepting the claim, the consumer may find it plausible enough to act on it, at least to the extent of a trial purchase. In this second step, provided the claim is not sharply repudiated by experience or contradicted by prior beliefs, it influences the sense made of experience in several ways. It affects the choice of evidence to be encoded in memory, strategies for interpreting the evidence, the process of combining information to form impressions, and/or the retrieval of evidence from memory. In this manner the claim gradually becomes a belief: external influence feels like learning from experience.

A number of studies have found that the salience of cause influences their use in judgment. Reyes, Thompson and Bower (1980) found that, in a mock jury decision, evidence made disproportionately available in memory had a correspondingly disproportionate influence on the jury's verdict. In the field of person perception, several studies have found effects of salience on causal attribution (Lepper and Greene 1975, Taylor and Fiske 1978, and see Ross and Anderson 1982 for a survey). Wyer and Srull (1981) induced shifts in impression formation by manipulating the availability of relevant concepts. Schindler and Berbaum (1983) found that salience influenced choice.

Media-induced salience has been shown to influence behavior. Suicide reports in the press were associated with increases in the population suicide rate (Phillips 1974), publicized prize fights affected the incidence of homicide (Phillips 1983), radio reports of prosocial behavior induced subjects in a bargaining experiment to be more co-operative (Blackman and Hornstein 1977), and the rate of violent crime rose after the spate of assassinations in the early and mid-1960's (Berkowitz and Macaulay 1971). More generally, a view of the mass media as agenda-setters for the public's evaluations have been advanced by Shaw and McCombs (1977), and forms the basis of Sutherland and Galloway's (1981) argument that agenda-setting is an important part of the process by which advertising communicates.

Advertising usually makes salient two aspects of a consumption experience: an outcome and an associated cause. The goal may be to make the brand a candidate cause for the outcome, for example when Ritz crackers are given as the reason for a successful party. Or it may be to draw attention to the outcome: the 'quicker picker-upper' advertising for Bounty paper towels tells consumers to notice absorbency among the many other aspects of the consumption experience that might capture their attention. In either event, the advertising invites its audience to test one cause-outcome link among the many they might otherwise consider.

Another relevant research stream has to do with the way such candidate cause-outcome links are tested. A number of studies have found that, in inferring the strength of association between causes and outcomes, lay perception of correlation is disproportionately influenced by confirmatory instances (Beyth-Maron 1982, Hamilton and Rose 1980, Smedslund 1963, Ward and Jenkins 1965. See Crocker 1981 for a comprehensive review of lay covariation assessment). This work suggests that the confidence with which a claimed cause comes to be accepted as a true cause will increase with the number of times the cause and the outcome co-occur, with too little regard for the number of times the outcome occurs without the cause or the cause without the outcome. Thus, for example, belief in the claim that a paper towel was more absorbent because it bore the brand name Bounty would be strengthened whenever a consumer used Bounty and found it absorbed well. Lack of evidence on the absorbency of other brands, or even occasional evidence that other brands pick up quickly too, if not made salient by advertising, would not interfere with the experiential confirmation of the claim for Bounty.

Combining these two sets of findings, we propose that advertising (1) sets the consumer's diagnostic agenda and (2) benefits from the self-fulfilling nature of consumer inquiry into that agenda. In situations that would otherwise be bland or confusing, its claims become the questions consumers ask. By making one interpretation of an experience more salient or available than others, an advertiser disposes the consumer to confirm it, so the consumer comes to accept it.

Empirical Tests

The research reviewed in this paper comprises three studies. The first examined how an advertising claim influenced the inferences drawn from evidence of product performance. The second study examined how a claim affected inferences from product experience. The final study sought to identify characteristics of the consumer's information search and analysis that might explain the confirmatory diagnosis phenomenon.

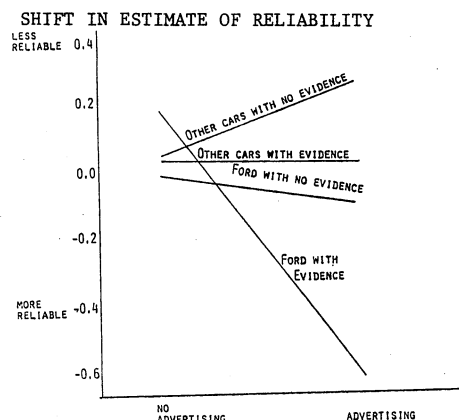
1. Directing Inference from Evidence. The first study (Deighton 1984) examined how advertising for Ford cars would affect the sense made of evidence of automobile reliability. The advertising stimulus was print advertising from Ford's "Quality is Job 1" campaign which claimed that Ford paid particular attention to quality in its assembly plants. Evidence of reliability took the form of two pages of data from Consumer Reports' Frequency of Repair Records for 1976 to 1981 for sixteen models of car. This data was rather overwhelming, and in the time subjects had to examine it they could do no more than form a rough impression of its meaning.

The experiment can be thought of as a kind of inkblot test: subjects saw a rather ambiguous stimulus (evidence relevant to Ford's claim) and in the value they placed on it they indicated the extent to which the advertising had been effective in prefiguring the sense-making process.

The experiment took the form of a 2x2 factorial design: subjects were assigned to one of four conditions obtained by crossing advertising (present or absent) with evidence (present or absent). Dependent measures were the shifts in ratings of the reliability of six car manufacturers following exposure to the experiential condition.

The result of this experiment is summarized in Figure 1. The Ford advertising had a significant ($p=0.03$) effect on belief change, but only when subjects had the opportunity to see evidence. Without this 'grist for the mill of inference', the advertising had no measurable persuasive effect. If the no-evidence conditions of the experiment had been run alone, as in a conventional copy test, the test result would have suggested rejecting the campaign. In fact, the campaign appears to have the capacity to shape the sense made of evidence.

FIGURE 1

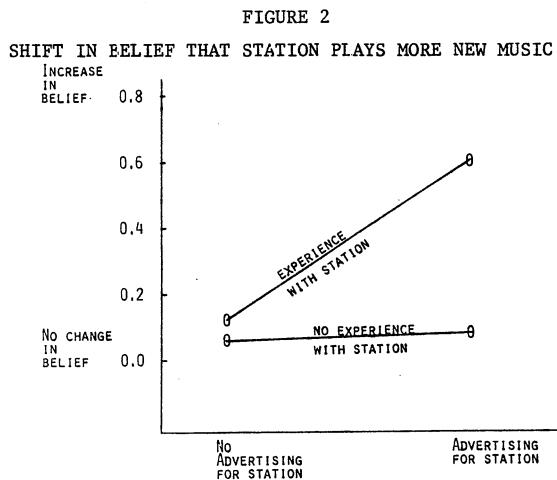


By using the evidence contained in Consumer Reports tables, this study was able to control the amount and kind of experience consumers could bring to bear on the advertised claim. This tactic enhanced the internal validity of the study. However, it did little for external validity. If an advertisement can direct inferences from a table of data, does that mean it can alter the experience of using a product? Further research was needed to establish whether inference from experience was similarly responsive to advertising.

2. Directing Inference from Experience. The second study (Deighton and Schindler 1985) examined how belief in an advertised claim was affected by experience with the product. The finding was very similar to that in the first study: that although the claim itself was not persuasive, the claim in the presence of experience did induce belief to shift. Thus this study supports the notion that expectancy-confirming inference is not just characteristic of consumers' reading of evidence, but extends to the way they form impressions of their own experiences with advertised products.

In this study, advertising was developed for each of three Boston rock music radio stations, claiming that each played 'the most new music'. Subjects were assigned to one of three groups, and each group heard advertising for a different station. The study measured shifts in belief in the claim before hearing the advertising, after hearing it, and two weeks later. Subjects reported how much exposure they had had to the stations over the two weeks that followed exposure to the advertising.

Figure 2 summarizes the results of this experiment. Again, advertising for a station had no effect on beliefs for subjects who did not subsequently listen to that station. However, subjects who heard the advertising and also listened to the station did respond positively to the claim, and this effect was greater the more experience they had (subject only to a scale ceiling effect). It appears that the audience found confirmation of the claim in their experience with the advertised station, but did not find this confirmation when their interpretation of the experience had not been prefigured by advertising.



3. Mechanisms in Directed Inference. The first two studies showed that advertising's persuasive effect is sometimes delayed: that the claims of advertising sometimes become more plausible over time, and not just because they are objectively correct. The third study (Deighton 1983) examined why. How is it that a consumer can acquire a strengthened belief in an advertised claim in the face of inconclusive or even occasionally contradictory evidence?

This study sought the answer in the way consumers test claims about products: in characteristics of consumer inquiry that might discourage or impede accurate learning from experience. This is not to say that we imagine a world of very methodical consumers who set out deliberately to test claims. All we propose is that the learnt claims of advertising become the default opinions that consumers entertain about the state of affairs in markets, and as they operate in these markets they encounter experience which either repudiates or endorses the default opinions. The question then is how experience updates beliefs.

The general answer proposed in this study was that consumers use heuristics (cognitive short cuts) to form the impressions they depend on the make choices among products. These heuristics lighten the burden of thinking, but they systematically reduce the odds that advertised claims will be discredited. Thus impressions are biased toward confirmation of prior expectations.

The first hypothesis tested in this study was that consumers employ positive confirmation as a reliable guide to covariation: that when they form impressions about causation, positive confirmatory evidence is overweighted. What is positive confirmation? When consumers believe that a cue causes an outcome (such as that Crest gives better checkups), they can meet with four kinds of experience. They can use Crest and have better checkups (cue and outcome both present: a positive confirmatory experience) or they can have good checkups while using another brand (outcome present, cue absent), or use Crest but not have good checkups (outcome absent, cue present). Finally they can have poor checkups with another brand (outcome and cue both absent). Normatively, consumers should compare the frequencies of occurrence of all four kinds of experience to infer the strength of the association between Crest and checkups. In practice, we argue, consumers who hold Crest's claim as their default opinion will give too much weight to the occasions when Crest works. They will take too little account of the times when Crest fails to work or of the success rates of other brands.

The second hypothesis dealt with the way consumers gathered information bearing on an advertised claim which they had learnt. Consumers, seeking successful purchase outcomes rather than knowledge for its own sake, will expose themselves to evidence in which the advertised cue is present more than evidence in which it is not. In so doing, however, they shield themselves from evidence that might prove the claim false. The study sought empirical support for this proposal. Einhorn and Hogarth (1978) showed that, as long as there is any correlation above chance between a cue and an outcome, the restriction of evidence to instances in which the cue is present will bias the gathered sample to report higher correlation than is present in the population.

The third hypothesis was for a primacy effect in impression formation: that in the interpretation of a sequence of experiences, early evidence contributes more to the impression than later evidence (Asch 1946, Tversky and Kahneman 1973). If a consumer is persuaded to try a brand and finds support for its advertised claims, this impression will, it is hypothesised, withstand subsequent experience that other brands deliver the same benefit.

The study tested for these sources of confirmatory bias. It examined how a sample of mothers made inferences about the breakfast cereal preferences of a group of children. The mothers saw advertising that built in them expectations about the childrens' cereal preferences, and then were shown data on the childrens' actual cereal choices. Although the data shown to the mothers neither supported nor contradicted the advertised claim, the mothers interpreted them as confirmatory when the hypothesised factors, positive confirmation and primacy, were experimentally manipulated. They also displayed a preference for evidence in which the advertised cue was

present over evidence in which it was absent. Because the study dealt with advertising's effect on the inferences subjects drew from the behavior of others, some caution is needed in extrapolating this result to inferences from the performance of products.

Conclusion

This paper suggests one reason why persuasion may be delayed beyond the moment at which an audience is exposed to a message. It presents a model in terms of which message exposure merely establishes the salience of a particular interpretation of experience with a product. Actual experience, or at least some dispassionate evidence, must be available to the audience before the persuasive consequences of salience can be observed.

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Abstract

The schema-copy-plus-tag (SCT) memory paradigm is tested in a 2x2 (typical vs. atypical arguments; immediate vs. two-day recall) design in the context of print advertising. Since mixed results do not fully support the model, suggestions for its more effective testing are offered.

Introduction

How advertising is represented in memory is of considerable interest to those in the field of marketing communication. Not only is this representation thought to have an immediate influence on advertising response, but it is also thought to have a longer-term influence on memory. The study undertaken here attempts to address this issue by testing a schema-based model of memory, in which message comprehension and representation are viewed as being largely under the control of pre-existing knowledge structure.

The model, based on Graesser and Nakamura's (1982) schema-copy-plus-tag (SCT) hypothesis, begins with the notion that message recipients engage in certain cognitive processes as a result of anticipating the receipt of a persuasive message (cf. Cialdini, Petty and Cacioppo 1981). Based on pre-message source, contextual, and thematic cues, these processes are thought to involve the retrieval of a generic schema that best relates to the communication issue. In that the schema is supposedly a stored representation of information typical of similar persuasive messages gained through experience, its presumed role is one of guiding message comprehension. In addition, it is thought to serve as an organized structure that facilitates message representation and storage. According to this line of reasoning, memory for ads is constructive and, thus, frequently incomplete and occasionally even highly distorted. In the encoding process, message arguments typical of the schema are thought to merge with similar arguments contained in the ad so as to produce a coherent, unified, expectation-confirming and knowledge-consistent representation of the message (see Alba and Hasher 1983). As a consequence, the memory trace makes no distinction between "typical arguments" that actually appeared in the message and those that did not (Schmidt and Sherman 1984). Arguments that are not typical of the schema are said to be represented separately from the schematic portion of the trace by a "unique tag." In essence, this tag distinguishes the item from schematically typical items within the trace.

Whether this model adequately depicts memory for ads is the focus of the study reported here. An experiment was conducted in which both immediate and delayed effects of advertising were assessed in the context of print media. Initial findings are reported in terms of both recall and recognition as well as related measures of attitude.

Background

Although memory for complex events can be quite accurate, it is frequently found to be subject to distortions and omissions. These errors, of course, pose a problem for any theory of memory. One

theoretical perspective that appears capable of accounting for such errors, however, is that of schema theory (see Alba and Hasher 1983). This perspective views memory of complex events as reconstructive, consisting of a generic schema together with certain abstracted event-related details thought to guide reconstruction. The term schema refers to the general knowledge structure a person possesses about a particular domain (Alba and Hasher, p. 203). According to this formulation, recall of a complex event is likely to contain little in the way of actual detail. Instead, it frequently produces such things as paraphrases (of prose passages), thematic intrusions, and interpretations and elaborations that are more in line with the generic schema than with the target event. Alba and Hasher (1983) give a more thorough account of this perspective in terms of four central encoding processes: selection, abstraction, interpretation, and integration.

A schema theory which asserts that all four processes occur would state that from any environmental event, only the information that is relevant and important to the currently activated schema will be encoded. Of the information selected, the semantic content of the message will be abstracted and the surface form will be lost. Further, the semantic content will then be interpreted in such a way as to be consistent with the schema. The information that remains will then be integrated with previously acquired, related information that was activated during the current encoding episode. The operation of one or more of these processes is likely to result in a representation that is less than totally accurate (p. 204).

As already pointed out, another hypothesized schema-related process is that of reconstruction. Occurring at retrieval, reconstruction is thought to combine selected event-related abstracted details with an activated schema to arrive at a probable recounting of the target event. One current and well articulated representation of schema theory is the schema-copy-plus-tag (SCT) model proposed by Graesser and Nakamura (1982), which attempts to explain memory for narrative descriptions of action sequences for which people possess prototypic schemata (essentially scripts). According to the SCT model, comprehension and storage of prose passages are carried out in terms of a generic schema that best fits the passage's main theme. Items that are most typical of the schema are "copied" directly from the schema into the memory representation. Thus, the memory trace may include some items that were not explicitly stated in the passage; there is no distinction between very typical statements that were actually in the passage and those that were not. In essence, typical message statements may actually be forgotten--i.e., typical information need not be stored, since it can always be derived from the prototypic script, or schema. On the other hand, statements that are atypical of the schema are thought to receive special attention in memory. Specifically, it is thought that such statements cannot be represented in the schematic portion of the trace. Instead, they are said to be linked to the representation by a "unique tag" by which they are distinguished from typical and other atypical items.

Schmidt and Sherman (1984) have extended this model to persuasive communication by opining a generic schema position--i.e., a generic schema containing typical arguments (as opposed to action sequences) related to a

¹ Completion of this research was made possible by a grant from the George A. Ramlose Foundation.

familiar communication issue. Thus, representation of a persuasive message is thought to entail the copying of typical schema-related arguments directly into the schematic portion of the trace and tagging atypical arguments as deviations from the schema.

If this formulation is correct, it has several implications for persuasive communication in general and advertising in particular. First, typical arguments should hold an advantage in retrievability because of their placement in the generic schema. Atypical items should suffer in that they are not strongly associated with the schema. In a general recall task, individuals are thought to recall message content by accessing the generic schema. This being so, typical items are more likely to be recalled than atypical items. Further, this difference should increase over time because of a faster decline in the retrievability of atypical, or tagged, information. A final effect has to do with intrusion errors. Since the memory trace for persuasive messages is thought to be undifferentiated in terms of typical arguments--i.e., whether they were actually contained in the message or not--there should be a greater likelihood of schema-based intrusions, and this should increase over time.

Although the constructivist position advocated by Schmidt and Sherman is based on a popular perspective of memory, it does not form an easy amalgam with other literature which seems to demonstrate that recall can be surprisingly accurate. It has been shown, for instance, that under certain recall conditions--instructions that stress accuracy or change subjects' retrieval strategies and situations that permit successive attempts at recalling the same material--schema-based recall errors can be eliminated (See Alba and Hasher; Hasher and Griffin 1978). Further, the Schmidt and Sherman formulation does not seem to mesh well with research showing that depth of message processing is enhanced by the use of unexpected atypical message arguments (Hunt and Kernan 1984). If this latter finding is correct, atypical arguments may become a more (not less) memorable part of the message representation. Because of these apparent discrepancies, an experiment was conducted to test the schema-copy-plus-tag formulation in the context of print advertising. This involved the manipulation of argument typicality and recall interval over two levels (typical vs. atypical; immediate recall vs. two-day delayed recall). In accordance with schema theory, it was anticipated that subjects exposed to ads containing only typical arguments would exhibit better recall and more schema-based intrusions than subjects exposed to ads containing atypical information. Further, atypical items were expected to suffer more in terms of being recalled over time than typical items. Finally, information-based attitudinal data were expected to exhibit patterns that paralleled the hypothesized information decay.

Method

Subjects

Female and male undergraduate students (N=41) from two eastern universities participated in a study to evaluate a new student magazine. Ages ranged from 20 to 47; average age was 22. Most of the subjects were either business majors (78%) or communication majors (15%). In addition, thirty-one subjects served in an argument-generation phase designed to ascertain typical and atypical arguments for the test advertisement.

Stimulus Material

For purposes of external validity, the experimental ad was embedded in a bogus test magazine supposedly designed for area college students. The ad promoted a new brand of ball-point pen, called the "Accupoint Pen," and consisted of picture and text. The picture showed a group of three business-like executives (two males and a

female) examining a computer print-out. One person, who appeared to be the supervisor, had pen in hand. Next to this picture was a close-up of the pen. The text described these people as "brand managers."

Arguments used to construct the text of the ad were created by asking subjects in the generation phase to list typical and atypical arguments regarding the promotion of ball-point pens. Half the subjects in this phase were asked to list the arguments they thought would be typical of a normal pen ad. The other half was asked to list atypical arguments. This produced a set of fifteen general statements, eleven of which were designated typical, and four of which were designated atypical.

Two versions of the pen ad were constructed, a typical version and an atypical version. Each of these contained five of the eleven typical arguments. In addition, they both contained six filler statements. One argument was reserved for the typicality manipulation; this had to do with the pen's effect on the writer's handwriting. In the typical ad, the pen was represented as one that would "fit your handwriting," while in the atypical version it was described as "actually improving your handwriting." The textual location of this argument was identical in both versions--midway through the text.

Dependent Measures

Recall of the ad was obtained by asking subjects to write out as many of the statements from the Accupoint pen ad as they could remember. This task followed a short questionnaire dealing with subjects' overall impressions of the test magazine. It was felt that this questionnaire would serve as a distraction task for the immediate recall group and provide a realistic format for subjects whose recall was delayed.

Recognition was tested via seven items (5 typical and 2 atypical). Two of the typical items involved arguments that actually had been presented; the remaining three pertained to unrepresented arguments. Of the two atypical items, one related to an unrepresented argument, while the other involved the manipulated argument. Thus, this second item represented material that was unrepresented to typical subjects and presented to those in the atypical group. Subject rating of each statement was performed on the following six-point scale 1 = definitely not in the ad; 2 = fairly sure it was not in the ad; 3 = uncertain, but think it was not in the ad; 4 = uncertain, but think it was in the ad; 5 = fairly sure it was in the ad; 6 = definitely was in the ad. The instructions indicated to subjects that some of the statements had not actually appeared in the Accupoint ad.

The final set of dependent measures consisted of two attitudinal statements. The first involved subjects' "attitude toward the Accupoint Pen ad;" the second involved "attitude toward the Accupoint Pen itself." Both items were rated on a 7-point bipolar scale, ranging from "very favorable" to "very unfavorable."

Procedure

Because of certain physical constraints, subjects were selected and assigned to treatment cells on a class, rather than individual, basis--i.e., each of the four classes constituted one of the four treatment cells. Subjects were informed that the purpose of the experiment was to assess the concept of a new student magazine called Campus Week. This test vehicle consisted of a cover, calendar-of-events at various area campuses, a full-length feature article, and several ads dispersed throughout. General instructions requested subjects to read the entire magazine as though they had an interest in all of its content. No mention was made of a subsequent memory test. Subjects then received a

magazine containing one of the two Accupoint ad versions. Eight minutes was the allotted reading time, after which subjects completed the questionnaire dealing with their general impressions. Following this, subjects in the immediate treatment group received a questionnaire containing the dependent measures. Subjects in the delayed group completed this latter questionnaire two days after their exposure to the stimulus material. At the outset of the questionnaire, both groups were told that because of the length of the magazine, they would be required to evaluate only a portion of it. No mention was made of which portion that would be until subjects opened the questionnaire. It was then that they learned they would be evaluating the Accupoint ad. It was felt that this procedure eliminated any presensitization error. To reduce possible communication between the immediate and delayed groups, subjects from different schools were used for these groups.

Results

Recall

Recall data consisted of correctly-recalled items, as well as errors and additions. Errors were placed into one of three categories: (1) thematic intrusions--statements that were consistent with the ad's overall theme, but not actually presented; (2) schematic intrusions--statements that corresponded to typical statements from the generation phase, but not actually presented; and (3) generalizations--statements that combined actual arguments into a more general assertion about the text. Additions included statements about the pen that were unrelated to the text. Scoring of protocols was conducted by having two judges independently classify the recalled items. The judges agreed on 96% of these classifications. Disagreements were resolved through discussion between judges.

Four separate ANOVAs were carried out on correct recall and error scores. As expected, a significant main effect of recall interval was found for correct recall ($M = 2.00$ and 0.72 for immediate and delayed intervals respectively), $F(1,38) = 11.23$, $p < .002$. However, no significant effect of typicality was found; nor was there a significant interaction effect. Of the three analyses involving error scores, only one was found to contain results that approached significance. That pertained to schematic intrusion scores. As might be expected, recall interval had a main effect (marginally significant), with means declining over the interval ($M = .46$ and $M = .17$), $F(1,38) = 3.15$, $p < .08$. Somewhat surprisingly, however, the typicality factor was found to have a main effect (again marginal) on the schematic intrusion scores in which the mean for typical subjects was $.16$ as compared with $.48$ for atypical subjects; $F(1,38) = 3.83$, $p < .06$. No significant interaction effect was found. Further analysis of thematic intrusion and generalization scores revealed no significant results.

Recognition

Mean scores for both recall and recognition items are reported in Table 1. Items pertaining to recognition are reported in terms of their typicality and whether they were actually presented in the test ad. Results related to the manipulated typicality argument appear in item 5. Consistent with the manipulation, an ANOVA revealed a significant main effect of typicality for this item, $F(1,38) = 4.91$, $p < .03$. As expected, subjects who received an ad claiming the pen would "actually improve their handwriting" scored significantly higher ($M = 4.00$) than those who received the "fit your handwriting" version ($M = 3.00$). In addition, a marginal main effect of retention interval was found for this item ($M = 3.92$ and $M = 3.06$ for immediate and delayed intervals, respectively), $F = 3.63$, $p < .06$. No significant interaction effect was

TABLE 1
MEAN RECALL, RECOGNITION AND ATTITUDE BY
MESSAGE TYPICALITY AND RETENTION INTERVAL

Dependent Measure	Immediate		Delayed	
	Typical	Atypical	Typical	Atypical
Recall Measures				
Correct	1.55	2.38	0.75	0.70
Thematic Intrusions	0.55	0.54	0.63	0.60
Schematic Intrusions	0.18	0.69	0.13	0.20
Generalizations	0.09	0.23	0.13	0.00
Additions	0.00	0.00	0.13	0.20
Recognition Statements				
1) Typical/Unpresented	3.73	4.77	4.75	4.20
2) Typical/Presented	4.00	5.08	4.00	5.10
3) Typical/Unpresented	2.09	1.85	2.00	2.80
4) Typical/Presented	3.73	4.92	4.13	3.50
5) Atypical/Manipulated	3.18	4.52	2.75	3.30
6) Typical/Unpresented	2.45	3.46	2.50	2.80
7) Atypical/Unpresented	1.55	1.69	1.88	1.50
Attitudinal Data				
Toward Ad	3.55	4.31	4.38	4.20
Toward Product	4.27	4.92	4.63	4.40

Found.

Items 2 and 4 pertain to schema-typical items that actually appeared in the test ad. An ANOVA on item 2 revealed a significant main effect of typicality, $F = 8.07$, $p < .007$. Subjects exposed to the atypical ad version exhibited better recognition scores ($M = 5.09$) than those who received the typical version ($M = 4.00$). Analysis of the fourth item produced a marginally significant two-way interaction effect ($F = 3.47$, $p < .07$), with atypical/immediate recall subjects exhibiting better recognition than their typical counterparts. This ordering was reversed for delayed recall subjects. No other significant effects were found with regard to typical presented arguments.

Items 1, 3, and 6 involved schema-typical arguments that were unpresented. Of the three related ANOVAs, only one produced a main effect approaching significance. In responding to item 6, atypical subjects surprisingly scored higher ($M = 3.17$) than did typical subjects ($M = 2.47$), thus indicating a greater intrusion likelihood, or false recognition rate, on the part of the former group, $F = 3.00$, $p < .09$. An ANOVA pertaining to the first recognition item produced somewhat similar results. A significant two-way interaction effect ($F = 4.57$, $p < .04$) was found in which immediate recall subjects exposed to the atypical ad exhibited higher false recognition scores than typical ad subjects. This ordering was slightly reversed for delayed recall subjects. No significant results were found in conjunction with item 3.

Only one item, the seventh, was used to represent false atypical arguments. Analysis of the data pertaining to this item failed to produce any significant results.

Analysis of subjects' ability to discriminate between presented and unpresented information was performed by calculating the proportion of correct "yes" (ratings of 4, 5, and 6) and "no" (ratings of 1, 2, and 3) responses on the recognition test for atypical subjects. The mean percentage score for typical arguments was 0.62 for both immediate and delayed retention subjects. Respective means for atypical arguments were 0.77 and 0.75. Contrary to expectations, a two-way ANOVA on these scores produced no significant main or interaction effects.

Related attitudinal data also failed to exhibit significant differences between typicality groups or over the retention interval. These data appear in Table 1.

Discussion

According to the results of this study, there is only modest evidence to support the proposition that the

processing of print ads follows an SCT framework. It should be noted, however, that the experimental task represented a fair amount of external validity. Given the assignment of evaluating an entire magazine, subjects received no forewarning as to the exact experimental stimulus. Further, they were kept unaware that the study involved a memory test. This lack of focus raises the possibility that the experimental impact or effect size was slight, and this might explain why the SCT model received little support.

However, the study's design requirements seem to have been met. Subjects exposed to predetermined atypical argumentation, concerning the pen's effect on handwriting, apparently attended to and processed that information. Their reported recognition of the presence of that information in the ad was significantly greater than that of their typical counterparts. Thus there is little doubt that the atypical information was in some way represented in memory. The effects of that information, however, deviated from what would be expected from an SCT-based representational process. Specifically, subjects exposed to the highly typical ad made fewer (not more) schema-based intrusions than subjects exposed to an atypical ad stimulus. This finding prevailed for subjects' recall protocols and, to a lesser extent, their responses to recognition items--i.e., item 6, with a marginal main effect and item 1, with an interaction effect unfavorable to the SCT model. Further, the typical subjects exhibited no better memory performance in terms of recall and recognition accuracy than did atypical subjects. In fact, on one of the recognition items (the second item involving an actually presented schema-typical argument), the findings were opposite of SCT expectations. Typical subjects performed considerably worse than atypical subjects.

In addition to the recall and recognition items, analysis of subjects' discrimination scores do not mesh with an SCT prediction. According to the SCT model, subjects should be better able to discriminate between presented and unpresented atypical information than typical information. This prediction is derived directly from the SCT notion that memory for a prose passage is partitioned into two segments: a schematic portion and a portion related to tagged items. Since the schematic portion is thought to consist largely of typical items imported from previously formed knowledge structures, its contents are viewed as relatively indistinguishable in terms of whether they originated from previous knowledge or some target event. Thus, subjects should have more difficulty in discriminating between presented and unpresented typical information than discriminating between "tagged" information and unpresented atypical items--i.e., tagged items are thought to be represented in a separate portion of the trace. Accompanying this line of reasoning is a second SCT prediction having to do with the ability to discriminate between presented and unpresented information over time. Since tagged information is thought to decay more rapidly than typical items, the SCT model predicts that over time differences in ability to discriminate between various forms (presented/unpresented) of typical and atypical information should decrease. That is, as tagged atypical information is lost, it tends to merge with unpresented atypical items. Thus, atypical items should lose their advantage in discriminability. Neither of the above predictions were upheld by the data. Although a slight advantage in discriminating atypical items was noticed ($0.76 > 0.62$), this difference was far from being significant.

In sum, although many interesting findings emerged, a conservative conclusion must be that a schema-copy-plus-tag hypothesis does not account well for the data of this study. Precisely why this is so is not apparent, since no clear pattern of results emerged. In fact, the mixed findings make it difficult to offer alternative formulations. For instance, a depth-of-processing

approach would predict better memory performance for subjects in the atypical groups. This did not occur, however. Another schema-based paradigm suggests that unless a schema is fully activated, incoming information is difficult to encode. As a consequence, memory performance suffers and reconstruction is more likely (see Alba and Hasher). It is possible that this occurred in the atypical group. That is, the presentation of atypical information in some way disarmed subjects, depressing schema activation. If this is so, these subjects would be more likely to exhibit schema-related reconstructions at retrieval time. Although there is some evidence of this occurring, the data do not square entirely with the notion of an encoding deficit. That is, if atypical information inhibited encoding, then these same subjects should have also exhibited poorer recall and recognition of presented items. This, however, did not occur.

It should also be noted that the SCT formulation might resist explication because of its failure, in reference "retrieval" predictions, to distinguish adequately between recognition and recall. As Krugman (1985) reminds us, these are measures of different kinds of memory, and to lump them together might be to mask the individual effects of either.

Finally, as suggested earlier, the unclear results likely have something to do with the efficacy of the study's manipulation. Although requiring subjects to read a lengthy test magazine may have improved external validity, it may simultaneously have suppressed experimental impact. If this is so, the schema-copy-plus-tag model may yet prove to be a viable representation of memory for ads. A more powerful test of SCT will be necessary, however, to determine whether the representation and recall of ads can be made to lie comfortably on this procrustean bed.

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Abstract

The four papers in this session represent two independent lines of research which have been converging on the conclusion that, in addition to whatever immediate persuasive effects an ad may have, it may also cause persuasive effects which accrue over time. Further, these papers contain indications of the conditions under which such delayed effects are most likely to occur and suggest some directions for future research.

The Importance of the Delayed-Effects Issue

The issue of whether at least part of the persuasive effect of an advertisement can be seen only after a delay of days or weeks is of importance for both practical and theoretical reasons. The practical side concerns the adequacy of current copy-testing methods. Since most copy-testing questioning occurs within a day after the consumer is exposed to the ad (Aaker and Myers 1982; Schlinger 1979), the measures are blind to delayed effects. Since copy-testing is usually used to compare the effectiveness of alternative ads, this insensitivity to delayed effects would not be a problem as long as all ads had equivalent delayed effects. But if ads differ in their ability to cause delayed persuasive effects, then the inability of current copy-testing methods to detect such effects could cause erroneous conclusions about the relative effectiveness of alternative ads.

On the theoretical side, researchers who are studying the psychological processes behind delayed advertising effects are likely to propose advertising mechanisms which would not have been considered by researchers who assume that the entirety of an ad's persuasive effect can be measured immediately after the ad is presented. Several of the papers in this session have proposed such mechanisms and thus enrich the study of how advertising works.

Research on the Consumer as a Naive Scientist

The papers by Hoch and Ha (1985) and Deighton (1985) are rooted in the tradition of considering the everyday person a "naive scientist" who uses predictable (and sometimes erroneous) strategies in his or her attempts to make sense of the world.

Deighton reviews two studies where subjects who experienced both product advertising and ambiguous product evidence gave more positive product evaluations than did subjects who experienced only one or the other or neither. Through a third study and a review of the literature, he concludes that this ability of product experience to enhance an ad's persuasive effect is due to two factors. First, the ad increases the availability of the ad's claim in the consumer's memory, and thus increases the chances that the consumer evaluates this claim against the evidence. Second, since consumers tend to evaluate a claim by checking for the presence of confirming instances (without taking into account the number of disconfirming instances), they will come to believe a claim they are evaluating if they encounter any confirming instances at all in the product evidence.

Hoch and Ha confirm Deighton's finding that the persuasive effects of an advertisement can be enhanced by subsequent product experience, but argue that the ambiguity of the product evidence is necessary for this effect to occur. They support this argument by showing that the effect occurs for a product category which

provides ambiguous evidence as to product quality (polo shirts), but does not occur for a less ambiguous product category (paper towels). Although it is possible that differences between polo shirts and paper towels other than ambiguity could be responsible for their results (e.g., level of involvement with the category), it is extremely plausible that it would be more difficult to persuade someone, by any means, when that person has access to unambiguous evidence.

Hoch and Ha also found that advertising caused their subjects to spend more time examining the advertised brands. They conclude, as does Deighton, that advertising leads to the evaluation of the advertised claim when subsequent product experience is available. However, they suggest that consumers may often try to disconfirm the claim. When the product experience is ambiguous, such disconfirmation becomes difficult, and the claim tends to be accepted.

Only one of the four studies described in these two papers actually observes the change in advertising effects over a sizable (two-week) delay. However, the mechanisms proposed in both papers suggests that when an ad is followed by product experience (e.g., during external research or routine brand switching), the persuasive effects of the ad may increase. Further, the results suggest that such delayed persuasive effects are most likely to occur if the product experience is ambiguous or at least contains some confirming instances.

Differential Memorability of Information in Ads

The papers by Kisielius (1985) and Hunt, Kernan, and Bonfield (1985) concern the likelihood that all parts of an advertisement will not be remembered equally well. This research could be considered to follow in the tradition of the sleeper effect, which has commonly been attributed to a tendency to remember the content of a persuasive message but to forget its source (Pratkanis and Greenwald 1985; see also Hasher, Goldstein, and Toppino 1977).

Kisielius investigates the view that parts of an ad which receive more cognitive elaboration when the ad is first seen (i.e., are associated with a larger number of items in long-term memory) will be more likely to come to mind after an extended delay than will parts of the ad which receive less cognitive elaboration. She expects, for example, that pictures in ads tend to receive more cognitive elaboration than verbal statements. This implies that if the pictures in an ad are more favorable to the advertised product than the verbal parts of the ad, the persuasive effect of the ad will be greater after some delay than at the time the ad is originally presented.

While Kisielius relies on the concept of cognitive elaboration to account for memory of an ad, Hunt, Kernan, and Bonfield report a test of the value of the "schema plus tag" notion for predicting what parts of an ad will be more memorable. Although they conclude that they have found little evidence to support the schema-plus-tag view, the delay vs. typicality interactions for both their recall (Correct) and recognition (Item 5) conditions were in the direction predicted by schema theory. The failure of these interactions to reach statistical significance can hardly be considered conclusive given the small sample size in the study (n=42). Moreover, computing the mean recognition score for the typical/unpresented items (3.11) and comparing it to the mean recognition score for the atypical/unpresented item

(1.66) indicates that among the unrepresented items the typical ones were considerably more likely to be rated as having been presented in the ad. This also is just as a schematic view of memory would predict.

While these two studies are far from conclusive, they do suggest that an ad is more likely to have a delayed persuasive effect if, (1) the cognitively elaborated parts are more positive than the non-cognitively elaborated parts, and (2) if the parts that are typical of a consumer's existing knowledge structure are more positive than the parts that are not typical of any of the consumer's existing knowledge structures. Further, if the Hunt et al. result of more false positives for the typical items than for the atypical items can be replicated, it would suggest that the deceptive persuasive effects of advertising might also accrue over time (see Sawyer and Semenick 1978).

Future Research Needs

There are obviously many interesting variables yet to be explored in both the naive scientist and differential-memorability lines of research. But there is also value in research directed at integrating these two research traditions. In both lines of research, it is essential that at least one positive claim in the ad be remembered. In the differential memorability research, the delayed persuasive effects result from this positive claim being more memorable than negative information which was also present in the ad. The naive scientist research also involves a remembered claim which is positive toward the brand. Here, however, forgetting of negative information in the ad isn't necessary because the delayed persuasive effect results from the way the consumer actively tests the claim during experience with the brand. But will a consumer always actively test a remembered claim if the opportunity arises? Or is it necessary that the claim be salient, i.e., very memorable? If the memorability of a claim is related to the probability of its being actively tested, then both types of delayed persuasive effects have a causal variable in common. Moreover, the memorability of the positive claim of an ad is something which can easily be measured. Of course, day-after recall probably wouldn't do. It might take something more like "week-after recall" to have an effective practical measure of an ad's delayed persuasive effects.

Another research direction which could lead toward integrating these lines of research would involve studying how a consumer's environmental input affects his or her response to ads. Cues in the environment certainly can enhance retrieval of advertised information (see Hutchinson and Moore 1984), but they may also enhance delayed persuasive effects in other ways. For example, if a manufacturer coordinates an advertising campaign (e.g., one claiming increased product effectiveness) with a change in product appearance (e.g., the addition of "blue action crystals"), the confirming instances that the consumer happens to experience would tend to become more salient and thus more memorable. Increasing the availability in memory of confirming instances of an advertised claim should enhance delayed persuasive effects of the ad, and suggests another route by which basic memory principles may be able to provide a unified explanation for delayed advertising effects.

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MATERIALISM AND INDIVIDUAL DETERMINISM
IN U.S. AND JAPANESE PRINT AND TELEVISION ADVERTISING¹

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Abstract

Hypotheses that Japanese advertising would approach or surpass U.S. advertising in the level of materialism evinced since World War II were supported. Hypotheses that U.S. advertising would be more likely to stress actively changing the environment (primary control) rather than adapting to it (secondary control) were also supported, but more strongly in print than in television advertising. Cross-cultural and cross-media differences in consumption appeals are discussed.

Economic Growth and Consumer Materialism

Materialism is defined by Belk (1983) as the tendency to view possessions as the primary sources of satisfaction and dissatisfaction in life. As Belk and Pollay (1985b, 1985c) have shown, twentieth century U.S. print advertising has increasingly depicted and appealed to a materialistic lifestyle among American consumers. Although it is unclear whether such advertising is leading or following cultural value changes regarding materialism, it cannot be denied that advertisements at least support and reinforce materialistic values. The present study sought to further explore materialism and related values as displayed in magazine and television advertising in the U.S. and Japan since World War II. Differences over both time and culture were of interest.

While there are many reasons for cultural differences based on factors such as religion, political history, geography, language, and traditions, an even more important factor shaping materialism and derivative consumption aspirations may be the ratio of economic growth to work force growth. This ratio is important for at least two reasons. One is that it reflects the relative increase or decrease in the availability of goods and services, which in a free market system thereby affects prices and consumer expectations of what they will be able to acquire. Secondly, given a level of technology and a relatively fixed ratio of imports to exports, economic growth relative to work force growth also reflects the surplus or scarcity of available jobs and an individual's potential rate of job advancement as older more or less numerous workers retire and as new jobs are created through economic growth.

The impact of these factors on consumer materialism was seen by both Inglehart (1971, 1977) and Easterlin (1980), although they reached opposite conclusions about its effects. Both agreed that the economic climate when one is growing up should have a strong impact on adult consumption aspirations. However, Inglehart concluded that growing up during the post-war economic growth decades in the U.S. and Japan (as well as Europe) should satisfy lower order consumer needs (Maslow 1954) so that less materialistic higher order needs would gain prominence. Easterlin on the other hand concluded that one who, for instance, grows up in the suburbs and is driven or drives to school, friends, movies, and stores will come to regard an automobile as a necessity along with all of the other products of affluence. Thus Inglehart predicted decreasing materialism among a generation raised in a time of abundance, while Easterlin predicted increasing materialism. While the value changes of the 1960's made it appear that Inglehart was correct, subsequent increases in materialism among the U.S. and British baby boom generations and the parallel Japanese "bulge" generation (which quit bulging about a generation earlier in Japan---Reischauer 1977) contradict Inglehart's predictions and appear to support Easterlin's predictions of increasingly

materialistic attitudes (Ike 1973, Marsh 1975, Flanagan 1979).

It is also necessary to consider the relative rates of economic growth in the U.S. and Japan in order to make predictions about the relative rates of growth in materialism that are expected in these two countries. Between 1960 and 1975 the U.S. economy grew at an average real dollar growth rate of 3.7 percent per year while the Japanese economy grew at a rate of over 10 percent per year (Yoshino 1975). Since 1975 Japanese real growth has only been about 5 percent, due in part to high inflation in 1976-1978, but U.S. growth has also slowed and as U.S. trade deficits climb, Japanese trade surpluses rise (Morton 1984). All this means that Japanese buying power has risen much more rapidly than U.S. buying power since World War II and there have also been considerably greater opportunities for jobs and job advancements in Japan than in the United States. Given the much stronger growth in the Japanese economy, we expected to find a much greater rise in materialism reflected in Japanese advertising than in U.S. advertising.

These are predictions about the relative growth rates in materialism in America and Japan. To make predictions about the relative levels of materialism displayed in one country versus the other it is also necessary to consider additional cultural differences. The U.S. has long been known as a highly materialistic nation (e.g., De Tocqueville 1835), but apart from some imperial and feudal splendor lasting into the mid-nineteenth century, Japan has not traditionally been known as a highly materialistic nation--until lately. There are several reasons for Japan's less materialistic traditional reputation. One is that since its feudal era, there have not been wide income disparities in Japan. In addition, conspicuous consumption has generally been viewed as violating egalitarian norms (Cassassus 1985, Christopher 1983, De Mente and Perry 1967). And the devastated state of the Japanese economy at the close of World War II left limited discretionary incomes and a scarcity of consumer goods on which to spend them. However, with the unprecedented economic gains of post-war Japan, as well as a period of openness to Western influences (Belk and Pollay 1985a), materialism began to grow. By the 1960's it became popular to joke that the three imperial regalia (mirror, sword, and jewel) had been superceded by three greater treasures for the Japanese consumer: the car, color TV, and cooler (air conditioner), or the three C's (Fukutake 1974, 1982). Cleaver (1976) suggested that even these, now owned by the majority of the population, have been replaced in consumer aspirations by newer treasures such as the summer cottage, electric oven, and central heating. This rise in materialism has not gone uncriticized in Japan (Burton 1985; Fujiwara 1985; Fukutake 1974, 1982; Guerin 1981; Kikusawa 1979). While the level of consumption by the Japanese consumer is still short of that of the American consumer (due to smaller incomes, smaller dwellings, and greater savings for house and retirement), we expected that the level of advertising emphasis on materialistic themes would be as high or higher in Japan during the current period.

Individual Determinism in the U.S. and Japan

Individual determinism is used here to mean the belief that one's acts as an individual determine one's outcomes; that is, the belief that we are each masters of our own fate and we succeed or fail based on individual initiative. This is a particularly western view that is related to individualism and has been studied recently as "standing out" and "primary control" (Bairy 1967, Rothbaum, Weisz, and Snyder 1982,

¹The authors would like to thank the History of Advertising Archives at the University of British Columbia for access to the U.S. print ads.

Weisz, Rothbaum, and Blackburn 1984). There are two aspects to these beliefs. One is the desire to stand out from the group and be perceived as personally responsible for one's actions. The other related aspect is the desire to actively control situations, people, and events in order to produce desired outcomes. If these are the patterns that characterize Americans, it should not be inferred that the Japanese lack any concern with individual identity and trust their futures to fate. Both of these would be mistaken assumptions. However, the Japanese are believed to prefer "standing in" over standing out and "secondary control" over primary control. Standing in refers to seeking to be a part of the group and derive nurturance and feelings of identity through this association and its collective actions. Secondary control is the preference for adapting to one's environment rather than trying to change it; thus producing harmony rather than challenge and conflict. Producing this harmony is seen as a matter of character and strength and not, as it would more likely be seen in America, as an absence of character and a weakness (Reischauer 1977).

Such differences in individual determinism between the U.S. and Japan were expected to be reflected in advertising in two major ways. First, we expected to find fewer Japanese advertising appeals to use a product or service because it would make one unique or successful as an individual. Secondly, we expected that the U.S. ads would be more likely than the Japanese ads to claim or show that the product could help one do or change things by affecting others or the environment. Unlike the materialism predictions, these differences were not expected to increase or decrease over the time period studied.

Other Differences

A number of other cultural differences were examined in the comparisons of U.S. and Japanese advertising (see Belk, Bryce, and Pollay 1985 and Belk and Pollay forthcoming), but only a few will be presented here and these will be restricted to the television advertising samples. These differences may be grouped under the headings of advertising execution styles and interpersonal relationships, including sex roles. Because there are some important and somewhat subtle differences between the U.S. and Japan in terms of norms for interpersonal relationships, they require some comment.

As Reischauer (1977) points out, the public display of affection and emotion, even with a spouse, is considered inappropriate in Japan. Thus we expected to see fewer intimate glimpses of family life and less physical contact in Japanese ads. At the same time, as Morley (1985) and Trucco (1984) note, Japanese advertising portrayals of females in ways that would currently be regarded as sexist in the U.S., are not regarded as unusual or objectionable in Japan. Such sex role attitudes have also been used to explain the greater use of female spokespersons in Japanese television commercials as a way to defuse what would otherwise be an inappropriate status challenge in an ad suggesting that the viewer take an action such as buying the brand advertised (Smith 1983). For instance, the imperative tone of a message such as "Drink Coca Cola!" would only be appropriate for a superior speaking to a subordinate within the structure of Japanese language and status hierarchy. To avoid such a condescending tone (demanded by the language), in addition to coquettish women, Smith (1983) found the use of children and ingratiating comedians in commercials designed to avoid offending the viewer.

Such subtle differences in communication reflect the relatively greater burden placed on nonverbal communication in Japan (Barthes 1982) and suggest a reason why television advertising, with its greater ability to convey such messages, is even more popular in Japan than in the U.S. In 1980 just over one-third of Japanese advertising dollars were spent on television versus somewhat under one-third in the U.S., (J. Walter Thompson 1982). We were not certain what other differences might be found between television and print advertising in Japan, but it seemed likely that there would be some.

Methods and Results

Study 1: Magazine Advertising

Methods and results for the U.S. sample of magazines have been described elsewhere (Belk and Pollay 1985b, 1985c). Briefly, a systematic random sampling procedure was used to select 250 ads per decade from the ten largest circulation magazines for that period. Of these ads, those retained for the present analysis had illustrations showing the interior or exterior of a home. This resulted in 220 ads distributed as follows:

1943-1947	100 ads
1953-1957	59 ads
1963-1967	32 ads
1973-1977	29 ads
Total	220 ads

The comparison sample of Japanese ads was obtained, also using the criterion of illustrations of the home, from the three largest circulation Japanese magazines since World War II: Bungei Shunju (Literary Digest), Chuo Koron (Central review), and Shukan Asahi (Weekly Asahi). In this case a census of all such ads was taken from each issue of these magazines every fifth year, resulting in the following sample of 332 ads:

1953	40 ads
1958	29 ads
1963	40 ads
1968	55 ads
1973	45 ads
1978	75 ads
1983	48 ads
Total	332 ads

Coding also was done comparably to that for the American ads with three judges, except in this case all were fluent in reading Japanese. One was a Japanese graduate student and the others were American graduate students who had each spent at least five years in Japan. Inter-judge reliability (percent agreement--Kassarjian 1977) averaged .85 and disagreements were arbitrated by majority rule. In addition, these judges coded ten of the U.S. ads and produced an average agreement level of .84 with the coders for these ads (who were about comparably consistent within the ads they coded). Coding definitions for the themes reported here were:

Luxury/Pleasure: Explicitly mentions luxury (or related terms such as leisure, pleasure, regal, or pampered) or else depicts such pleasures visually.

Status/Prestige: Shows or discusses prestige or social standing relative to others or uses high prestige source or association.

Having: Either a person is displaying or referring to owned object(s) or a house or room is shown from eye level into which the viewer seems to be invited.

Being: Shows or discusses what the reader can become or how people will treat the reader with the help of this product or service.

Doing: Shows or discusses a reader activity that is aided or provided by the product or service.

There were some differences in the portions of the two ad samples involving various product categories, but comparisons with product category held constant produced no meaningful disparities in results to those from the overall sample. Materialism was measured in the ads by the frequencies of appeals involving luxury and pleasure, status symbolism, and "having" the product or service advertised for its own sake (rather than for the person it will help one be or become or the activities it will help one do). Table 1 shows that each materialistic theme was less frequent in Japan for the earliest years and grew to become the more frequent in

either the sixties or seventies. Appeals stressing

TABLE 2

TABLE 1

PERCENTAGE OF U.S. AND JAPANESE ADS USING VARIOUS THEMES

YEAR*	Luxury		Status		Having		Being		Doing	
	U.S.	JAPAN	U.S.	JAPAN	U.S.	JAPAN	U.S.	JAPAN	U.S.	JAPAN
1943-										
1947	21.0%		4.5%		31.0%		58.0%		76.0%	
1953-										
1957	27.1	2.5%	6.8	0.0%	50.8	27.5%	39.0	45.0%	86.4	17.5%
1958		0.0		0.0		24.1		37.9		10.3
1963-										
1967	25.0	25.0	4.2	20.0	31.3	45.0	37.5	22.5	84.4	12.5
1968		32.7		30.9		47.3		9.1		1.8
1973-										
1977	48.3	42.2	4.8	40.0	51.7	35.6	31.0	11.1	72.4	15.6
1978		52.0		36.0		25.3		22.7		6.7
1983		29.2		35.4		43.8		22.9		12.5

*Underlined years apply to Japan

the status symbolism of the advertised brand were far more frequent in Japan starting in the 1960's, even in comparison to the height of U.S. status appeals in the 1930's (Belk and Pollay 1985b, 1985c). High status persons from prominent occupations are typically used in this advertising in order to impart symbolism to the advertised brand. Thus, as predicted, Japanese materialistic appeals not only grew more rapidly than U.S. materialistic appeals, but exceeded U.S. levels at some point before the end of the sample period. Recent apparent declines in Japanese materialistic appeals may be responding to the same changes in values creating the recent journalistic criticism of such traits in Japan.

The last two columns of Table 1 show two alternate existential states to having (Sartre 1956). The more interesting of the two is doing which reflects the primary control hypothesized to be more common in the U.S.. On the basis of these results the hypothesis is strongly supported.

Study 2: Television Advertising

Because an historical archive of Japanese and U.S. television advertising was not available, television advertising for both countries was only studied for the year 1984. The U.S. advertising was recorded off the air in late summer and early fall in Spokane. The Japanese sample was recorded for a similar time period in Tokyo. A random sample of times of day, days of week, and stations was obtained in both cases. These ads were not restricted to those showing a home.

Japanese television saturation is comparable to the U.S. and programming is also similar (Gardner 1961). Generally, television advertising is not as regulated in Japan as it is in the U.S. (Ward, et al. 1985), but an exception is the prohibition of comparative advertising. Nevertheless, all of the Japanese advertising in our sample could have been shown on U.S. TV, although the use of cartoon characters in some of the children's advertising might meet with some criticism.

There were again some differences in the frequency of ads for various product categories as shown in Table 2, with the most extreme case being that 30 of the 191 Japanese ads were for non-alcoholic beverages while only 3 of 203 U.S. ads were in this category. But when analyses were done within a single product category (health and beauty products), results were similar to the overall results presented below.

TELEVISION AD PRODUCT CATEGORIES

PRODUCT CATEGORY	NUMBER OF ADS	
	U.S. Sample	Japanese Sample
Automobile and Related	24	10
Clothing and Related	3	2
Food and Food Related	31	35
Alcoholic Beverage	18	7
Non-alcoholic Beverage	5	30
Health and Beauty	37	31
Household Cleaning/Care	16	10
Electrical Appliance	1	5
Electronics	33	12
Home Furnishings	8	7
Retailers	3	13
Other	24	29
Total	203	191

Coding of the television ads was similar to coding of the print ads, with similar coding categories and two sets of three graduate student coders for each country's ads (in this case one coder overlapped in the two sets of judges). Partly because of a reduced number of coding categories compared to the print ads, inter-judge reliability averaged over .95 for the television ad coding.

In terms of format, 68% of Japanese commercials were 15 seconds in length whereas over 90% of U.S. commercials were 30 seconds long. The only other major difference was that more Japanese commercials used music throughout (83.8% versus 69.5%) and fewer used no music at all (3.1% versus 24.1%). Differences in the thematic content and styles of these commercials are shown in Table 2.

TABLE 3

FREQUENCY OF U.S. AND JAPANESE 1984 TELEVISION ADVERTISING THEMES AND STYLES

APPEAL/FEATURE	PERCENT OF ADS	
	U.S.	JAPAN
Luxury/Pleasure Appeal	19.8%	16.8%
High Status Spokesperson	11.8	41.3
Having Theme	64.1	79.3
Being Theme	31.5	11.5
Doing Theme	56.5	55.0
Demonstration	38.4	53.9
Be Unique Theme	7.9	5.3
Be Successful Theme	28.6	2.6
Superlatives Used	17.7	4.7
Product Test Results	12.8	4.2
Product Ingredients Touted	40.9	22.5
Product Performance Touted	63.6	34.5
Price Noted	3.0	19.0
Voiceovers Used Throughout	77.3	26.2
Superimposed Writing	58.6	98.5
Female Announcer	16.8	37.7
Sexy Female Featured	4.9	13.6
Family Featured	25.1	8.9
People Shown Touching	62.6	38.7

Again the comparable use of materialistic themes and especially high status spokespersons is seen in the Japanese ads. However, the primary control doing theme is no more common in the U.S. TV ads than in the Japanese TV ads. The reason for this is largely the greater number of product demonstrations in the Japanese ads, often involving demonstrations by high status spokespersons. Clearly the U.S. ads were more likely to use individualistic appeals to be unique or successful however, and were more likely to employ superlatives. In addition to not encouraging viewer individuality, the Japanese ads seemed not to stress brand uniqueness or relative advantage to any great degree. By law, no Japanese

ads were comparative, while 7.4 percent of U.S. ads used a comparative format. Toshio Yamaki (1984) in a comparison of Japanese and U.S. print ads also found that U.S. ads were more likely to be comparative and to stress individuality, success, and the enhancement of consumer performance.

Differences in stylistic execution are also seen in the greater tendency of U.S. ads to stress test results, ingredients, and product performance, and the Japanese ads' greater tendency to stress price. Also while the U.S. ads more frequently used voiceovers throughout, the Japanese ads more frequently used superimposed writing throughout. Finally, some anticipated sex role differences are seen in the Japanese ads' greater use of sexy female models and the U.S. ads' greater tendency to show families and people touching one another.

Discussion

It is a basic premise of advertising that a successful ad must appeal to the values and needs of its intended audience (McNeil and McDaniel 1984). If the ads studied here have explicitly or implicitly adhered to this premise, then it is clear that differences remain in Japanese and U.S. consumer values. While there has been some convergence in the amount of materialism displayed in these ads, Japanese emphasis on status symbolism remains substantially higher and U.S. emphasis on individualism and standing out remains higher as well. The predicted U.S. preference for primary control over secondary control was evident in the print ad sample, but less so for the television ad sample. It may be that this difference is brought about by the near necessity of television to show action of some sort, but it is also possible that the greater nonverbal communication potential of television makes it more amenable to expressing new values than more traditional print media (Barthes 1982).

Cross-cultural value differences also bear on the likely effectiveness of advertisements dubbed from one culture to be presented in another. Such ads were relatively rare in the present sample. In the Japanese TV ad sample, while 11.5% of the ads were for U.S. products, only about one-third of these were dubbed from English language versions. In the U.S. TV ad sample only 2.0% of the ads were for Japanese products and none of these were dubbed from Japanese. Nevertheless, given the recent calls for universal advertising appeals by Theodore Levitt and others, some comment might be made from the present results. Given the value differences noted above we are very skeptical of the potential for universal advertising appeals. Furthermore, more subtle communication differences such as sex of the announcer, amount of touching, and prevalence of active "doing" appeals, make universal advertising campaigns a more difficult proposition still. If such differences are present in the few appeals examined here, they are undoubtedly present in others as well.

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THE CULTURAL PERSPECTIVE IN CONSUMER RESEARCH

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Abstract

The use of a cultural perspective to interpret behavior and direct investigation in consumer research has been sporadic, despite its profound potential. "Culture" has imprecise and unwieldy connotations which make traditional consumer researchers hesitant to employ it as an interpretative frame. This paper proposes a conception of culture designed to assist researchers in understanding consumer behavior. Some suggestions for using a cultural perspective are provided.

In his review of the benchmark study of culture conducted by Kröeber and Kluckhohn (1952) - the one cited so often in despair or derision by contemporary consumer researchers - which provided us with 164 definitions and almost 300 conceptions of the term "culture," the late cultural theorist Leslie White (1954) celebrated its thorough detail but lamented the confusion such a study would engender. In our quantitative investigations of consumer behavior, culture frequently represents "the unexplained residuum of rigorous empirical analysis, an area of darkness beyond the reach of currently available scientific searchlights" (LeVine 1984). That many researchers operate in a "world of variables with frequencies of less than 70%, and arbitrarily assign certain characteristics to the J-curve has profound implications for our understanding of consumer behavior: mere "background parameters" from one perspective become topics of "revealing cultural inquiry" from another (LeVine 1984). In the spirit of Tucker's (1966) call for help in the search for "useful questions," this essay discusses the cultural perspective in consumer research.

Defining Culture

To understand the complexity of the term "culture" in modern usage, beyond the literal continuity of physical process (as in sugar-beet culture or germ culture) Williams (1983) wisely insists that we recognize three broad categories of active usage. The first is the independent abstract noun describing a general process of intellectual, spiritual and physical development, which has its origins in the 18th century. The second is the independent noun indicating a particular way of life, which has its origins in the late 19th century. The third is an applied form of the first sense, an independent abstract noun describing the works and practices of intellectual and artistic activity, which has its origins in the late 19th and early 20th centuries. Each usage is currently colored by every other. While usage number three is perhaps the most widespread, I will use the second sense as the foundation of this essay.

Perhaps the oldest "terminological wrangle" in anthropology centers around the term "culture" (D'Andrade 1984). It has been treated both as a class of "things," often with a very particular content, and as a process. Of all the classificatory schemata used by anthropologists to describe and analyze cultural systems, a "universal pattern" proposed by Harris (1971) has proven effective for researchers of varying theoretical bent. This universal pattern of culture has three major functional sectors: ecology, social structure, and ideology. Ecology is the way a system is adapted to its habitat. This adaptation is shaped by the technology used to obtain, transform, and distribute resources. Demographic factors also govern the relationship between cultural system and environment. This component of the universal pattern is the infrastructure. Social structure is the way that an orderly social life is maintained. Domestic and political groupings are funda-

mental social structural units, the order within and between which permits economic transaction. Neither the production, consumption, or exchange of resources, nor the structure of social groups performing these functions can be satisfactorily understood in isolation. This component of the universal pattern is the structure. Ideology is the set of mental characteristics that fit a people to its ecology and social structure; it encompasses all socially patterned thought. Ideology as Harris (1971) understands it can be explicated using a set of concepts discussed by Geertz (1973): world view and ethos. World view is the cognitive, existential aspect of culture, embodying the most comprehensive ideas of order. Ethos is the moral, aesthetic, evaluative aspect of culture, embodying a people's mood or character. Together, world view and ethos impart meaning to experience. This component of the universal pattern is the superstructure. A functional unity between these sectors of culture has been a basic postulate of many culture theorists (Harris 1971). The universal pattern can be used effectively to understand consumer behavior as a cultural system.

World system theorists (Rollwagen 1980) have criticized traditional anthropological treatments of culture as isolationist insofar as the adaptive interaction among cultures has been ignored. Recent work by Wolf (1982) has provided a much needed corrective, and has recast culture as "a series of processes that construct, reconstruct and dismantle cultural materials, in response to identifiable determinants." Thus, it is inaccurate to speak of the instrumental forms and the ideological codes which constitute "culture" as existing *in vacuo*. Culture is not so much a property of society as it is a process of creation and interpretation that occurs when people interact over time (Rollwagen 1980). Mintz's (1985) masterful interpretation of the role of sugar in modern history is a striking example of the culture-as-processing viewpoint.

Culture can be viewed in Williams' (1977) scheme as an interrelated configuration of archaic, residual and emergent dimensions. At the level of archaic culture, past patterns are generally no longer effective in the present, although they may serve as sources of historical identity. Residual culture is comprised of lived patterns originating in the past, but affecting interactions in the present. Emergent culture consists of existing expectations, values and interactions, along with the process through which new meanings and relationships are continually created. Thus, culture is not uniform, in the sense that it is a continual synthesis of old and new. Given the many modes of exchange between societies, every culture can be understood as an amalgam (Ulin 1984).

The properties of culture that LeVine (1984) experiences as central are collectivity, organization, multiplexity and variability. Culture is collective in that, within a community, consensus exists about meaning, consensus is related substantively to the importance of social communication, and that consensus produces redundancy across individuals. Culture is organized in that a coherence or connectedness, regardless of degree and of kind, exists between its elements; it is not a random assemblage of discrete elements. Culture is multiplex in that it cannot be reduced to its explicit or implicit dimensions, and that it can integrate rational and nonrational elements into a workable rationale. Culture is variable in that the patterns by which people live their lives vary widely by place and time. We will discuss variability in considerable detail directly.

D'Andrade (1984) has identified three major views about the nature of culture, which can be arrayed along a continuum. At one pole, culture is conceived of as knowledge, or accumulated information, which is not necessarily widely shared nor necessarily highly integrated. The volume of information in the cultural knowledge pool is extremely large. At the other pole, culture consists of "conceptual structures" that create the "central reality" of a people, and which are inter-subjectively shared. The entire system is highly inter-related, despite any contradictions which might exist. The volume of information in the cultural knowledge pool is relatively small. Between these polar conceptions of the nature of culture lies the third, or institutional, conception which views culture as clusters of norms defining the roles which attach to statuses; integration, while important, is problematic. The amount of information in the cultural knowledge pool is considerable.

It is often remarked that nothing so divides researchers seeking to generalize about human behavior as the issue of cultural variability (LeVine 1984). How do we interpret the facts of cultural variation in generalizing about variability? LeVine (1984) identifies three perspectives commonly assumed on this issue. Again, the idea of a continuum is useful. At one pole, the reductionists (Marxists, neoclassical economists, cultural materialists, orthodox Freudians, sociobiologists, etc.) promote such basic premises as uniformities of structure and content in human life, culture and motivation across time and place. They minimize variability and dismiss variation as surface manifestations concealing deeper uniformities. At the other pole, phenomenologists insist on the uniqueness of each culture, the local pattern of meaning with which apparent universals are invested, and the impossibility of constructing useful cross-cultural categories. They view similarities in behavior as superficial, and feel comparative methods will obscure the diversity of meanings that defines a particular culture. Between these poles is the centrist position, which posits no a priori theoretical position forecasting the results of inquiries into variation and demands a larger, more appropriate theoretical frame than those currently available. It is this centrist position that LeVine (1984) champions in his advocacy of ethnographic and comparative methods.

While we have abandoned the anarchic "shreds and patches" concept of culture once popular, in favor of conceptions based upon pattern, we have not moved significantly beyond the search for an appropriate metaphor in attempting to define culture. For our present purposes, I will inelegantly proclaim that culture at once is constituted and constituting. It is composed of, and in turn, composes two significant human phenomena: meaning systems and material flows (D'Andrade 1984). Meanings represent the world, create cultural entities, direct people to behave in particular ways, and evoke particular feelings. Material flow denotes the movement of potentially countable entities - goods, services, messages, genes, etc - in space and time. Human groups adapt to their environment and structure interpersonal activity through these two phenomena. Meaning systems and material flows are mutually influential and differentially distributed across persons (D'Andrade 1984).

The challenge to consumer researchers - the majority of whom are firmly embedded in and actively constructing a culture of consumption - is to describe and interpret both the meaning systems and material flows underlying consumer behavior, as well as to analyze the relationship between meaning and flow. That worlds of goods exist within which culture is created and cognition structured is recognized; how these processes unfold across cultures remains to be determined (Douglas and Isherwood 1979, Agnew 1983). Cultural analysis can improve our understanding of consumer behavior as trivial as the new Coke debacle and as profound as the Third World infant formula complex. The fruits of such analysis might then be used to maintain or transform consumer culture.

A Prescription for Consumer Research

Because this essay was drafted to amplify the voice of a disaffected and growing minority of researchers interested in moving beyond the traditional positivist, cognitive psychological orientations in consumer behavior studies, some programmatic remarks are required. We are living in an era in which cultural diversity is alternately accelerated and eroded by the diffusion of consumer ideology. The fragmentation of the domestic marketplace, the allure of a global marketplace, the spectre of protectionism, the renaissance of organizational climate concerns, the critique of development, the new international division of labor and dozens of other critical trends virtually compel us to adapt a cultural perspective in our research. Whether "subculture," "ethnicity" or "segment" becomes our interpretive frame, whether "corporation," "household" or "family" becomes our laboratory, or whether "normative," "idiographic," or "eclectic" becomes our orientation are all subsidiary to our decision to focus on meaning systems and material flows within and between groups.

Without undertaking a critique of naive empiricism, or proclaiming the primacy of the centrist perspective - enterprises we may be unwilling or unable to support - what steps can a consumer researcher take in adapting a cultural perspective? The first is to negotiate a working conception of culture, in terms of your preferences regarding variability and nature as discussed above. The investigator who views culture as "a non-rational, extralogical, arbitrary partitioning of the world that is "framed," talked about, acted upon, even labelled and is handed over from one generation to the next" (Shweder 1984) will generate questions and findings that a consumer researcher with an opposing perspective can employ, advancing the field in the bargain. The second is to select a consumer research issue, and frame it in terms of meaning systems and material flows. Gauging the impact of differential time allocations upon the household meal complex lends itself to such a framing: "role," "family," "time," "food," and "meal" are just a few of the culturally constructed entities that must be interpreted. The third is to identify an accessible group that would become your fieldsite, or natural laboratory. Urban nomads, middle managers, rural black families, flea market dealers, yuppie neighbors and other "naturally" occurring groups in their traditional contexts are exemplary units. The fourth step - and one best left to another paper, is the selection of an appropriate methodology. The tailoring of research design to problem and setting is a challenging and ongoing enterprise. Cultural perspectives have been guided by ethnographic and ethnologic procedures, traditionally. (The merits and shortcomings of ethnography in consumer research will be discussed at our next Annual Conference, if the proposed Consumer Behavior Odyssey Project is successfully launched.) It is important to note that many theorists' conceptions of culture have emerged as a direct result of their ethnographic work.

Conclusion

A cultural perspective assists the researcher in achieving a comprehensive understanding of the consumer behavior he or she is attempting to interpret. That interpretation is a synthesis of the consumer's native intuition and the analyst's understanding. Recent forays into cultural hermeneutics, semiotics, discourse analysis, structural anthropology, historical materialism and other "nontraditional" disciplines have rewarded consumer researchers with novel insights into their subjects.

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EFFECTS OF STEREOTYPING IN CROSS CULTURAL RESEARCH:
ARE THE CHINESE REALLY CHINESE?

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Abstract

Previous research has identified consumer segments in both Western and Oriental societies exhibiting attitudes and behaviors associated with traditional Chinese values. These consumers were said to exhibit high levels of Chineseness. This paper examines the consequences of these findings for the study of ethnicity in consumer behavior. Research results indicate Chineseness is more likely to exist in non-Asian households than in Asian families. Patterns of Chinese attitudes and consumption behavior found in Singapore differ significantly from those found in the United States. This raises questions about the nature of ethnic segmentation and the definition of ethnicity as it is commonly used marketing and consumer behavior, indicating the need for alternate operationalizations of ethnicity.

Introduction

Interest in ethnic research in marketing and consumer behavior has been stimulated by the growth of large market segments with strong ethnic affiliations. Interest in the characterization and analysis of Black, Hispanic, and other ethnic groups within the American marketplace has been driven by the strong economic impact of these groups on American society. Consumer behaviorists have become interested in the relationship between ethnicity and consumption largely because of the diversity of behavior found in ethnically affiliated consumers and the usefulness of the ethnic consumer as a vehicle for examining other important consumer behavior constructs.

In another context, ethnic research has been undertaken to provide insight concerning international markets and the international dimensions of consumer behavior. Tan and McCullough *et al.*, for example (McCullough, Tan, and Teoh, 1984; Tan, Teoh, and McCullough, 1984; Tan and McCullough, 1985; Ellis *et al.*, 1985), have examined the relationship between affiliation with Asian or Chinese ethnic groups, family decision making, and consumption behavior. This series of studies and subsequent discussions of ethnic behavior at the American Marketing Association meeting in August 1985 have led to this paper.

Understanding Ethnicity

Values and Ethnicity

Central to any ethnic group is a set of cultural values, attitudes and norms since culture represents the social heritage and distinctive life style of a society. According to Linton (1973) it is a configuration of learned behaviors which are shared within a society. Since few ethnic groups exist in homogeneous societies, they commonly represent sub-groups holding a common set of cultural values, attitudes and norms. Since they develop within a larger environment over a period of time, it is often difficult to identify the values of the ethnic group and to separate the group values--the underlying determinants of behavior--from other elements of culture.

Ethnicity-Value-Behavior Measurement

Rokeach has done a great deal to clarify the conceptual issues surrounding the study of attitudes and values. Careful conceptual distinctions are drawn among belief, belief

belief systems, ideologies, values, value systems, faith, sentiments, and attitudes. An attitude for example is defined as a relatively enduring organization of interrelated beliefs that describe, evaluate, and advocate action with respect to an object or situation, and with each belief having cognitive, affective and behavioral components. Each of these beliefs is a predisposition response toward the attitude object or situation or towards others who take a position with respect to the attitude object or situation or toward the maintenance or preservation of the attitude itself. Since an attitude object must always be encountered with some situation about which we must also have an attitude, a minimum condition for social behavior is the activation of at least two interacting attitudes, one concerning the attitude object and the other concerning the situation (Rokeach 1970, p. 132).

A value by contrast is a type of belief, centrally located within one's total belief system about how one ought or ought not to behave, or about some end-state or existence worth or not worth attaining. Values are thus abstract ideals, positive or negative, not tied to any specific attitude object or situation, representing a person's belief about ideal modes of conduct and ideal terminal goals... (Rokeach 1970, p. 124).

If the definition of ethnicity goes beyond geographic terms, the values, attitudes, and behaviors of the ethnic group should be studied. In attempting to determine what are valued between ethnic groups, either observed behavior or verbalizations concerning behavior are usually examined. From observations of individuals, consistent behavior patterns in given situations can often be noted. When a consistency can be established, it is then possible to infer a degree of liking, commitment to certain kinds of behavior. Thus the different elements of value, attitude, and behavior among ethnic groups can be established.

Chineseness

The Chinese exist as ethnic subgroups in most countries and as the dominant group in many parts of Asia. Although the Chinese are culturally diverse, comprising a wide variety of dialectically defined groups, there are some unique cultural characteristics to describe the values and behavior of the Chinese in general. These unique cultural characteristics have been documented in the anthropology, sociology, and political science disciplines (Greenblatt, Wilson, and Wilson, 1981; Greenblatt 1979, Wilson 1970). For example, Hsu (1981) has proposed that in comparison to the American, the Chinese are by and large situation-centered, the Chinese are inclined to be socially or psychologically dependent on others. They are tied closer to the world and their fellow men. Thus their happiness and sorrow are milder since they are shared. Other values that are general to human social existence but have been operated differently within the Chinese are family loyalty, filial piety, group orientation, the concept of face and the concept of reciprocity in social exchange. Bennett (1979) has generated a list of 34 identifiable value statements peculiar to the Chinese. Some examples are shown in Figure 1.

FIGURE 1

TYPICAL CHINESE VALUE STATEMENTS

1. Age should be respected over youth.
2. Established authority is preferred over innovation.
3. The public welfare should be placed ahead of individual welfare.
4. Social classes and severe inequality are desirable if not natural.
5. Conspicuous consumption and material possessions should be taken as leading indicators of status.
6. Favors must be repaid equivalently, otherwise one is under obligation and loses face.
7. Men should go to work to support their families, and women should stay home and take care of household duties.
8. The building blocks of interpersonal relationships should be connections--a confident feeling of reliability arising from accumulated obligations.
9. Face is the prestige and reputation one achieved through material or social success, ostentation or generosity. Also, having face is the respect from others for a person or a family with a good moral reputation.
10. Filial piety is a virtue.

Measuring Chineseness

The study of Chineseness was begun in Singapore in 1982 as part of a study to explain differences in patterns of family decision making. The scale used to measure Chineseness that was developed for that study is shown in figure 2. Before examining the problems caused by the use of the scale, it is important to understand the origin of the elements. Singapore is a complex society composed of several significant ethnic groups dominated by the Chinese. The elements of this scale were extracted from a list of statements proposed by a group of predominately Chinese university students for use in consumer behavior research in an Honors (graduate course) in consumer behavior and marketing research. The ten elements used in the studies were identified by consensus from among the elements originally proposed.

FIGURE 2

CHINESENESS SCALE

The following items were identified as possible indicators of Chinese attitudes. Beginning with a list of stereotypical Chinese belief and input from Chinese students in Singapore, focus groups modified the items to arrive at the following scale items:

1. A woman's place is in the home. (Agreement).
2. Caring for one's aged parent is the duty of every person. (Agreement).
3. I often do the right things so as not to lose face. (Agreement).
4. I feel strongly about returning favors to others. (Agreement).
5. Every family should have a son. (Agreement).
6. My relationship with my parents is formalized. (Agreement).
7. I interact frequently and closely with my relatives. (Agreement).

8. Showing your affections openly is acceptable. (Disagreement).

9. Marriage should be a lifetime commitment. (Agreement).

10. One should not go to the extremes in one's behavior. (Agreement).

Subjects respond to the above statements using a Likert scale (agree-disagree) and after item 8 is reversed in the scoring a summed score is calculated for each respondent. Low scores (i.e.: high agreement) are termed highly Chinese.

Clearly, in the case of Chineseness, the measurement of ethnicity became largely an evaluation of values, although the elements relate to both beliefs and behaviors. Once the scale was developed, it was used to try to explain differences in family decision making activity (Tan and McCullough, 1984) and in consumption behavior (Tan and McCullough, 1984) among consumers drawn from the Chinese community in Singapore. This work was extended to consumers in the United States who were compared with the Singaporean sample (McCullough and Tan, 1984). It was from these studies that a disquieting result emerged--ethnically white consumers living in the United States were as Chinese as ethnically Chinese consumers living in Singapore based on scores on the Chineseness scale. The Chineseness scale was no longer measuring uniquely Chinese characteristics, but an underlying construct common to both groups.

Why Study Ethnicity?

Increased interest in the international dimensions of consumer behavior has spawned a number of studies of "cross-cultural" consumer behavior. Most of these have examined the differences in behavior between to national markets chosen more for the convenience of the researchers than for their scientific justification.

Ethnicity provides a vehicle for examination cultural difference in a systematic fashion across national boundaries by identifying similar subgroups in a variety of countries rather than by describing specific groups in selected environments.

What Is Ethnicity?

From a marketing perspective, ethnicity was initially a demographically defined concept. A consumer was defined as a member of an ethnic market segment on the basis of race. This concept was reasonable in an operational sense as long as the black consumer was identified as a reasonably isolated, homogeneous consumer within the American market. The integration and fractionation of ethnic groups within this market has made segmentation based on race less useful, and the emergence of other large, but less easily definable groups presents even greater problems.

In looking at the Hispanic market, for example, Valencia (1984) points out the difficulty in defining "Hispanicness" due to the wide variance in acculturation. Hirschman (1981) discusses the same problem in the American Jewish group. Although the relationship between ethnicity and acculturation can be discussed in conceptual terms, it is difficult to develop a useful framework for using ethnicity in the study of consumption.

The fact the similarities in values and behavior associated with ethnicity can be found in apparently unrelated and diverse groups in different international environments provides a clue to an operational definition of ethnicity: affiliation with a group of individuals in a cultural holding similar values, attitudes, and beliefs, and exhibiting similar behaviors without regard for race, religion, or national origin. Ethnicity becomes, therefore, not a demographic, but a psychographic characteristic, and similar ethnic groups would be expected in a variety of cultures, regardless of the demographic structure of the society.

Using this definition, it is not surprising to find Americans who are as Chinese as the Singaporean. Both groups hold the same values, attitudes, and beliefs, and exhibit similar behaviors. Although their social role may be different--the Chinese in Singapore are the dominant group while the traditionalist in the United States does not play as strong a role--they exhibit similar consumption behaviors and may serve as target markets for similar marketing programs.

How Can Ethnicity Be Determined?

There appear to be three approaches to evaluation of ethnicity offering potential in the study of consumer behavior.

Demographic Measures

Demographic measures of ethnicity are the easiest to use as they are by definition objective characteristics. The increased intermingling of races and nationalities, however, makes these traditional ethnic determinants less reliable. More significantly, if ethnicity is a behavioral construct, using demographic variables may prove unreliable.

Values and Attitudes

Culture is usually defined in terms of values and behaviors, and ethnicity is generally considered to be closely related to culture. As the Chineseness studies indicate, however, there can be wide acceptance of "ethnic" values among individuals who are obviously not part of the ethnic group of interest. This approach should facilitate extension of marketing programs and consumer behavior concepts internationally, facilitating identification of important subgroups which are "ethnically" similar.

Self Reports

Ethnic assimilation is an important parameter in the evaluation of ethnicity. As the demographic determinants of ethnicity are discarded, individuals become free to adopt a wider variety of ethnicity. Their assessment of their own ethnicity may be the best measure to their true ethnicity. The degree of affiliation with the group in question is a good measure of ethnically related consumption.

Conclusion

In Asian cultures, young, modern consumers (demographically defined) commonly adopt Western values and behaviors, but report themselves as belonging to a particular dialectical ethnic group. This indicates the complexity of the issue. In order to understand international consumer behavior in an age of mixing and change, ethnic behavior needs to be better examined and better understood. A redefinition and reevaluation of ethnicity and ethnic stereotypes will be necessary before we can understand and evaluate white, Anglo-Saxon Chinese.

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ACCULTURATION: THE IMPACT OF DIVERGENT PATHS ON BUYER BEHAVIOR

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Abstract

The concept of acculturation is central to the study of subcultures and their interaction with host societies. Yet, while buyer behaviorists have given this topic some attention, actual investigations involving subcultures have been largely descriptive, and conducted without the aid of a substantive theoretical model of the acculturation process. While this paper stops short of presenting a truly comprehensive model, and is developmental in nature, it does, however, suggest a fundamental reconceptualization of existing consumer acculturation theory. The thesis presented by this paper is that the consumer acculturation process may take multiple, simultaneous and less direct paths than previously modeled, the most significant of which may be the path offered by mass media.

To understand human behavior we must specify its social origins and the process by which it is learned and maintained." (McLeod and O'Keefe 1972, 127-8).

"I watch TV." Chance the Gardner

Introduction

The United States is presently becoming more ethnically heterogeneous. This is due, in large part, to high levels of Asian and Hispanic immigration. Both of these ethnic groups have brought with them languages other than English, as well as culturally bound attitudes, values and behaviors. Some of these cultural differences may be expressed in terms of buyer behavior. In response, many marketers are having to reconsider the manner in which they have traditionally approached and segmented their markets. Unfortunately, marketing researchers have paid relatively little attention to the concepts of ethnicity, subculture and consumer acculturation.

Previous research grounded in the so-called "melting pot" model has left us without any clear understanding of the agents and forces involved in the consumer acculturation process. For the most part, American social scientists modeled the acculturation process in terms of the immigrant's direct contact with the people and social institutions of the new host society; the greater the contact, the greater the acculturation. This approach, however, ignores the American immigrant as a consumer and tends to overstate the importance of the workplace and the school as agents of socialization. This model may have been adequate when it was developed, but in a consumer culture now pervaded by commercial mass media it is in clear need of revision. A workable model of consumer acculturation must, at a minimum, incorporate the indirect path offered by mass mediated socialization, as well as the traditional path of direct social contact.

Consumer Acculturation

A central and primary mechanism involved in the interaction of ethnic subcultures and host societies is the process of acculturation. Acculturation may be

defined as the immigrant's adoption of the dominant society's attitudes, values and behaviors. Consumer acculturation is a subset of this process comprised of those attitudes, values and behaviors which collectively comprise what we call buyer behavior.

While some immigrants will retain a great many culturally bound attitudes, values and behaviors, others will more quickly and enthusiastically adopt those that define the dominant host culture. Some of this variance will undoubtedly be expressed along dimensions of buyer behavior. For this reason, level of consumer acculturation could begin to play an increasingly important role in marketing efforts targeted at ethnic populations. Marketers, for example, who now view the Hispanic market as one homogeneous and monolithic segment may have to re-evaluate their thinking and approach. Yet far more important than any application, is the hope that investigation of the consumer acculturation of immigrants may give us a better understanding of the larger consumer socialization process. By studying those new to a society, we are provided with a unique opportunity to investigate the mix of social forces which affect us all.

Certainly there is no doubt that what it means to become acculturated as an American includes learning the culturally accepted attitudes toward material goods and possessions. Much of who and what an American is is determined by what he or she possesses, and the values those possessions express and convey to others. Immigrants who want to become acculturated must learn what things they should desire, and to a lesser extent, why.

While this paper does not represent a complete remodeling of the consumer acculturation process, it does suggest one major revision: the incorporation of the indirect path offered by mass mediated consumer socialization. Historical examples and cultural artifacts are used to support and illustrate this thesis. The paper also presents some developmental propositions regarding the effects of these divergent paths, as well as suggestions and implications for future research.

The Traditional Model

What buyer behaviorists use as a sort of working model of acculturation is largely the sociological model developed in the late 1920's and early 1930's (see Kimball 1955). It represented a major break with the anthropological functionalism and natural history of Boas, Benedict, Sapir and others (Hymes 1967). This sociological model is grounded in logical positivism and focused on the European immigrant to the United States. The psychological factors of acculturation were never explored much beyond a rather narrow view of social facilitation. It is, in short, an incomplete and outdated model. It is incapable of satisfactorily encompassing and dealing with such things as enduring ethnic subcultures, the institutionalization of biculturalism, and the pervasive and powerful effects of the mass media.

According to this facilitation model, the "successful" immigrant takes on the values, attitudes and behaviors of the host society through direct social contact with, and observation of its people and institutions. In the case of immigrant children, the public school system was viewed as the dominant agent of acculturation. There,

immigrant children were taught the new ways by both teachers and peers. For immigrant adults, the Anglo-dominated workplace was thought to be the primary institution of acculturation. Even though the immigrant may have worked alongside other immigrants, they typically worked within the confines of an institution dominated by, and operated in accord with the norms of the dominant Anglo society. In these institutional settings the immigrant learned the formal as well as the informal rules of the new culture. Presumably, the old eventually succumbed to the new.

While significant theoretical revision seems warranted on many fronts, this paper will focus primarily on only one. It is, however, one of the most significant. In the United States there has been, ever since the turn of the century, a new path to acculturation via the pictorial mass media. This path was immediately accessible. The pictorial mass media were, and still are, enormously powerful and incredibly pervasive. Some argue that they have, in fact, become central in our everyday lives. Their incorporation into any contemporary model of consumer acculturation is an absolute essential. The development and the diffusion of the pictorial mass media have been described as nothing short of the single most important mass socialization event in this century (McCluhan 1964; DeFleur and Ball-Rokeach 1975). Certainly, their impact upon merging cultures should be considered as well.

It's Almost Like Being There

Acculturation can be viewed as a subset of socialization. Socialization is a process by which the individual learns, adapts and conforms to society's norms, rules and expectations. However, when the situation involves a foreigner learning a new set of societal values rather than a native born person learning the expectations for a novel role, we tend to call the process acculturation rather than socialization.

In a society dominated by mass media, mass mediated socialization seems a virtual certainty. In the motion picture *BEING THERE*, Chance the Gardner (a.k.a. Chauncie Gardner) exemplifies a man totally socialized by television. Outside of the people in his master's home, he has only experienced the world through indirect means, or as Chance puts it: "I watch TV." Yet, Chance believes that he understands the world. Chance's social reality has been constructed by television and he lives by the rules of television logic. However, when he encounters the world directly, his behaviors set him apart. He behaves differently, still trying to operate according to the norms and social conventions acquired from television. While Chance is a fictionalized and extreme example, the point remains. Someone new to a society can derive a considerable degree of socialization via the electronic mass media. They need not always take the riskier path of direct contact with the host society and its institutions. Prior to Mass Media America this simply wasn't the case. Successful acculturation was solely dependent upon direct contact and observation. First films, and then television made a safer, more indirect path for acculturation. Yet, due to its contrived, hyperbolic, materialistic and blatantly commercial nature, its effect upon the way in which immigrants become "American consumers" must be significant.

Communication scholars have, for quite some time, been concerned with the effects the mass media have on the socialization process. However, their work has generally been limited to children. Originally, researchers concerned with childhood socialization looked only at the influence of individuals and institutions with which the child had direct contact. These included parents, schools and churches. However, as interest in mass media grew, scholars recognized that indirect mass mediated contact could also be a socialization agent. Research evidence indicated that children could not only learn and

model behaviors from watching television, but also learn societal values (e.g., DeFleur and DeFleur 1967).

More recently, mass communication researchers have suggested that media socialization may not be limited to just children, but may also occur with adolescents and adults (Faber, Brown and McLeod 1979; Ward 1972). In fact, for any novel role in which people do or expect to find themselves, some degree of socialization will occur. To the degree that direct experience or learning is difficult, or involves greater risk, anticipatory or concurrent socialization may occur via the mass media. For the immigrant who is faced with learning a new cultural value system, especially when a foreign language is involved, the pictorial media may play an extremely important role in socialization.

While not discounting the importance of direct experience, twentieth century America offered the immigrant something novel, acculturation not solely dependent upon direct experience and observation. Yet, current models of acculturation, particularly consumer acculturation, have largely failed to take this into account. Media content should be included in any attempt to explain the process by which those new to America, or to any mass mediated society, learn to "appropriately" behave as consumers of that culture.

A Little History

This thesis can best be illustrated with the aid of historical examples. These examples will focus on two very significant periods of American immigration, the corresponding mass media environments, and the lessons of American materialism and consumption implicit in these messages. While making too strong a causal argument through the interpretation of cultural artifacts is an admitted danger, so too is overlooking or discounting them. Art and the artifacts of popular culture represent the creation and the expression of the men and women who collectively define cultures. They have meaning; it's not essential that we absolutely and definitively distinguish reflection from cause. The argument is in fact superfluous (Belk 1986).

Filmed in the USA

Shortly after the turn of the century the United States experienced unprecedented levels of immigration. In the first decade of the twentieth century one out of every one hundred Americans had been in the country one year or less (Bureau of the Census 1976). Upon arrival, these immigrants were met with a novel entertainment medium: the motion picture. While some European immigrants may have seen early motion pictures in their native lands, it was in her indigenous films that the consumption ideals of America found vivid expression and portrayal.

American immigrants, at least at a functional level, had to learn the appropriate values and behaviors of their new host society, many of which were tied to notions of ownership and consumption. For some, this was essential for survival, for others it was a desired end in itself. In both cases, the motion picture offered assistance without requiring direct, and thereby, riskier, contact with mainstream America.

It was no accident that the motion picture found its first audience in the urban immigrant population. During its formative years the silent short was generally shown in a converted storefront (nickelodeon) located on the edge of the business district for an average price of five cents. It required no knowledge of English, and was an inexpensive diversion from the drudgery of everyday industrialized existence. For the immigrant, the movie also provided a very functional service by acting "as a guide to the newcomer on the manners and customs of his new environment" (Jowett 1976, 38). Gilbert Anderson who played the enormously popular silent screen cowboy "Broncho Billy," summed up this effect by saying that his

films "taught young immigrants their first values of American manhood...shoot straight and build railroads" (May 1980, 101). While this statement may appear facetious, underlying it is the notion that the typical Western conveyed the values of honesty and hard work. What Broncho Billy forgot to mention was that just as these early American films told immigrants to work hard and earn wages, they more often demonstrated a myriad of attractive ways for the disposal of these very same wages. So while the work ethic was a common theme, the consumption ideal was an imperative.

While it would be grossly unfair and inaccurate to classify all American films of the silent era under one heading, they did collectively assist in the birth of what has become known as "consumer culture" (May 1980). Through these films immigrants were given more than a casual glance at "the good life." The immigrants who came here during the first decade of the century were, for at least the next twenty years, literally barraged with a group of movies which overtly glorified consumption. Their impact upon consumer behavior had to have been significant. As film historian Garth Jowett points out (1976, 139):

"American industry lost no time in using this power for its own advantage, and the movies were soon turned into a potent medium for the "mass" merchandising of clothing, furniture, soft drinks and even new hairstyles."

Excellent examples are the films of the enormously popular Mary Pickford (a.k.a. "America's Sweetheart") and Douglas Fairbanks. While both were sympathetic to the plight of the exploited industrial worker, their films often made the point that one should still work within the system in order to purchase happiness through the pleasure that only consumption could give you.

In HIS PICTURE IN THE PAPERS and the advertisements Fairbanks made, we see the new code of success. Men continued to achieve in the world of production; but now they strove equally hard for the money to purchase goods and leisure pursuits to compensate for boredom on the job. The Fairbank's hero was thus expanding the necessities of life... mass produced but high class consumer goods became a reward for tolerating the modern economy (May 1980, 117).

While the immigrant was attempting to learn the ways of America, Hollywood and the star system became American institutions. America began to glorify and more importantly emulate the "beautiful people" of the silver screen, and Hollywood had literally become a metaphor for self indulgence and conspicuous consumption. Commenting on the socializing force of American film, Ferguson (1932) noted:

Equal opportunity came not merely to mean that each of us had a right to protect his interest with his vote, but that each of us had a right to stalk around in public places and live vicariously the life of the rich.

The early motion picture may have in effect helped us to institutionalize a consumer fantasy life similar to that discussed by Holbrook and Hirschman (1982). We too could be "stars," and the easiest way to do so was to look like they looked, and act as they did. In other words, to be a star in one's own mind, one had to consume what the real stars consumed, and do it in a visible way.

Still, films' influence did not stop with mass vicarious consumption. They actually guided people in purchases and product choices. This was often accomplished by demonstrating the purchasing process itself, the

"important" attributes of a good or service, as well as its fashionability.

No longer does the girl in Sullivan, Indiana, guess what the styles are going to be in three months. She knows because she sees them on the screen. ...the head of the house sees a new golf suit. The housewife a lamp of a new design...down they go to the dealer to ask for the new goods. (Hays n.d.)

So even though their impact was unquestionably felt by all of society, early American films must have had a considerable impact upon the consumer behavior of the immigrant. The immigrant could, for the first time, and without the necessity of the English language, sit in a darkened theater and experience the consumption ideals of the dominant society without the inherently greater risks of direct contact and interaction.

And It Really, Really Works

The more things change, the more they stay the same. While the jerky silent film has given way to 70mm color prints, VCR's and remote control, the dominant theme of American pictorial mass media has remained amazingly consistent. This presents a particularly interesting parallel since the U.S. is now experiencing another large wave of American immigration.

In the last fifteen years there has been a steady and significant rise in the immigration rate of the United States. If films allowed the earlier immigrants to taste the consumption values of the new land, television, with its pervasive place inside the home, now force-feeds the current immigrants a steady diet of American cultural values and attitudes regarding consumer behavior.

Content of U.S. television during the 1970's and 1980's is much the same as films of the silent era. The themes are of opulence and the glorification of conspicuous consumption. An informal content analysis of network television of the past fifteen years reveals messages which predominantly glorify the possession of wealth and its use in consuming everything imaginable. The most popular shows in America tell us about the lives of the wealthy, and the pursuit of happiness through consumption. Consider DALLAS and DYNASTY; two of the highest rated shows in American television history. What messages do they convey about what it means to be an American consumer? They tell us that even the most decadent dreams can come true, and that simply owning something is never enough. For something to be truly useful, it must be prominently displayed and frequently discussed.

Daytime television is more of the same, much more. It consists largely of game shows and soap operas. Game shows portray an environment where "common folk" can mingle with the stars and take home a bunch of cash and goodies. The American soap opera is the ultimate glorification of conspicuous consumption and consumer fantasy. Everyone is either successful in a materialistic sense or rapidly trying to get there through whatever means necessary.

Then you have commercials, institutionalized and ritualized mini-messages explicitly designed to stimulate consumption. Everyone knows the intent; no apologies are offered. Commercials not only point out the attributes of a product, they often focus on their value expressive nature, and their status conferring qualities. They are not merely statements of objective information, they too are agents of consumer socialization (Ewen 1976). They may, however, be far more effective at helping perpetuate a mass consumer culture, than effectively increasing demand for a specific brand.

No matter what the genre, all this adds up to a type of mass mediated consumer culture. For the immigrant, it is an indirect path of acculturation. The pictorial mass media are literally windows through which the immigrant may view a society's most important ideals and cherished values.

Contrasts and Suspected Differences Related to Path

It is the contention of this paper that the medium may very much be the message (McCluhan 1964), and that people who's socialization is predominantly through the mass media will think and behave differently as consumers than those who more directly experience the world about them.

We believe this because the paths are so different. They differ not only in what they say, but how they say it. Because of this, we can suggest a sort of Mary Hartman-Mary Hartman hypothesis. In other words, a person who is predominantly socialized via the American mass media will think about material possessions and consumption in a very different way than someone who chooses other routes of acculturation. Those new to a society give us an excellent opportunity to test this hypothesized effect.

No matter what tragedy befell Mary Hartman, consumer problems were always foremost on her mind. Mary's world was her kitchen and her television. Mary was the embodiment of American televised values. To her "waxy-yellow-buildup" was the greatest menace to civilization since "ring-around the collar." While she, like Chance the Gardner, are narrative exaggerations, they are not as far removed as we might expect. A society whose members watch an average of six hours of commercial television per day (Comstock et. al. 1978) cannot hope or pretend to be immune from its socializing influence. Mary Hartman lives.

The pictorial media are powerful. This power is a result of both form and function. Janis (1982) demonstrated how extremely persuasive and effective pictures could be in terms of influencing expected outcomes and behaviors. The repetitive nature and the pairing of attractive outcomes with advertised products, and unattractive outcomes with failure to use these products have lead some to suggest that learning from television can even be linked to classical and instrumental conditioning (Bandura 1971; Ward 1974).

As an example of this power consider O'Shaughnessy's 1972 study of Canadian school children. Even though these children were taught in grade school accurate information of the plight of modern day Canadian Indians, most eight to nine year-olds still believed that current day Indians wear little or no clothes and have feathered headbands, live in tents or teepees, and survive by killing people and stealing. This image of native Canadians is remarkably similar to that presented by the typical Western. Apparently years of formal education did not effectively compete with years of mass mediated socialization.

The mass media emphasize different values than the school and the workplace. Gans (1974) argues that the mass media emphasize upper middle class values and a culture of consumption, possessions and leisure, whereas more direct paths such as the workplace and the school offer a more diverse and realistic picture. Direct paths place greater emphasis on lower middle class values which stress job skills, and the ethic of hard work.

The school preaches a culture of production and participation; the media one of consumption and spectating...

The mass media differ most sharply from the school in that they train children in how to consume and play and how to be

family members, whereas the schools emphasize the ability to produce and work, and how to be colleagues and citizens." (Gans 1974, 63-64).

Ward (1974, 41) pointed out that "motivations for consumption acts differ as a function of different socialization practices." It may be that critical differences in path are related to differences in consumption motivations. Television may lead to a desire for conspicuous consumption, whereas interpersonal and direct contact to more utilitarian motivation.

While television may provide greater breadth of knowledge, it is usually somewhat superficial and subject to misinterpretation. It has a greater focus on visual attributes, and offers only shallow understanding about any given topic. This is one reason why warranties and complex product information are rarely found in television advertising. Resnick and Stern (1977) found that 49% of commercials studied contained no information, only 4 out of the 378 contained three or more information items. Relevant information is rarely synonymous with information obtained via television commercials. The problem with learning from television is that it is not good for teaching complex behaviors, only simple ones. This is true of observational learning in general.

Interpersonal communication produces a greater depth of understanding, more detailed knowledge about a given topic, or knowledge about complex topics. It gives one a more realistic view of product attributes and benefits. In other words, richer information from interpersonal communication helps one to put products in proper contexts.

Television demonstrates a highly constrained decision process. A content analysis of network programming by Faber (1978) revealed that while 78% of sit-coms and dramas showed at least one purchase decision per episode, 25% were resolved immediately, 25% within a one day period, 40% within a week, and only 9.1% took longer than a week. This would certainly give the impression that American consumers make rapid purchase decisions. In summary, televised learning leads to a superficial view of products, their importance, their attributes, and the decision making process.

Research Implications and Summary

Consumer acculturation via the mass media offers a safer and less riskier path than direct contact. One doesn't have to worry about making embarrassing mistakes when one doesn't interact. It is certainly the path of least resistance. Paths of least resistance are often the most popular paths. In order to accurately model the process by which immigrants learn to become consumers within their new host societies, we cannot ignore this important agent of mass socialization.

Research utilizing this revised model should further our understanding of not only the acculturation process, but the larger consumer socialization process as well. Immigrants are of particular interest in this regard because we may investigate the consumer socialization process without the confounding effects produced by the developmental processes of native individuals. Most importantly, consumer behaviorists are in need of a more contemporary model of acculturation.

While this paper has offered only a developmental and partial theoretical revision, future research should attempt to expand this conceptualization. While empirical testing of some of the developmental constructs would be advisable, so too would be more anthropological and qualitative approaches. The examination of cultural artifacts seems particularly appropriate.

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METHODS TO RESEARCH SHOPPERS' KNOWLEDGE OF SUPERMARKET PRICES

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Much marketing research studies the effect of relative price or price reductions or promotions in the grocery store. These studies implicitly presume that consumers pay careful attention to price in order for it to affect their purchase behavior. Psychological studies of price perception explicitly posit the existence of referent prices in consumers' minds. These referent or usual prices are posited to form the basis for perceptions of new prices as low or high. Knowledge of referent prices also helps the consumer to recognize both the presence and extent of a price discount. Of course, any attempts to help educate consumers to be more conscious of costs and values would benefit from knowledge of the accuracy of shoppers' knowledge of prices of purchased items.

The purpose of this paper is to review past research about consumers' knowledge and use of price information. After a review and a critique of past methods, a new procedure is described. This method has been designed to correct the problems of past research and preliminary results indicate the method is a useful improvement.

Past Research

Gabor and Granger

In their frequently quoted study, Gabor and Granger (1961) examined consumer in-home price awareness. In November, 1958 they studied a random sample of housewives living in the City of Nottingham, in England. In 82% of the 5,276 purchases across a sample of 428 households, the housewife named a price. This price "consciousness" was higher than the researchers expected and was reported to be inversely correlated with a social status measure. The accuracy of the price estimate was checked for seven of the 15 commodities that had been purchased in the last week. Overall, 57% of the estimates were correct, 25.4% were wrong and 17.6% gave no answer. The exact price recall accuracy was highest for tea (79.3%), coffee (68.1%) and sugar (67.0%) and lowest for margarine (46.1%), flour (35.6%) and breakfast cereal (34.8%). If latitudes of $\pm 10\%$ around the actual price were allowed, the overall percentage of correct price estimates would have risen to at least 60% and 70%, respectively.

At the risk of being accused of taking some cheap shots at a truly classic study undertaken over two decades ago, it is important to discuss some of its weaknesses, precisely because of the impact it has had on later researchers' and theorists' thinking about consumer price awareness. Gabor and Granger's measure of willingness to simply volunteer a response to a price estimate question was a suspect operationalization of "price awareness." The measure clearly depended very much on the consumer's desire to cooperate as well as her price knowledge and would have included many "best guesses." The extent of this "desire to cooperate" bias might have been inferred by observing the nonresponse variability across the 44 student interviewers some of whom no doubt elicited more "cooperation" than other interviewers.

Regardless, the observed relationship between reporting a price and social status was, in fact, not statistically significant. Gabor and Granger did not report any statistical tests but a chi-square test and correlational test that can be computed from the percentages given in Table 1 (Gabor and Granger 1961, p. 177) and both fail to reject the null hypothesis despite more than adequate statistical power.

Measurement and analysis criticisms aside, the fact remains that over half of the subjects accurately recalled

the price. This finding, however, must also be qualified. On the one hand, no allowance was made for special offer prices, deviations from the manufacturers' recommended price and the fact that shop assistants may have quoted and charged an incorrect price. Consequently the consumer's price estimate may have been correct and the "actual" checked price incorrect. But on the other hand, eight of the 15 commodities were not used in the price accuracy study because they were sold at "such a variety of prices." This made it impractical to check the answers. It also introduced a serious commodity selection bias that led to an overstatement of price awareness. Consumers will be more accurate in the recall of commodity prices that are stable across time and place. It should also be noted that this recall accuracy was for items purchased in the last seven days. The researchers acknowledge that they were really interested in studying attention paid to the price at the time of purchase and that even someone who paid great attention to price would likely forget it after more than seven days. In other words, their findings speak more to attention paid to price in the past and recall of that price rather than to attention paid to price at the point of purchase or whether price last paid will be accurately recalled at the time of the next purchase.

A further concern is the uniqueness of some of the shopping circumstances and consequent behavior. An unidentified percentage of the shopping was undertaken at stores where the commodities were not directly accessible to the buyer and were not priced on the package. The buyer had to ask for the particular commodities often by brand but they were in the habit of asking for the product by price in some instances. For example, Gabor and Granger note that housewives frequently described and ordered their favorite tea by the price and not by a brand name. It is therefore not surprising that tea had the highest recall accuracy (79.3%), some 10% higher than the next commodity.

A budget conscious buyer has a greater need to know the price of a commodity outside the store in circumstances where such knowledge cannot be readily gathered inside the store. Alternatively the consumer could set a limit on the price she is willing to pay for an item and ask the shop assistant to provide an item at, or below, that price. Either way the unique shopping situation studied by Gabor and Granger encouraged the learning of the prices of frequently purchased goods. The low inflation rate and stable pricing climate that existed at the time maintained the relevance of these learned prices and ensured frequent rehearsal of the unchanging prices in memory. All in all, the relevance of the findings of the study to supermarket shopping in the United States in the 1980's is very suspect.

The Food Marketing Institute

In a study undertaken in the mid 1970s, interviewers intercepted 1,500 shoppers at the checkout (Allen, Harrell and Hutt 1976). They randomly selected three items from the shopping cart and asked the shopper to name the price. The percentage of exactly correct response for the three items was 55.8% and the average price estimates were off by 8.0%. The same shoppers were also asked to select and price three items that they had purchased on previous shopping trips (but not the day of the interview) from a display of 40 commonly purchased products. Only 16.8% of the shoppers were able to correctly name the price even with the selection bias that inflated the perception accuracy. These same researchers interviewed another sample of shoppers at the point of purchase but

the price accuracy estimates of this group were grossly inflated (to the point that they were meaningless) because the interviewers allowed the shopper to check the price on the item or on the shelf label before answering.

A third phase of this study involved noting products at the time of the checkout interview. Some two weeks later subjects were asked to recall the price of these items. The shopper was not aware items had been noted so item specific sensitization was avoided. However, the interviews and some expectation of future questioning may have increased general sensitivity to item prices in the home. The in-home price awareness was 31.4% and the price estimates were off by an average of 14.5%. The results of this study are particularly interesting for they suggest that price awareness is higher the closer you get to the time and place of the past purchase.

Progressive Grocer

A variation of the Gabor and Granger price awareness study was undertaken in the United States in 1963. Colonial Stores and Progressive Grocer (1964) selected 59 frequently advertised and very price competitive items. Tables were set up in the stores and several thousand customers played a version of "The Price is Right" TV game. They had to estimate the price of a subset of six of the 59 items. The shoppers were reported to have been cooperative and interested. They were not very accurate at estimating price. For all but one item, fewer than 40% of the shoppers could name the exact price. Less than 20% could name the exact price for 41 of the items. The extraordinary exception was that 86% of the customers correctly named the price of a six pack of Coca-Cola.

When some slight error in the estimate was allowed, the percentage of correct answers increased but even then for only 7 of the 59 items could a majority of the shoppers give a price estimate within $\pm 5\%$ of the actual price. The variation in their price accuracy measure across the item was considerable ($\bar{x} = 31.4\%$, $s.d. = 14.9\%$). The research reported that item users (and presumably therefore item buyers) were, overall, twice as knowledgeable about the correct price as non-users. While the evidence for this assertion and even the criteria upon which it was based was not explained, it does make the findings more consistent with the British study. Sex age and household income of the shopper was not related to the accuracy of the estimates.

The relationship between exact price accuracy and approximate price accuracy was not as high as might be expected. Excluding the Coca-Cola result (because of the ceiling effect) the correlation, across the 59 items, between the percentage of shoppers who could exactly name the price of the item and the percentage of shoppers who could name the approximate (within $\pm 5\%$) price of the item was only 0.58. The following examples explain why the correlation was low. Twenty-three percent of the shoppers could exactly state the price of Pillsbury Pancake Mix. When the accuracy was relaxed, 25% of the shoppers could estimate the price within 5%. By contrast 20% of the shoppers could exactly price 5 lbs. of Domino Sugar, but a much higher 67% could estimate the price within 5%. In short, shoppers' exact and approximate price accuracy are not necessarily related. This could be due to the high likelihood that frequent purchase of the product group will result in a high approximate accuracy and frequent purchase of a brand in a product group will result in high exact accuracy. But these two frequencies are not necessarily related, in part because brand loyalty and brand share within product groups varies.

The 1964 study was replicated in 1974 using subsets of 11 product brands from a total of 44 items and 560 shoppers (Heller 1974). The consumers who said they bought the item were on average more likely to give the correct price (within 5%). However, for 7 of the 44 items the percentage of the non-buyers who gave a correct price estimate was surprisingly higher for non-buyers than buyers. As might be expected, the more price conscious

buyers of private labels were more aware of prices than buyers of national brands.

The variation for item buyers in accuracy of price estimates (within 5% of the actual price) across the products was again extraordinary, ranging from highs of 71% for Marlboro cigarettes, 54% for Land-O-Lakes butter and 52% for Scott paper towels down to 10% for Crest toothpaste, 9% for Maxwell House Instant Coffee and 8% for Saran Wrap. The prices of cornflakes, frozen orange juice, canned corn and fruit cocktail were heavily overestimated. The prices of instant coffee, shortening, sugar, salad dressing, and facial tissue were heavily underestimated. Although it might have been expected that price accuracy would be greater for higher priced grocery items, this was not found; the 10 private label items enjoyed higher price recognition than the 34 nationally branded products. These private labels may have been more notable in consumers' memories because of their low price.

The accuracy of price perceptions was lower in 1974 than in 1963. Only 8% of the 1974 shoppers estimated the exact price compared to 20% exact in 1963. Across the matched pairs of 35 common items there was a significant ($p < 0.05$) 6% average decline in price estimation accuracy, estimated within 5%. This effect was product specific and may have reflected changes in price associated with the recent lifting of price controls.

Two further price awareness studies have been undertaken by Progressive Grocer. A study undertaken in late 1976 (Dietrich 1977) found that only 30% of the time could buyers of 12 popular items name the price within 5%. For five of the items a significantly greater number of buyers overestimated the price but for another five items a significantly greater number underestimated the price. In the most recent study (Zbytniewski 1980), 27% of the buyers were able to estimate the price of 16 items, within 5%. The most accurately recalled price was for Perrier Bottled Mineral Water (46% amongst buyers compared to 14% amongst non-buyers). The least accurately recalled price was for Maxwell House Instant Coffee (11% amongst buyers and 12% amongst non-buyers).

Only 8% of the shoppers in the 1977 and 1980 studies knew the exact price. Age and shopping time did not influence awareness but self-labelled price aware shoppers were a little more accurate (24% to 20.5%, within $\pm 5\%$ of actual price). A comparison of price awareness changes for particular products between 1980 and 1977 revealed that Scott paper towels dropped from 38% to 29% (it was 52% in 1974), Coca-Cola went from 39% to 25% and Tide XK detergent from 34% to 25%. Price accuracy did not increase for any of the eight comparable items.

Over recent years Progressive Grocer has provided a good deal of evidence that price has become a much more important consideration in supermarket shopping. The percentage of households using particular items has changed as household have switched from expensive product groups to cheaper substitutes. The fact that the incidence of one-brand users has dropped over the years suggests less brand loyalty and greater price sensitivity. Low prices was ranked the fifth most important characteristic in choosing a supermarket in 1973, rose to the third most important in 1975, became the second most important in 1979 and was number one in 1981 (Progressive Grocer 1975, 1981; Zbytniewski 1979). Shoppers have also greatly increased their reported use of shopping lists, ad reading and coupon clipping.

Despite all of this evidence of increasing focus on the price of products, buyers have not become more aware of prices. There are several possible explanations for this apparent anomaly. It can be argued that inflation and the increase in price specials have made the task of price estimation much more difficult. It is true that price awareness dropped significantly between the 1963 and 1974 study and 1974 was a year when, according to Progressive Grocer, even the store personnel had trouble

remembering the latest operative shelf price. However, the effect of inflation should have shown itself in a general tendency for buyers to underestimate the price of items. Across the 59 items in the 1974 study, 38% of the buyers underestimated the price but 33% overestimated the price. This is not a substantial difference, and the higher percentage who overestimated cannot account for the overall drop in accuracy between 1963 and 1974. It should also be noted that estimation was more likely to be under than over the correct price for 26 of the 44 items, a result only slightly higher than chance. The 1977 and 1981 studies both reported tendencies for buyers to overestimate rather than underestimate the price. One possible reason for this could be a tendency for shoppers to intentionally guess high as a way to include any recent inflation. The increase in couponing and offering of price specials would also be expected to produce a bias toward understating rather than overstating price. Consequently, the results do not obviously support increased price promotions as an explanation for the lack of improvement in price awareness over a period when the salience of price has increased.

The compelling conclusion is that many buyers do not learn the current exact price of the many hundreds of items they purchase. They probably do not attempt to learn and retain this information because they do not need to learn and retain this information even if they are very price conscious. The point of purchase shopping setting provides all of the price information they need for making an item or brand choice within a product group. This reduces the need to bring any information about exact prices paid in the past to the point of purchase. The increased volatility of prices resulting from inflation and the increased use of price promotions has encouraged shoppers to rely on price information at the point of purchase. Such a theory assumes that evaluations of an item's price are made relative to the immediate set of alternatives. Buyers use an external rather than internal reference frame to evaluate the price of an item within a product group. Buyers do use an internal reference frame to evaluate the general price level of a product group.

In-store Price Checking Behavior

Consumers have a number of ways of becoming aware of the price of items. Advertising often presents information about the price of an item. But a reduced special price is frequently featured rather than the standard price. Such advertising may actually lower consumers' price expectations for a product group or brand to a level below the normal price. Of course, if most purchases are made at a special price, then that price rather than the manufacturer's list price should be rightly considered the "normal" price. It is then the manufacturer and not the consumer who has a price expectation problem. This situation probably exists today for many products, ranging from home appliances to soft drinks, where a significant proportion of retail sales are made at a Sale or Special price.

Prices may also be noted in the home when actually using an item. If price awareness were solely based on such in-home price checking, then consumer's price awareness might tend to lag behind actual prices of products because the stock item was purchased some time ago and prices have risen over the inventory holding period.

It is most logical to assume, however, that price information is obtained at the point of purchase. It is current, unbiased and relevant. This information may be so useful that it dramatically reduces the need to remember specific prices and for consumers to possess fine-tuned internal price standards. The question of immediate interest is what patterns of search behavior do occur at the point of purchase.

Wells and Lo Sciuto (1966) undertook one of the first, if not the first, observational study of supermarket shopping behavior. In the research tradition of Barker

(1965), 1,500 behavioral episodes were recorded. An episode began when the shopper entered an aisle and ended when the shopper left the aisle. The advantages of an observational study over a self-report study are obvious. It does not depend on a subject's ability to recall a rather mundane individual purchase from among many. Nor does it depend on the subject's understanding of the meaning of a question. It is also not biased by the subjects' desire to cast themselves in a favorable light and delude both themselves and the researcher.

The observers attempted to assess how much attention shoppers paid to prices. It was admitted that it was hard to tell whether the shoppers were looking at price when examining a package, the implication being that the results perhaps understated price checking behavior. The authors also imply that prices were not provided on the shelf facings of the supermarkets. This is an important issue in evaluating the relevance of their findings to today's supermarket shopping environment. Three product purchases (cereal, candy and detergent), two types of stores (urban, suburban) and four shoppers characteristics (adult male, adult female, adult couple with or without children, children alone) were studied. The highest observed price inspection activity was among adult females shopping for detergent in an urban store; one third were observed checking the price. The lowest reported price checking activity was observed for couples shopping for cereal in a suburban store (8%). The store and shopper differences were less than the product differences. Adult females did the most checking (in 17% of the events averaged across the products and stores) and children the least (10%). Surprisingly, a brand loyalty explanation for the lower price search activity for the cereal purchase was not supported by other evidence.

Allen, Harrell and Hutt (1976) reported a number of measures of price search behavior obtained from subjects at the point of purchase. In contrast to the Wells and Lo Sciuto study, their statistics may overstate the price search activity because they are self-report and subject to a possible self-presentation bias. Seventy-one percent of the shoppers in a conventional supermarket reported checking the price of the item before placing it in their shopping basket. However, only 31.5% reported checking the prices of other items and 12.9% reported using unit price information. The shoppers, interviewed at the checkout, were asked whether they had referred to an item already in their cart when considering another later purchase. Thirty-one percent of shoppers indicated that they had made such between product comparisons and, in 81% of such cases, a price comparison was made. Another question revealed that 86% of the shoppers had checked the prices of substitutes within a product category (i.e., canned, fresh or frozen peas).

In summary, the above two studies present conflicting findings on point of purchase price checking activity. The study undertaken in the mid-sixties reports a low incidence of price checking compared to the study undertaken a decade later. The difference may be partly the result of the research approach but it also could be a consequence of changes in the shopping environment. By 1975, supermarkets were presenting the price of items on the shelf facing along with, for some stores, the unit price of items. Where previously an item often had to be handled to establish its price, now the price of all of the brands and sizes could be easily assessed in a few seconds. Reducing the cost of seeking price information (in terms of effort) seems to have encouraged greater use of point of purchase price information. As already mentioned, the spurt of inflation that occurred in 1974-75 and a higher incidence of price specials may also have made the shoppers in the later study more conscious of price and yet less certain about the price of individual items, leading to more point of purchase price checking. To summarize, the increased value and reduced cost (in effort) have very probably over time contributed to more point of purchase price.

Proposed Method

A survey procedure was designed to provide the following advantages:

1. Ask shoppers about their knowledge of and use of price information in the store at the point-of-purchase immediately after they had selected the item in question. This would alleviate most of the problems due to decay in memory of delayed questions. It is very reasonable to expect rapid decay immediately after and also minutes after choice since most consumers will be focusing their attention on their next choice and have little need and to retain incentive the price information.
2. Combine observation of shopper's behavior at the point of purchase with verbal reports.

Observers were stationed at the point of purchase with a clipboard and were instructed to give the appearance of undertaking some stocktaking activity, a not unusual sight in a supermarket. On the next tenth minute of the hour the observer recorded the behavior of the first shopper to select a brand and size of the target product. This involved estimating the time spent at the point of purchase (the interval between when the shopper turned her attention to the display and when the chosen item was placed in the shopping cart or basket), noting the number of different brands physically touched and inspected (including the chosen brand), and observing the number of different sizes physically touched and inspected (again including the chosen size). Any other unusual behavior was noted.

The shopper was intercepted immediately after she had placed the item in her cart. The interviewer pointed to an Ohio State Lapel label and said "Excuse me, I am from Ohio State University. May I ask you a few questions about the item you just chose. In return as a token of our appreciation I would like to give you this one dollar bill." The refusal rate was less than 1% and was primarily because the shopper was in a hurry. The interviewer then asked: "Off the top of your head, without checking, can you tell me what the price is of the (coffee/margarine/cereal/toothpaste) that you just chose?" This meant that the shopper was asked to recall the price of the item just selected within about 15 seconds of having placed the item in her shopping basket.

Any answer was coded as to its immediacy and was followed by an open ended question: "How did you know that price?" If no answer to the latter was offered, respondents were prompted with a list of possibilities. Respondents were then asked if the price of the just selected item was lower than the usual price. A positive answer to that question was followed by asking how much the price was below the regular price. Subjects were then asked several questions about their recognition and usage of shelf price information including the meaning of the shelf tags which were color-coded by the store chain to indicate whether the price was a regular price, an everyday low price, or an even further discounted special price. Respondents were then asked about their shopping patterns, usual use of price information and why they did or did not check the price of the item in question. The full interview took some 4-5 minutes. On completion the interviewer recorded the actual price of the item, whether it was on special and the amount of any price reduction.

Four products were chosen after discussion with the supermarket chains's regional marketing and advertising managers. They were meant to be representative of relatively low (coffee and toothpaste) and high (margarine and cold cereal) turnover products and infrequently (cold cereal and toothpaste) and frequently (margarine and coffee) promoted product groups. Very low turnover items (such as shoe polish) were not chosen because we expected that price recall accuracy for such items would be very

poor and a very long time would be required to gather a sample size of 50 observations per product per store. An attempt was made to balance the time of observation according to peak shopping times so that the sample reflected the same proportions of shoppers by time period as can be observed shopping over the week in the stores. Effectively this meant that very few observations were made through Monday-Wednesday and most observations were made in the afternoon and early evening on Thursday and Friday and morning and afternoon on Saturday and Sunday. Stores were chosen to represent different extremes of demographic composition of customers and store display of price information.

Except for measures of purchase frequency and use of coupons, we did not ask for or record any demographic information. In hindsight this was perhaps a mistake but we faced store imposed concerns over the inconvenience to the shopper of undertaking an extended personal interview at the point of purchase. In the future we would recommend giving the subject a questionnaire to complete at a later date and drop mail to receive a further gift. Apart from some fairly predictable effects of age and extremes of income, previous studies have found demographics not to be very powerful determinants of instore, supermarket shopping (e.g., Zeithaml and Furst 1983; Zeithaml 1984) and since our intent was to focus on product effects this also discouraged us from asking a battery of demographic and psychographic questions.

Discussion

We have implemented and analyzed the results of a study using the procedure described above. The method appears to work quite well. Subjects seem to be relatively free from attempts to present themselves as more rational than actual. The few seconds interviewing between when the respondent placed the item in the shopping cart and when the interviewer asked the first question about the price of the chosen item all but eliminated memory loss since the purchase as a problem. Analysis of answers to the several questions in addition to the ones about knowledge of the price paid enabled several insights about the antecedents of price knowledge and how it relates to other aspects of information processing (Dickson and Sawyer 1985).

This method could be improved. One aspect that went unmeasured in this study was the possession of coupons for chosen items and the intention to use them. Demographics and other unmeasured characteristics of the shoppers might be best assessed in a followup mail questionnaire. Finally, this measurement procedure might be combined with manipulations of such marketing variables as coupons, featured item advertising, product displays, shelf items and flags, and price specials.

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THE ACCURACY OF PRICE KNOWLEDGE: ISSUES IN RESEARCH METHODOLOGY

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Abstract

Two studies exploring shoppers' awareness of prices of products they had selected found that price awareness was better than indicated by previous research. Methodological considerations in such research are addressed, and preliminary findings concerning price awareness are reported.

Introduction

The idea that consumers know the prices of products on the market is a key assumption of economic theory. The idea is also implicit in marketers' manipulation of price as a key strategic tool. This assumption has been challenged, however, by data from consumer surveys (Harrell, Hutt and Allen 1976; Heller 1974; *Progressive Grocer* 1964, 1982; Zbytniewski 1980). These studies reported a surprisingly large number of shoppers who could not very accurately report the prices of common grocery products, even when asked about products they use regularly (typical figures indicated about two thirds or more of shoppers were off by more than 5% in their price judgments).

Given the importance of price as a major marketing variable, it would be very useful to gain a clearer understanding of what consumers know about prices, and how they use that information in their purchase decisions. Unfortunately, the literature concerning price knowledge is quite sparse (see Dickson and Sawyer [1986] for a review), and several scholars have called for research to clarify this area (Conover 1984; Monroe 1973, 1976; Olson 1980; Zeithaml 1984). The two studies presented below were conducted to address these questions.

Both studies were designed to assess the accuracy of consumers' price knowledge, and to determine whether such accuracy is related to shopper characteristics or practices, marketing practices, and product variables. The present paper reviews the procedures employed in each study, and discusses methodological issues in this type of research. Additionally, some key findings concerning price knowledge accuracy are discussed. However, a full elaboration of the complex relationships between price knowledge and the numerous other factors investigated is beyond the scope of this paper, and will appear in a later report.

Study 1

The first of these investigations was designed to assess the accuracy of supermarket shoppers' price knowledge for a variety of products. In addition, the study explored several aspects of participants' perceptions, preferences, motivations, demographic status, and general shopping behavior, as possible factors influencing their price knowledge.

Method

Subjects. Participants were recruited from adult shoppers in a large supermarket that is part of a major national grocery chain. This particular store was chosen for the representativeness of its clientele, upon the advice of the store's regional manager. The 168 shoppers whose data are reported below were systematically sampled to provide a balanced cross section of the local market population in terms of age (median = 32 years), education (median = "some college"), household size (median = 2.2), and income (median = \$18,354). Females accounted for 80.8% of the total, a figure approximating that of the store's overall clientele. Sixty-six percent of respondents worked full-

or part-time, and 58.6% were married. Distributions of each of these classification variables (except sex) were quite similar to those in the metropolitan area in which the store is located.

Procedure. Data from shoppers were obtained through individual personal interviews in the store. Shoppers were eligible to participate if they had in their cart at least one product from any of nine categories (white milk, white bread, mayonnaise, cola, stick margarine, ground coffee, powdered laundry detergent, frozen orange juice concentrate, or paper towels). Efficiency in data collection was enhanced by the selection of these high-volume categories (as indicated by store management) as the target products. Only a small proportion (less than 10%) of shoppers who were asked to participate declined, usually due to time constraints.

Shoppers were recruited while within the aisles of the store. The time elapsed from selection of a target product until they were intercepted for the interview was not explicitly monitored, but probably ranged from several seconds (when product selection was directly observed) to perhaps 20-30 minutes.

Upon consenting to participate in the survey, the shopper was asked a variety of questions concerning grocery shopping habits (store patronage; shopping frequency; use of newspaper ads and coupons; general preferences for national, private, and generic brands; etc.). The shopper was then asked several questions about the target product (from the categories above) she/he had already selected. These questions began with the shopper recalling, without looking at the item, the price marked on that product. Next, the shopper named all the brands he/she could think of in that product category, and specified the factors he/she considered important in choosing such a product.

The shopper was then asked to rank all the brands carried by the store in that category from low to high in price. This task was accomplished by sorting cards, each bearing a different brand name, on a board that had a long line labeled, at opposite ends, "Most Expensive Brands" and "Least Expensive Brands". Shoppers were permitted to omit brands about whose price they had no idea, and to place multiple brands at the same position on the ranking line if those brands were thought to be identically priced.

Following the ranking task, the shopper answered several questions about his/her perceptions of the product, factors influencing this particular choice, and usage patterns for the product. Finally, the shopper completed a brief demographic questionnaire. Upon completion of the interview, the shopper was thanked and received a coupon redeemable in the store for a free dozen eggs. Each interview took from seven to ten minutes to complete.

Results

Exact Price Recall. The absolute value of the difference between the subject's estimate of the product price ("exact price recall") and the actual marked price was divided by the actual price, to provide a measure of the proportion of error in price recall. Each price judgment was also classified as an overestimate, an underestimate, or a correct recall. These results are shown in Table 1.

The mean error in price judgments, pooled across all products, was 6.1% of the actual price. Mean exact price recall was most accurate for margarine and milk, and

TABLE 1

EXACT PRICE RECALL FOR NINE GROCERY PRODUCTS
(Study 1)

	MILK	BREAD	MAYON- NAISE	COLA	MARG- ARINE	COFFEE	DETER- GENT	ORANGE JUICE	PAPER TOWELS	ALL PROD'S POOLED
Shoppers per Product	19	20	22	20	16	16	14	22	19	168
Mean Error*	.029	.070	.048	.099	.028	.037	.083	.076	.070	.061
Std. Dev. of Errors	.050	.154	.085	.142	.050	.053	.180	.120	.124	.115
% Correct Estimates	36.8	65.0	54.5	50.0	43.8	56.3	42.9	50.0	57.9	51.2
% Overestimates	42.1	35.0	27.3	15.0	31.3	18.8	35.7	13.6	15.8	25.6
Mean Overestimate	+.028	+.201	+.131	+.242	+.061	+.071	+.187	+.161	+.250	+.136
% Underestimates	21.1	0.0	18.2	35.0	25.0	25.0	21.4	36.4	26.3	23.2
Mean Underestimate	-.083	0.0	-.068	-.180	-.035	-.097	-.076	-.148	-.118	-.113

$$* \text{"Error"} = \frac{|\text{Estimated Price} - \text{Actual Price}|}{\text{Actual Price}}$$

Discussion

least accurate for colas. However, pooling the over- and under-estimates into a single mean error score obscures some interesting variations across products in the nature of errors. For example, the percentage of shoppers who correctly recalled the exact prices of milk and margarine were among the lowest for any product. Therefore, Table 1 also shows the mean size of over- and underestimates for each product, as well as the percentage of shoppers who gave such erroneous responses.

Of all the products, shoppers were most likely to correctly recall the price of bread (65% correct). The price of the product with the highest percentage of errors, milk, was correctly recalled by 36.8% of shoppers. And correct prices were recalled by at least half the shoppers for six out of the nine products. Thus, the exact price recall by shoppers of these products was substantially better than that of shoppers in earlier studies cited above. Erroneous price recalls were fairly evenly divided across products between over- and underestimates, although no one underestimated the price of bread.

Relative Price Recall. The price rank order of brands as sorted by the shopper was assessed for accuracy against actual price rankings by computing a Spearman rank-order correlation coefficient for each shopper. In these computations, any brands omitted by the shopper were also omitted in determining the actual rankings. Thus, each shopper's relative price recall accuracy was indexed by this correlation coefficient. Overall, as shown in Table 2, shoppers' relative price recall was rather accurate; the mean correlation, with all products pooled, was 0.579, $p < .0001$. There was some variability among products in relative price accuracy, but all correlation coefficients were significant at $p < .0001$. Moreover, the variability in relative price recall does not seem to be an artifact of the number of brands available in a product category to be ranked (see Table 2).

Relative and Exact Price Recall Compared. Shoppers' accuracy in relative price recall was only slightly related to their accuracy in exact price recall ($r = 0.121$ across products, $p < .06$). No substantial product differences were found in the correlation between exact and relative price recall. Pooled across products, shoppers who correctly recalled the exact price had a mean relative price recall coefficient of 0.550; those who overestimated exact price had a mean relative price recall score of 0.597; those who underestimated exact price had a relative price recall mean of 0.626. These values are not significantly different from each other ($F[2,165] = 1.30$, $p > .30$). Thus, exact price recall was not a reliable predictor of relative price recall.

Implications of the above results are addressed following discussion of the second study, below. The present discussion focuses on issues of measurement and analysis of price recall accuracy.

Assessing Exact Price Recall. The proportional deviation of price recall from the actual price, expressed as an absolute value, has been used by Harrell et al. (1976) and Zeithaml (1982) to index the accuracy of exact price knowledge. This measure has the advantage that it is easily interpreted as the relative deviation of price recall from the correct price. However, several potential limitations should also be considered:

1. The absolute value obscures the directionality of any errors.
2. The proportional nature of the measure makes its magnitude dependent on the base (correct) price, whereas it might be informative to explore the actual deviation in cents of the recalled price from the correct price.
3. The number of shoppers who correctly recall the exact price is unavailable from such a measure. Thus, it obscures qualitative differences that may exist between those who err and those who correctly recall prices.

These concerns should not eliminate the exact price recall measure from use. Rather, it should be supplemented by measures that do reveal something about the nature of recall errors, such as percent of shoppers over- and underestimating the price.

TABLE 2

CORRELATIONS BETWEEN JUDGED AND ACTUAL PRICE RANKINGS
(Study 1)

Product	Number Brands Possible	Mean Corr.	Std. Dev.
MILK	9	0.590	0.334
BREAD	7	0.568	0.242
MAYONNAISE	7	0.429	0.385
COLA	5	0.773	0.381
MARGARINE	13	0.649	0.254
COFFEE	14	0.451	0.195
DETERGENT	20	0.518	0.177
ORANGE JUICE	6	0.707	0.229
PAPER TOWELS	14	0.492	0.275

Assessing Relative Price Recall. The brand sorting task for indicating the shopper's relative price judgments has both advantages and disadvantages. It is easy for the shopper to understand, and it can reveal the degree of differentiation of price levels within a product category perceived by the shopper. The only previous measure of price recall error employed a conceptually similar task, but computed an index from the sum of the differences between each brand's correct and recalled ranks (Zeithaml 1982). The present correlation coefficient measure has an advantage over Zeithaml's "price comparison error" index in that it can be easily compared across categories with different numbers of brands. Drawbacks of this method of assessing relative price recall include:

1. The procedure is cumbersome to administer. The board must be large enough to hold many brand cards, and shuffling the cards between interviews can be awkward. Also, considerable time is spent in recording the rank ordering of the brands, especially for large categories.
2. Establishing the "correct" ranks of the various brands is confounded by the fact that many brands come in multiple sizes and prices. The correct rank of a brand thus depends on its size. One could compare it only against other brands of the same size, but not every category has standardized package sizes. The present study determined correct ranks on the basis of unit prices, averaging across sizes for each brand. (It should be noted that this problem is not limited to this one measure; it also applies to other similar approaches to assessing relative price recall when multiple package sizes exist.)

In conclusion, Study 1 produced substantial data showing considerable ability of shoppers to recall both exact and relative prices. Study 2, reported below, extended the investigation of consumer price knowledge in several ways.

Study 2

Like Study 1, the second study was designed to investigate the influence of numerous factors on the recall and use of price information. Again, the complex pattern of interrelationships among these factors will not be addressed in the present paper. Instead, this report will focus on the general nature of price recall findings, and also will address methodological considerations in such research.

Given the unknown effect of time delay between initial processing of price information and subsequent questioning in Study 1, the second study was designed to control that effect by closely monitoring consumer choice processes; price recall questioning began immediately after product choice. Additionally, this study sought to determine any possible change in price recall over time by including both immediate and delayed recall tests. Another extension beyond Study 1 was provided by obtaining price processing and recall measures for several products from each shopper, thus allowing investigation of the generalizability of price awareness across products. Finally, Study 2 explored the nature of processing of price information both at the time of choice and at recall.

Method

Grocery shoppers were recruited for Study 2 in the same supermarket described in Study 1. They participated in a simulated shopping task that allowed good control over the choice situation and close monitoring of responses.

Subjects. Sixty-six adult women participated in this study. Their demographic profile closely matched that of the market area as a whole: median age = 36.5; median educational bracket = "some college"; median income = \$18,438; median household size = 2.5. Full- or part-time

workers comprised 68.2% of the sample, and 59.1% were married.

Procedure. Shoppers entering the store were randomly selected and asked to participate in a study of "grocery shopping habits". Those who consented (the large majority of those approached) were led to an isolated room in which was located a section of store shelves stocked with several common products. Products were taken from the actual store shelves, and current prices were marked on both shelves and individual packages. Each product category included national brands, private label and generic products, and at least one item in each category was identified by a shelf talker as being on a temporary price deal.

Facing the shelves, the shopper was instructed to choose one brand from a particular product category (mayonnaise), basing her decisions on the same considerations she would normally apply in such a choice. She was instructed to "think out loud" while she made her selection, mentioning anything she thought about with respect to the decision. Her words were recorded on tape for later analysis.

This first brand choice was a practice trial, to confirm comprehension of the instructions and get the shopper used to the procedures. Once the procedures were established, the shopper was asked to make similar choices from four other product categories (colas, flour, toothpaste, and peanut butter), one at a time upon instruction from the experimenter. As each brand was selected, the shopper placed the item in a shopping cart and proceeded to the next choice. Order of item selection was systematically varied across subjects so that each product category was chosen first, second, third, and fourth approximately the same number of times.

Immediately following the last item choice, with the tape recorder still running, the shopper was asked to state, without looking at either the cart or the shelves, the price of the item she had just placed in her cart. She then recalled the prices of any other brands in that category that she could remember, and indicated whether she in fact had noticed any prices at all. She was also asked whether she had noticed whether any brands were offered at a special price. Next, she identified (from a list of brands) all the brands that she had actually considered in making her choice.

The shopper indicated her relative price recall by a procedure somewhat different than in Study 1. A similar board labeled "most" and "least expensive brands" was used, but no cards representing the brands were sorted. Instead, the line from "least" to "most expensive" was evenly graduated with a series of numbers from 1 to 9. The shopper was asked to point to the place on that line representing where the price of her chosen brand stood relative to all the other brands in the category. The nearest number on the line was recorded as an index of the brand's perceived relative price.

This same procedure was replicated for each of the other three product categories, in reverse chronological order. Verbal protocols were recorded throughout.

Following the exact and relative price recall tasks, the shopper was asked a series of questions about the brands and categories used in the tasks. For each category, she indicated brand repeat purchase behavior and preference, category purchase frequency, perceived similarity among brands, lowest-price buying tendency, and perceived price volatility over time. The questioning then proceeded to general shopping behaviors and tendencies. The shopper rated her store loyalty; percentage of the household's grocery shopping that she does; general national/store/generic brand preferences; and tendencies to notice grocery prices in general, to read grocery ads, to use coupons, to notice grocery price changes, and to remember prices after buying groceries. Finally, she completed a standard demographic questionnaire. The entire procedure took approximately 20 minutes. Upon completion, partici-

TABLE 3

IMMEDIATE AND DELAYED EXACT PRICE RECALL FOR FOUR GROCERY PRODUCTS
(Study 2)

	IMMEDIATE RECALL				DELAYED RECALL			
	COLA	FLOUR	TOOTH PASTE	PEANUT BUTTER	COLA	FLOUR	TOOTH PASTE	PEAN BUTT
Mean Error*	.148	.261	.126	.123	.126	.157	.138	.115
Std. Dev. of Errors	.166	.365	.135	.129	.154	.237	.145	.114
% Correct Estimates	27.8	44.4	20.8	9.3	38.9	42.6	15.1	13.0
% Overestimates	25.9	50.0	32.1	48.1	24.1	50.0	50.9	44.4
% Underestimates	46.3	5.6	47.2	42.6	37.0	7.4	34.0	42.6

* "Error" = |Estim. - Actual Price| / Actual Price

pants were debriefed, thanked, and given a coupon for a free dozen eggs. (Shoppers did not keep the items they had selected.)

Two days after completing the above tasks, each shopper was telephoned, without advance warning, and was asked to recall the exact prices of each of the four target products she had selected. The response latency in seconds was also recorded at that time for each recalled price.

Results

Exact Price Recall. Shoppers' exact price recall was analyzed as in Study 1. As shown in Table 3, errors in this task were somewhat larger than in Study 1, averaging 16.5% of the actual prices across products during immediate recall, and 13.4% during delayed recall. Correct recalls were provided by no more than 44.4% of the shoppers for any product, and more than 90% of the shoppers erred in immediate recall of the price of peanut butter.

The magnitudes of errors in 2-day delayed recall were generally similar to those in immediate recall, except in the case of flour, for which delayed recalls improved considerably. In no case is there evidence for a substantial worsening of price recall after a 2-day delay. The correlations between immediate and delayed recall were: cola = .774; flour = .607; toothpaste = .518; and peanut butter = .604; all of which are highly significant. Thus, those shoppers who were more accurate in immediate exact price recall tended to be more accurate in delayed recall as well.

The question of whether individuals vary in a general tendency to recall prices accurately was addressed by comparing each shopper's immediate exact price recall for each of the four products. Table 4 reveals the correlations between these recall figures, and shows that there was very little consistency in recall accuracy across products. None of the correlations was significant at $\alpha = .05$.

Relative Price Recall. The accuracy of shoppers' recall of relative price of each brand they chose was computed from the correlation between their judged position of the brand on the numbered scale from "lowest" to "highest" price and its actual position. The actual relative position for each brand was converted to a 9-point scale by the formula:

$$8 \left(\frac{P_b - P_l}{P_h - P_l} \right) + 1$$

where P_b = the actual price of the brand, P_h = the highest price in its category, and P_l = the lowest price in its category.

The resulting correlation coefficients for relative price judgments were: cola = .687; flour = .843; toothpaste = .691; and peanut butter = .881. All are significant at

$\alpha = .00001$, indicating very good relative price recall by these shoppers.

Discussion

Many measures collected in Study 2 are not reported above, as they are beyond the scope of this report. The discussions that follow again focus on issues of measurement and analysis, as well as presenting some preliminary interpretation of the findings.

Relative Price Index, Study 2. The revised approach to assessing the shopper's relative price knowledge used in this study is much easier and quicker to administer than the procedure used in Study 1. Consequently, it probably is more enjoyable for the consumer, as well. Given the similar magnitudes of relative price recall correlations in the two studies (the one common product, cola, produced very similar results), the advantages of the latter procedure should be strongly considered for future such research.

The design of Study 2 also eliminated another problem found in assessing relative price recall in Study 1. By including in the simulated choice situation only products of the same size within each category, no ambiguity as to correct relative prices occurred.

General Discussion

Jacoby and Olson (1977) pointed out that price information may be retained in memory in various possible ways, including exact representation of the actual price and also a representation of the product's price relative to other brands. The present research confirms that consumers can and do maintain price knowledge in both of these fashions. However, as those authors noted, price information as tested by recall might be directly retrieved from a stored representation, or it might instead be reconstructed on the basis of other product knowledge at the time of testing. Data from the present study are currently being analyzed to shed some light on this issue.

Whatever the nature of production of responses to price recall questions, the measures employed in this study seem to offer reasonably valid, manageable procedures for assessing consumers' price knowledge. Certainly, as Monroe et al. (1986) argue, there may be cases in which recall measures will not reveal memory traces of prices that consumers could possibly maintain, and the additional use of more sensitive measures such as recognition tests is encouraged. However, recognition tests cannot provide, as can recorded protocols from recall tests, much clue to the nature of price information encoding and retrieval.

Finally, some comments should be made about the price recall results of the present studies. These data suggest that shoppers are more knowledgeable about prices of products they have recently selected than earlier studies indicate. The poorer price recall revealed in Study 2 may

reflect the artificiality of the situation (the shoppers were not given any forewarning that price was a focus of the study, and they were clearly being closely observed, which may have altered their normal decision-making style somewhat). Or it may result from sampling of different product categories than in Study 1. The failure to find a drop in price recall over two days in Study 2 may reflect heightened attention to those prices once price questions began, and rehearsal of them afterward.

The impact of methodological variations on price recall measures is a topic that should clearly be addressed in future research. The more obtrusive the data collecting procedure, especially if it affects the choice process itself, the more likely price recall will be influenced by factors unrelated to the development and use of price knowledge in real shopping situations. Extending the present studies with such investigations, and exploring the impact that stored price knowledge has on consumer behavior, are worthy objectives for future research.

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RECALL VERSUS RECOGNITION AS A MEASURE OF PRICE AWARENESS

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Abstract

Drawing upon memory and information processing theories, this paper develops the conceptualization and analytical procedures for measuring price awareness. Based on the premise that much of consumer shopping is low involving, without elaborate information processing, the paper demonstrates that recognition memory tests are more appropriate for measuring price awareness at the time of purchase. Theoretical propositions are derived by analogical reasoning from signal detection theory, and the supporting dependent measures are discussed.

Overview

One of the factors often stated as important in making purchase decisions is price. Much research has been done in the area of price, and it has been shown that consumers have price limits and acceptable ranges of prices that influence whether or not they will pay a certain price for a product (Gabor and Granger 1964, 1966; Monroe and Venkatesan 1969; Monroe 1971). Although this past research shows that consumers perceive prices in terms of the degree to which they may be willing to pay for an item, nonetheless it has been shown that, when asked, consumers have difficulty recalling the correct price for a previously purchased product (Gabor and Granger 1961, 1964). It has been inferred that since people cannot recall the price paid for a recent purchase, they could not have paid much attention to the price at the time of purchase (Gabor and Granger 1961). Previous price awareness research has relied on recall as a measure for price awareness and has not addressed how memory and human information processing should be considered when measuring price awareness.

Contemporary thinking about the role that price plays in influencing purchase behavior has evolved from the classical stimulus-organism-response model to a cognitive or information processing model. In the past decade, price researchers have offered descriptive models of how the price stimulus may actually be perceived, stored in memory, and recalled at a later time. Thus, it is recognized that buyers' purchase behaviors may be influenced not only by the price of a product, but also by price information stored in their memories, and by what they have learned about price relationships from previous shopping experiences. Therefore, to enhance our understanding of how price may influence purchase behavior, it is necessary to increase our knowledge about how price information is acquired, perceived, stored in memory, and retrieved. Also, since learning is concerned with how a relatively stable behavior potentially becomes a part of memory (Adams 1980), how buyers learn about prices is also of interest.

Price Awareness vs. Price Consciousness

Before the issue of price awareness is fully developed, the difference between price awareness and price consciousness needs to be discussed. The issue of whether buyers "know" the prices they pay has been called either price awareness or price consciousness. However, there are differences in the meanings of these two concepts.

Often times the term price consciousness has been used interchangeably with price awareness, even though the terms are not synonymous. In this research price awareness refers to the ability of the buyer to remember prices, whereas price consciousness refers to the buyer's sensitivity toward price differentials (Monroe and Petroschius 1981). For example, someone who remembers the price paid for a jar of peanut butter is aware of price. On the

other hand, someone who may or may not remember the exact price but knows the price has gone up from last week and, therefore, will not buy that brand is price conscious. That is, buyers who use price or price differentials to guide their purchase decisions are classified as price conscious. While it is likely that price-conscious buyers may also be able to remember specific prices, it is not necessary that price-aware buyers use price as a purchase decision criterion to the same degree. That is, price-aware buyers may know that brand A is higher in price, yet will buy that brand for other reasons.

Learning, Memory and Price Awareness

Learning and memory are different sides of the same behavioral coin, and, therefore, it is necessary to relate the different ways of processing information to learning. A key issue in the psychology of learning is the difference between intentional and incidental learning. Incidental learning is learning that happens by chance, or where there is no active information search. It can be compared to intentional learning which is learning resulting from an active search for information. Extending this notion to consumer behavior, intentional learning is a result of an active search for information before, during, or after actual shopping. During actual shopping, the active search for information would include comparing alternative choices on their different attributes including price. Interitem processing, or the attention to lists of items in memory, has been said to be the type of information processing used in intentional learning. The key point here is that the method and depth of information processing used during learning is critically important when using memory tests to determine the extent of prior learning. However, researchers have concluded that learning can occur under conditions of low attention and of passive information processing. Hence, there has been a renewed interest in a second type of learning: incidental learning.

Incidental learning has been called low-involvement or low-commitment learning by consumer researchers, and these researchers suggest that most of consumer behavior learning is incidental in nature (Bettman 1979a; Robertson 1976). Therefore, this research proceeds on the premise that most grocery shopping situations are of an incidental learning nature. The primary distinction between intentional or incidental learning is the degree the shopper consciously attempts to acquire and process relevant information concerning the choice to be made.

The evidence to date is compelling that memory performance (and learning) is influenced more by the nature of the processing activities engaged in by the individual than by the intention to learn per se (Eysenck 1982). Therefore, if a shopper engages in activities that include the comparing of prices of several items in a choice set, this interitem processing serves as an elaborative function between the chosen item and other product and price information. It is this forming of associations in memory that tend to facilitate the recall of specific information at a later time. On the other hand, if a shopper attends to only information about the chosen or preferred item, then associations are not formed as readily in memory, and the information about the item is more distinguishable from other encoded information in memory. This intraitem processing is of more importance for recognition memory (Eysenck 1982).

Recall vs. Recognition

These two types of learning can have different effects on the recall and recognition of price information, but first, the distinction between recall and recognition must be made.

Recall is the mental reproduction of a response or item that has been experienced or learned before, whereas recognition is deciding (or awareness) that a stimulus has been experienced before (Adams 1980). The distinction between the two measures involves whether or not the alternatives are presented to the subject. If we ask, "What is the capital of X?" we are testing recall, but if we ask, "What is the capital of X: A, B, C, or D?" then we are testing recognition (Murdock 1982). Recognition gives cues to the subject which can trigger the memory to retrieve the desired information. Recall gives no such cues. Therefore, although the information might be in memory, there are no cues given to start the retrieval process for that information.

Recall has been the most common method used in the past for measuring learning effectiveness. With respect to the price awareness literature, recall has been used to determine whether or not consumers are aware of prices they pay for items in grocery stores. Some of the studies used aided recall in that products were shown to consumers who were then asked to give the price of the product (Heller 1974; Progressive Grocer 1977). Several studies used free recall where no product or cue was given to the consumer and subjects were simply asked to give the correct price for a particular item (Gabor and Granger 1961).

Information Processing and Price Awareness

An important aspect of the information processing perspective concerns the actual way humans actively process incoming stimulus information. This process depends on the amount of attention focused on the incoming information and the degree people attempt to associate this new information with other incoming information and/or with information already stored in memory.

Interitem processing, which has been said to be the type of processing used in intentional learning, is the attention of lists of items together in memory and is especially important for recall (Eysenck 1982, p. 204). Shoppers who are comparing alternative items or comparing available information about items are likely engaging in interitem processing. These comparison shoppers therefore are involved in a form of intentional learning.

Intraitem processing, which has been said to be the type of processing used in incidental learning, is the attention to one item at a time in memory. In the usual shopping situation, shoppers probably are processing one item at a time as they shop. Therefore, most of the learning occurring in such a situation is probably incidental learning.

Retrieval Processes

The implicit conceptual model used in previous price awareness studies assumes a common sequence of activities. That is, exposure to a price leads initially to perceptual activities, then information processing, and finally to a memory trace. Price awareness research has focussed on the output of this process, the memory trace, without regard to the internal structure or process of memory. Recently, a number of researchers have called attention to the relevance of modern theories of memory for understanding the role of price in consumer behavior.

Overall, these theories hold that there is a degree to which a piece of information can be retained. The more attention or rehearsal given the information or event, the more likely it will be permanently stored and become available for processing at some later point in time. It is also important to learn how information is retrieved from memory to select the best test of price awareness for consumers.

Retrieval processes, or the utilization of stored information, can range from immediate access for familiar items to involved search processes for other items. The more familiar the item, the faster the retrieval. The retrieval process interacts with the way in which the individual structured the information for rehearsal (coding), what is stored in memory and the form in which it was stored

(transfer), and where the information was stored (placement (Bettman 1979a)). These memory control processes are the strategies people use to control the flow of information into and out of memory.

Retrieval of information from memory is an important memory control process. The previously mentioned control processes interact with retrieval. If the decision strategies used for the structuring and placing of an item of information in memory cannot be retrieved, then the item may not be accessible. Therefore, forgetting is not necessarily a decay or loss of items, but a failure of the retrieval process (Murdock 1982).

Certain cues can initiate the retrieval process if they are similar to the information stored in memory. If they are not similar, retrieval may be inhibited. Other things which may affect the retrieval process are searching in the wrong "part" of memory (i.e., the wrong set of associations), running out of time to perform the search, or losing one's place in the search (Bettman 1979b, p. 59). Therefore, when testing for price awareness it is imperative to consider the type of learning involved and to select the memory test appropriate for the retrieval task.

The way in which information is processed should dictate whether a recall or recognition test of learning is necessary (Bettman 1979b). For example, a brand choice decision made in a store may need only a recognition type test because the choice may be distinguishable without searching through a network of associations (Singh and Rothschild 1983).

Current research results tend to support the generalization that intention to learn has little effect on recognition memory. However, as discussed above, interitem processing serves as an elaboration function by developing associations between the item of interest, price, and other information. It is this type of processing that is of greatest value for recall. The inference then is, for incidental learning situations, recognition memory tests may be more appropriate for measuring awareness. Since there is a consensus among consumer researchers that much of purchasing behavior is incidental learning involving intraitem processing, then recognition would seem to be a better measure of consumer price awareness.

Methods for Studying Recognition

There are two basic research methods for recognition memory: method of single stimuli, and forced choice. Both methods begin with stimuli exposure to respondents and then, later, require the respondents to identify the previously exposed stimuli, old, from among new stimuli. The differences in the methods arise in how the recognition test is conducted.

Method of Single Stimuli

In the method of single stimuli the old and new stimuli are mixed and presented one at a time to the respondents. The respondents judge each stimulus as "old" or "new". The problem with this procedure is that response bias easily can occur. For example, a subject could designate all stimuli as "old" or all stimuli as "new". In each instance, the subject will have correctly "recognized" all old stimuli, or all new stimuli. In the first situation, the subject would achieve a 100 per cent recognition score, while in the second situation a zero percent score would result. Thus, percent correctly recognized is an inadequate measure for this method. Although it is possible to correct statistically for guessing, the response bias resulting from a subject's motivation to respond remains an issue. Currently, the motivation to respond taken by the subject is called the subject's decision criterion.

To overcome the problem with the percent correct measure and to consider the subject's criterion, psychologists have applied the Theory of Signal Detection. Applying this theory to recognition memory assumes that a subject has a psychological continuum of familiarity for items. It is

also assumed that the subject sets a criterion along the continuum and uses it during the recognition test to judge whether an item is familiar or not. If the item is judged to be "more familiar" than the criterion, the subject responds "old", otherwise the response is "new". There are four types of responses: hits, false alarms, correct rejections, and misses. Hits and correct rejections are correct responses, while misses and false alarms are errors.

The use of signal-detection analysis may be justified on both empirical and theoretical bases (Murdock 1982). From an empirical basis, in most cases the data meet the underlying assumptions, in particular, that the underlying distributions are normal with equal variances. From a theoretical basis, the conceptualization underlying Signal Detection Theory is congruent with contemporary information processing view of cognitive psychology. In particular, the strength of the memory trace of the old items is what influences the decision to judge old or new when the stimulus is presented.

The measure for sensory-perceptual discrimination is

$$d' = z(\text{false alarm}) - z(\text{hit}), \quad (1)$$

where z is the standard (or z) score corresponding to the false alarm and hit rates. If $d' = 0$, then the implication is the subject could not discriminate between the old and new items. If $d' < 0$, then either there is measurement error, or the subject is intentionally giving incorrect responses. If $d' > 0$, then the subject has been able to discriminate between the old and new items. Since d' is a standard score it is comparable to other d' scores, and the larger the score, the stronger was the discriminability of the subjects.

Forced-Choice Method

In the forced-choice method, the old stimulus item is presented simultaneously with one or more alternative new stimuli and the subject must discriminate the old item from the new ones. Since the subject is forced to discriminate between several stimuli and declare one as "old", the response bias problem no longer applies. Thus, percent correct is an acceptable measure of recognition for this method. In an m -alternative forced-choice test, the subject is assumed to be choosing the strongest of the m alternatives. Essentially, criterion effects are absent, and percentage correct is an acceptable measure. Tables are available to convert the percentage correct measures to the d' statistic, if desired (Hacker and Ratcliff 1979).

However, while the percentage correct measure is acceptable, it does not give a "true" measure of recognition because different ways of defining the test will give different recognition scores. Recognition accuracy has been shown to be affected by the number of alternatives, m , and the similarity of the stimuli. Further, although the problem of response bias has been removed, the problem of guessing remains. As might be expected the greater the number of alternatives in the forced-choice test, the lower the recognition accuracy. Since recognition testing essentially tests discriminability, it is intuitive that the more similar the alternatives, the lower the recognition accuracy. The more similar the alternatives are, the more difficult it will be to discriminate the old item from the new items.

The third problem associated with the forced-choice method is the possibility that the subject will guess which item is "old". Assuming the subject does guess, then each of the m alternatives has $1/m$ chance of being selected. Thus, the traditional correction formula for guessing gives the "true" recognition score as

$$P_T = (mp_m - 1) / (m - 1), \quad (2)$$

where p_m is the recognition accuracy score. However, this correction for guessing depends directly on the number of

alternatives, m , and, therefore, reduces the comparability of scores from different m -size tests. Thus, it has been suggested that the accuracy scores for different size tests could be equated by computing the correction score using a standard alternative size, $m = 10$ (Clarke 1964):

$$P_{10} = (m-1) p_m / [9+(m-10)p_m]. \quad (3)$$

Measures of Recognition Memory

The three main measures in the study of recognition memory are accuracy, latency, and confidence (Murdock 1982). Accuracy is determined by the proportion of correct responses, latency is the length of time elapsing between presentation of the testing item and the time of test, and confidence judgments are the subjects' assessment of their own accuracy.

Accuracy. One of the main advantages of using signal-detection theory is that it provides an economical summary statistic (d') to characterize overall accuracy (Murdock 1982). The d' statistic combines the measures of performance on old and new items. The subject is given an item and must search memory to determine whether the item is an old or new one. In a forced-choice procedure, the subject is choosing the strongest of m -alternatives and since criterion effects are absent, percentage correct is an acceptable measure (Murdock 1982).

Latency. Latency, or the time between presentation of the test and the response, is a supporting measure of accuracy. It is a function of the size of the test set, the serial position of the correct item in a forced-choice test, and the time lag between initial exposure to the item and the test itself.

The larger the test set, or number of choices in a forced-choice test, the longer the latency score. In addition, the subject who scans the list item by item until the correct answer is found will have a lower latency score than the subject who makes a complete scan of all the items and then goes back and chooses the correct answer. Furthermore, as the time between initial exposure and the test increases (time lag) the latency score tends to increase.

The latency measure is important because it gives some support to the accuracy measure. The longer the latency, the lower the accuracy. Without latency data, only partial measures of performance would be obtained (Murdock 1982).

Confidence. Confidence is another supporting measure for accuracy and is usually measured on a rating scale. The general relationship between the two measures is positive. That is, as accuracy increases, so does the level of confidence. In addition, the confidence scores give some idea as to whether the subject happened to guess the correct answer. If guessing does occur, the confidence rating would be low thereby indicating that the high accuracy score was just a lucky guess.

Obtaining Price Recognition Measures

As explained above, there are three main measures of recognition memory: accuracy, latency, and confidence. Both latency and confidence are supporting measures of accuracy, and enhance the interpretability of the accuracy measure. To use price recognition as an indicator of price awareness requires the selection of either the method of single stimuli or the forced-choice method. Traditional laboratory research on recognition memory proceeds on the basis that respondents are given specific instructions about a later memory test and are given the prior probability for the "hit" rate. On the other hand, a field study might entail approaching a shopper in a natural setting without prior instructions or probability information. Thus, using a m -alternative forced-choice test provides a subject with the prior probability of a correct response ($1/m$) and does not require prior learning instructions. Therefore, if the research setting is

outside the laboratory, it would seem that the forced-choice method is more appropriate.

Data Collection. To illustrate how the price recognition measures can be obtained, the following test procedure is assumed. Shoppers are approached singly after a purchase selection has been made and are asked to indicate which of five alternative prices is the actual price for the selected item. Then the shoppers are asked to rate how confident they are that the chosen price is correct. It is also possible to ask the shoppers to indicate their degree of confidence that the non-chosen prices are incorrect. (Another variation would be to ask the shoppers to make a second choice and to rate their confidence that the second choice is correct.) The latency measure is obtained by timing the shoppers' responses from presentation of the stimuli set to price selection.

Data Analysis. To illustrate the analytical procedures, assume 500 shoppers are approached and asked to choose the actual price of a previously selected item using a 5-alternative forced-choice method. Also assume that the respondents then rate their confidence that the chosen price is correct using the four-point rating scale shown in Table 1A. The sample data in Table 1A correspond to a 90 percent price accuracy score. The confidence rating scale provides additional information about a shopper's criterion for accepting a given price as correct. Also, the confidence rating is directly related to the accuracy of the recognition task.

TABLE 1

ILLUSTRATION FOR DATA ANALYSIS

A. Sample Data	$C_r \cdot R_i$	$I_r \cdot R_i$	R_i
Scale Category			
R_1 : Very sure price is correct	270	5	275
R_2 : Moderately sure price is correct	112	20	132
R_3 : Slightly sure price is correct	45	17	62
R_4 : Not at all sure price is correct	23	8	31
Totals	450	50	500

B. Probability Definitions

$P(C_r \cdot R_i)$ is the joint cumulative probability of a correct price response and a given confidence rating or better.

$P(I_r \cdot R_i)$ is the joint cumulative probability of an incorrect price response and a given confidence rating or better.

$P(R_i | C_r)$ is the cumulative conditional probability of a confidence rating i , or better, given a correct price response (hit rate).

$P(R_i | I_r)$ is the cumulative conditional probability of a confidence rating i , or better, given an incorrect price response (false alarm rate).

$P(C_r)$ is the unconditional probability of a correct price response.

In a m -alternate forced-choice experiment with confidence ratings, the independent probabilities $P(R_i | Cr)$, $P(R_i | Ir)$, and $P(Cr)$ give a complete description of the behavior of the shoppers in the price-recognition task. When using a confidence rating scale, the cumulative conditional probability at any rating given a correct or incorrect response is assumed to represent the decision criterion of the subjects. Thus, the rating approach assumes that humans are capable of adopting multiple decision criteria. The conditional probability $P(R_i | Cr)$ assumes that people would select a price only if they were very sure it was the actual price. Continuing in this manner the cumulative conditional

probability $P(R_2 | Cr) = \sum_{i=1}^2 p(R_i | Cr)$. Assuming that R_2

represents a less strict criterion, then the observations using a more strict criterion (R_1) would also be accepted for R_2 . The value of d' can be determined from the table

in Hacker and Ratcliff (1979) using $P(Cr)$ and the m . For the illustrative data in Table 1, $P(Cr) = 450/500 = 0.90$, $m = 5$, and from the 1979 table, $d' = 2.60$.

Latency. The above discussion has focussed primarily on response accuracy. However, another important dependent variable in recognition memory tests is latency - the length of time elapsing between presentation of the test items and subject's response. As has been presented here, most models of recognition memory employ the decision orientation of signal detection theory. However, it is likely that a more complex process than simple direct memory access is occurring.

At issue is the nature of the retrieval process used to extract information from long-term memory. It seems clear that retrieval processes involve some form of memory scan or search. Successful search for an item depends on the properties of the trace and the amount of information available to the individual during retrieval (Mandler 1980). Although the retrieval processes involved in recall and recognition are not inherently different, they do differ to the extent that the retrieval information present at the time of recall is different from that at the time of recognition.

In a forced-choice recognition test, the use of latency (or response time) allows for inferences about the retrieval process being used. Assuming that a price recognition task can be separated into four stages, these stages might be: stimulus encoding, comparison, decision, and response. The comparison stage involves a scan or search of memory to determine whether a test price can be matched to information in memory. If for a recognition memory test, subjects serially scan and compare the entire set of test items before decision and response, then response time will be an increasing function of set size. On the other hand, if there is no relationship between response time and set size, the implication is that subjects were involved in parallel scanning, in which all items of a set are searched simultaneously. If the serial scanning model is correct, then the slope of the latency function is a measure of the scanning rate in the comparison stage. If the experimental manipulations affected either of the other stages, these differences should show up in the intercept of the latency function.

While generally, latency and accuracy would be expected to be negatively correlated, it is sometimes found that they are positively correlated. Such a positive relationship has been called the speed-accuracy trade-off. This trade-off relationship makes it important to collect both accuracy and latency data when testing recognition memory. For if only accuracy measures have been obtained, there is no opportunity to determine if subjects have compensated either for serial position of the correct test item or are simply guessing without performing a retrieval process.

Independent Variable Issues

There are several independent variables that should be considered when measuring price awareness through recognition memory tests: time lag, serial position, relative price position, and products included in the study. The time lag is the elapsed time from when the subject picks up the product to the time of the price awareness test. The time lag can vary across each subject if several products are used for each person. The time lag is important in order to get an idea of its effect on price awareness accuracy. Assuming additional shopping occurs during the time lag, then the longer the time lag the more there will be distractions, making it more difficult to retrieve the correct price.

The serial position is the actual position of the price in the forced-choice recognition test and should be varied to prevent a potential bias toward the actual price. That is, the actual price should not always be in the same position. Further, as noted earlier, if serial scanning occurs, the serial position may influence the latency measure.

The relative price position is the numerical value the actual price has relative to the other alternatives in the forced-choice test. For example, the actual price could be the highest number, the middle number or the lowest number of the choices in the test. The relative price position should be changed randomly to avoid any selection bias towards a particular relative value affecting the accuracy measure.

The actual grocery products used in any price awareness accuracy study employing recognition tests should be at least \$1.25 in price or more per item. This price is chosen so as to exclude those items that do not allow for a sufficient range of incorrect prices to be offered in the recognition test. Prices that are under \$1.25 create a problem in that some of the incorrect prices would be over \$1.00 while some incorrect prices might be under \$1.00. As mentioned above, the more similar the test items, the more difficult it is to recognize the correct price. Therefore, the alternative prices should be in the same general price range.

There are several product categories which would be difficult to include in an in-store intercept recognition memory test. These categories include meats, produce, and some dairy products. The reason for this is that it would be difficult to determine the actual prices of these products before administering the test unless the interviewer checked into the subjects' shopping carts.

Conclusions

According to traditional price theory, buyers are assumed to know the prices they pay, and are assumed to be price sensitive in that they will search for lower-priced alternatives. The research evidence reviewed earlier suggest that buyers may not be knowledgeable about the prices they pay, particularly for frequently purchased and relatively low-priced goods. Moreover, buyers do not always purchase lower-priced alternatives and buyers do not always buy less at higher prices. The inability of this limited evidence to verify the simple explanation of the influence of price on buyer behavior means a more careful study of buyers' (1) price awareness, (2) price perceptions, and (3) price sensitivity is necessary. The extent that buyers are aware of the prices they pay influences the way prices are perceived and the degree that buyers are sensitive to price differences and price changes. Therefore, a necessary first step is to develop a better understanding of the degree buyers are aware of the prices they pay.

Research measuring buyers' price awareness typically has used a form of recall. That is, buyers have been asked to recall the prices they have paid for selected items familiar to them. The percentage of prices correctly remembered has ranged from two percent to 86 percent. For most product categories, the frequency of correctly remembered prices fell below 50 percent. Thus, this evidence seems to imply that few buyers know the prices they pay, and moreover, buyers do not seem to be sensitive to differences in prices for alternative comparable choices.

Essentially, previous price awareness research can be classified as a type of memory research emphasizing intentional learning. That is, the use of some form of unaided recall assumes that the behavior being assessed represents buyers' intent to notice and commit to memory (learn) the prices of the products being purchased. Yet, current thinking regards most of human learning as incidental rather than intentional. Also it has been determined that the level or depth of information processing is critically important for the later retrieval of that information. The depth of processing is determined by the extent to which meaningfulness is extracted from the material. Finally the deeper levels of processing are associated with elaboration that involves associating or organizing the material information in some way (interitem processing).

From the perspective of memory research, the issue of whether buyers are aware of prices of the products they purchase may not be answered correctly using only a recall methodology. Moreover, the relative inability to recall prices paid should not lead to the inference that buyers do not attend to price and are unaware of the prices they pay. An obvious issue with a recall memory test is whether the correct retrieval cues have been used. It seems plausible that most buyers can be classified as incidental learners. That is, they may attend to purchase information such as price, but do not elaborate on the information. The paying attention to a single item, such as price, without elaboration is called interitem processing, and is less likely to be retrieved using a recall methodology. Instead, recognition methodology would be a better approach to determine the degree buyers are aware of the prices they are expected to pay. Therefore, the relative inability to recall prices paid should not be used to infer that buyers do not attend to price and are unaware of the prices they pay.

The objective of this paper has been to provide the conceptual framework for research seeking more definitive answers to the question of whether buyers are aware of prices they pay. Previous research has been both sketchy and, based on memory research, may have used inappropriate and incomplete measures of price awareness. Before we can address the issue of how people perceive prices, i.e., encode price information with a degree of meaningfulness, it is important to have a clearer perspective on price awareness. Finally, the issue of buyers' price sensitivity to price changes and price differences can be addressed when we have better information on price awareness and price perception.

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AN IDIOTHETIC ANALYSIS OF ATTITUDE-BEHAVIOR MODELS

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Abstract

Limitations of nomothetic treatments of psychological data are discussed relative to consumer decision making. A framework is described for circumventing the limitations.

Introduction

The need to develop methods for studying individuals has been evident for nearly fifty years. The vast majority of research in the social sciences has focused on aggregate level analyses, in which inferences are drawn about groups of individuals, considered as a whole. As Allport (1937) noted, the understanding of behavior at the aggregate level does not necessarily yield understanding of behavior at the individual (idiographic) level. When nomothetic (aggregate-based) principles are applied to individuals, there frequently exists considerable error. Because of such limitations, Allport suggested the creation of methodologies that would allow the social scientist to study the behavior of individuals.

Allport's call for the development of idiographic methods was greeted with skepticism. At the time, logical positivism and behaviorism were the dominant paradigms within the social sciences, and both approaches viewed the primary aim of science as the development of universal laws. Because of this, many critics felt that idiographic explanations of behavior were outside the realm of science. This skepticism was fueled by Allport's linking of idiographic approaches to disciplines such as history and literature, with the suggestion that methods for collecting data in these domains (e.g., analysis of letters, subjective biographical reports) be used in developing an idiographic science of human behavior. Allport's approach was criticized because of (a) the inability of the researcher to develop generalizable results, (b) difficulties with using single subject experimental designs, and (c) a lack of adequate methods for conducting idiographic research (for a review of these criticisms, see Runyan 1983). Despite these criticisms, Allport's motivation for suggesting new methodologies remained: Explanations of behavior based on aggregate or nomothetic methods of analysis fell short of explaining why a given individual performed behavior X in response to stimulus Y in context Z.

Since 1937, the terms "idiographic" and "nomothetic" have taken on a wide variety of meanings in the scientific literature. This proved so confusing that in 1962, Allport clarified his goals for the study of individual behavior in personality and labeled methodologies developed toward this end as "morphogenic." However, this new methodological description did not receive wide acceptance, and the terms "idiographic" and "nomothetic" are still used in a multitude of ways in the current literature (see Jaccard and Wood 1985 for an elaboration). The term "idiographic" invites controversy because of the multiple meanings attached to it. In the present paper, we will follow the suggestion of Lamiell (1981) and label the methodologies discussed in this chapter as idiotic, a blending of the terms "idiographic" and "nomothetic." In the spirit of Allport, we recognize that idiotic methods should help us to understand and to predict the behavior of individuals. The researcher should be capable of demonstrating the reliability and validity of findings derived from these methods. Further, these methods should not rely on group norms or other nomothetic information in their analysis of

the individual. We do not deny (or minimize) the important contribution of nomothetic procedures to the social sciences and the analysis of consumer behavior. Ideally, information collected and analyzed at the individual level should be capable of later analysis at the nomothetic (aggregate) level. In the sections that follow, we will discuss some of the limitations of nomothetic procedures in constructing theories about the individual consumer. We will then briefly outline an idiotic approach to consumer decision making which we have found to be useful in numerous applied settings.

Limitations of Nomothetic Treatment of Data

Consider the following experimental design in a study of consumer attitudes: A researcher is interested in whether social class is related to attitudes towards a given product and whether this attitude is differentially influenced by perceptions of the cost of the product in upper class as opposed to lower class individuals. The researcher begins by developing a set of questions that will measure attitudes towards the product in two groups, one consisting of upper class individuals and the other consisting of lower class individuals. He/she does this by consulting Osgood's tables of adjective descriptors that load on an evaluative factor via the semantic differential technique (e.g., good-bad, beautiful-ugly, clean-dirty, tasteful-distasteful). Each individual rates the product on the scales and an overall attitude score is derived by summing the responses across items. In addition, the product is rated on an inexpensive-expensive dimension. The mean attitude scores are contrasted in the two groups via a t test, and a statistically significant difference is observed, with lower class individuals revealing a higher (more positive) mean score. A correlation between the attitude score and the inexpensive-expensive rating is calculated for each group, separately. For lower class individuals, there is a moderate negative correlation between the two variables, whereas for upper class individuals, there is a moderate positive correlation between the variables. The difference in correlations is tested by means of the appropriate statistical test, and is found to be statistically significant. The investigator concludes that social class is related to attitudes towards the product, such that lower class individuals evaluate the product more positively than upper class individuals. In addition, the researcher concludes that the data support the proposition that perceptions of expense affect the attitudes differentially in the two groups. Upper class individuals' attitudes are favorably influenced by cost, whereas lower class individuals' attitudes are unfavorably influenced by cost.

Comparison of Mean Scores. A number of assumptions are required to compare mean scores to assess the relationship between social class and attitudes. First, one must assume that the rating scales are valid for both groups of individuals. To the extent that validity coefficients are low in magnitude for either group, any conclusions are called into question. Assuming valid measures (in a traditional psychometric sense), a second issue arises in the comparison of the mean scores. When an individual is asked to make a judgment about an object on a dimension, he/she must first make the judgment cognitively, and then translate that judgment onto the rating scale provided by the investigator. Two individuals might make the same cognitive judgment, but differ in their observed ratings, if they translate that judgment differently onto the rating scale. At issue is whether group differences

reflect differences in the true underlying attitude or whether they reflect differences in the way individuals in the groups use and experience the rating scale. Research in psychophysics (e.g., Wegener, 1982; Upshaw 1962) suggests that the problem of response translation may be more serious than applied researchers realize.

How might an individual translate a judgment onto a numerical rating scale? One strategy suggested by psychophysicists is that the individual will position the center of the scale to correspond to the average subjective value of the stimuli he/she expects to judge. In this case, individuals who expect to evaluate stimuli with generally high values will make lower ratings than individuals who expect to rate stimuli with generally low values on the dimension in question. A second strategy, suggested by Parducci (1965), is that the individual will position the scale so that the two most extreme categories correspond to the most extreme values he/she would assign to stimuli of the type being studied. Having done this, the individual equates the intermediate categories with a range of judgments between these extremes. Parducci discusses several situations in which this strategy would produce different ratings for two individuals, even though their cognitive judgment is the same. In fact, Parducci has used such an interpretation as an alternative explanation for several "established" psychological phenomena. Although other plausible strategies could be elaborated, the point is that observed mean differences may reflect systematic differences in the response translation process. The assumption that all individuals use the rating scales in the same fashion, with similar experiences in mind, is required (or one must assume that the differences cancel or are irrelevant to the question at hand).

In the above example, suppose the product being rated was a certain type of appliance. One might reasonably assume that upper class individuals have had experiences with, on the average, better appliances than lower class individuals. If individuals use the first strategy identified above for response translation, then one would predict a lower mean attitude score for upper class individuals as opposed to lower class individuals. This was, in fact, observed.

Analysis of Correlations. The same issues discussed above apply with equal vigor to the analysis of correlations. First, one must assume that the scales are equally valid indicators within groups. Otherwise, differences in observed correlations may be an artifact of differential validity. Second, one must assume that all individuals within a group (but not necessarily between groups) use the response scale in the same fashion and with the same experiences as a referent. For example, consider the negative correlation between attitudes and perceived expense for the lower class individuals. Suppose individuals with more positive attitudes have tended to encounter more expensive appliances in their experiences. If all individuals within this group adopt the first response translation strategy mentioned above, then individuals with more positive attitudes would tend to rate the appliance as being less expensive than individuals with more negative attitudes (even though true differences in expense judgments might be minimal). This would yield the observed negative correlation, where possibly none exists.

These examples illustrate a frequently neglected requirement of nomothetic analyses in consumer research; namely, the assumption of a common response language across individuals. Violations of the assumption can affect either mean scores or correlations. The issue is particularly germane to consumer research that uses rating scales.

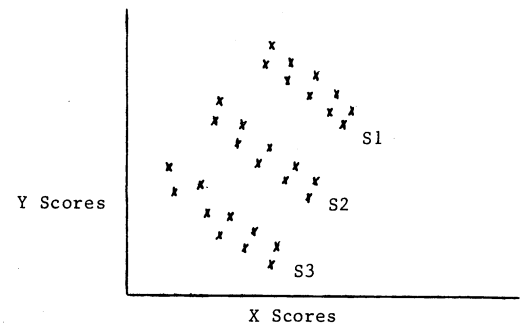
Inferences About Individuals. If the measurement assumptions noted above are met, then the theorist may still be restricted to aggregate level conclusions. To illustrate the problem in the case of correlation coefficients, consider the above study, but assume that

observed correlations within social class groups are not artifacts of response language. Suppose, also, that the investigator did not measure social class. For all individuals considered together, the correlation between perceived expense and attitude would probably be near zero (assuming common mean centroids), since the investigator has mixed two groups, one exhibiting a positive correlation and the other a negative correlation. The implication would be that a change in perceived expense would not result in a change in attitude. On an aggregate level, this would be true. Shifting perceived expense downward would cause the lower class individuals to revise their attitude upward and the upper class individuals to revise their attitude downward. The net change in attitude would be minimal. But at the individual level, considerable change would occur, contrary to what one might infer from the correlation coefficient. In this instance, the correlation coefficient would only have been descriptive of individuals if all individuals "weighted" expense in the same way (sign and magnitude) in forming an attitude toward the product. This phenomenon has obvious implications for popular regression-based approaches of intention and attitude formation in the consumer literature (e.g., models such as Fishbein, Sheth, etc.).

A second example of potentially misleading aggregate analysis for correlations is illustrated using market segments versus total market in Figure 1. In this example, the focus is on market segments versus the total market. There are three market segments (S1, S2, and S3), each of which exhibit a strong negative correlation between variables X and Y. If a correlation is computed ignoring segments, a strong positive correlation between X and Y results. One might infer from the across-segment analysis that positive changes in X will yield positive changes in Y, when exactly the opposite would occur, as revealed by the within-segment analyses.

FIGURE 1

EXAMPLE OF MISLEADING AGGREGATION IN CORRELATION



Inferences about individuals may also be problematic in the comparison of group means. This can be illustrated from an example in the family area. Researchers have asked newlyweds the number of children they intend to have in their completed family and then contrasted the expected mean number with the mean number of children the couples actually have. The correspondence is remarkably close, indicating that at the aggregate level, little change has occurred. At the individual level, however, expectations prove to be a poor match with actual behavior. Some couples have fewer children than expected, while others have more children than expected. The "overs" cancel the "unders" and the aggregate level means are quite similar. Simple examination of the means, in this case, does not permit accurate statements about the individual level. This process probably characterizes several marketing phenomena, such as the strong correspondence observed between actual prices of products and the average (calculated across individuals) perceived prices of those products (Louviere and Meyer 1981).

A second example of misleading aggregation for mean scores is illustrated in Table 1. There are four distinct segments of a market, the members of which were asked to rate each of three brands (A, B, and C) on a 10 point, "strongly dislike" (1) to "strongly like" (10) scale. Assume that each segment is homogeneous in its ratings and that individuals purchase the brand that they like the most. In this case, brand B would have a zero market share, yet if ratings are averaged across segments, brand B is the most liked. Mean score analysis would lead to the conclusion that preferences are unrelated to purchase behavior, when, in fact, a marketing strategy that changed preferences might have considerable impact on purchase behavior.

TABLE 1

EXAMPLE OF MISLEADING AGGREGATION WITH MEANS

	Brand A	Brand B	Brand C
Segment 1	10*	9	1
Segment 2	9*	7	3
Segment 3	1	7	8*
Segment 4	2	9	10*
Means	5.5	8.0	5.5

* = most preferred option

A final example of potentially misleading aggregate analyses focuses on proportions. Consider two segments of a market in the analysis of brand switching, as illustrated in Table 2. For each segment considered separately, purchases at time 2 are independent of those at time 1. If the data for the segments are pooled, however, the brand switching matrix suggests a first-order process.

TABLE 2

EXAMPLE OF MISLEADING AGGREGATION WITH PROPORTIONS

	A-A	A-B	B-A	B-B
Segment 1	.64	.16	.16	.04
Segment 2	.04	.16	.16	.64
Aggregate	.34	.16	.16	.34

(A-A = use of brand A at time 1 and time 2, A-B = use of A at time 1, B at time 2, etc. Assume equal N segments)

In sum, inferences about individuals from group level data can encounter problems with respect to reliability, validity, response language used in interpreting scales, and within group variability. The above comments should not be taken to imply that means, proportions, and correlations in traditional consumer studies, when calculated on the aggregate level, will always be misleading about individual cases. However, they can be misleading and must be interpreted carefully when making inferences about individual behavior.

An Idiopathic Approach To Behavioral Decision Making

Jaccard and Wood (1985) describe three facets of an idiopathic approach to consumer decision making that circumvents many of the above problems. The first facet focuses on describing how consumers perceive different options and identifies idiographic perspectives on product space analysis. The second facet considers brand preferences, integrating aspects of choice theory with traditional attitude theory. The third facet concerns trade-off analyses and describes idiopathic methods for identifying how consumers trade-off the positive and negative features of a product in forming product preferences. Space limitations do not permit a discussion of each facet. We will focus our attention on the second facet.

Preference Structures. An individual's preference structure refers to his or her attitude toward each of the decision options. The preference structure is a key concept in our theoretical framework, because a person's choice is conceptualized as being, in large part, a function of the preference structure. An attitude is conceptualized in very restricted terms in our framework. It refers to the extent to which an individual feels favorable or unfavorable toward enacting a given behavioral option. A preference structure is measured by asking the individual to rate each decision option on a -10 to +10 unfavorable-favorable scale. Consistent with subjective-expected-utility (SEU) theory, it can be argued that an individual will choose to perform that option toward which the most positive attitude is held (exceptions to this principle will be discussed shortly). Thus, the attitude measures are analogous to global measures of SEU, without requiring the measurement of specific probabilities and utilities (see Jaccard, 1981). The essence of preference structure analysis is quite simple and certainly is not new to consumer psychology. Unlike traditional decision theory, however, the concept of attitude is a central construct in the framework. And, in contrast to traditional attitude theory, the focus is on within individual analysis of attitudes across competing brands, as opposed to across individual analysis. On a conceptual level, preference structure analysis represents a theory of the relationship between attitudes and behavior. It is quite distinct from traditional, nomothetic-based consumer models that attempt to explain discrepancies between attitudes and behaviors. We will elaborate these differences and then consider the applied implications of preference structure analysis.

Theoretical Implications. Several theorists have attempted to explain attitude-behavior discrepancies by suggesting that variables other than attitudes may influence behavioral decisions (or behavioral intentions, as they are called in most theories). These theories are typically stated in the form of a multiple regression equation such that

$$BI = w_1 X_1 + w_2 X_2 + \dots + w_n X_n \quad (1)$$

where BI = the intention to perform the behavior; X_1 through X_n = the relevant predictor variables, of which the attitude toward performing the behavior is X_1 ; and w_1 through w_n = empirically determined regression weights which are said to reflect the importance of the respective variable in determining BI. According to these models, discrepancies between traditional measures of attitude and behavior occur because (1) the traditional attitude measured is usually not specific to the behavioral criterion (i.e., it is an attitude toward an object and not an attitude toward a behavior), (2) there may be other factors (e.g., normative beliefs) determining the behavior such that attitude is irrelevant, and (3) attitude may only determine intentions to perform a behavior and thus, should be predictive of the action only to the extent that these intentions are highly related to the behavioral criterion. The present approach is consistent with point 1 (since the preference structure consists of a set of attitudes towards behaviors) and point 3. However, several differences can be highlighted with regard to point 2 and equation 1.

First, the preference structure approach differs from the regression approach in terms of an emphasis on behavioral predictability from a within-subject versus between-subject perspective. This difference may best be illustrated by considering only the first component of equation 1 (i.e., we will assume that weights 2 through n are zero). The regression model would involve measuring different people's attitudes toward performing a behavior (e.g., using brand A) and correlating these measures with a behavioral criterion (e.g., use of brand A). It is assumed that the more favorable the attitude, the more likely it is the behavior will be performed. Table 3 presents a hypothetical example of three individuals and

their attitudes towards brand A. According to the regression model, individual 1 should be most likely to use A, followed by individuals 2 and 3, respectively. In contrast, the preference structure approach suggests that behavioral prediction requires knowledge of the distribution of attitudes across decision options. If a person possesses a positive attitude toward A, and an even more positive attitude toward B, it is unlikely he will choose A even though he has a positive attitude toward it. In Table 3, the preference structure approach would predict that individual 3 will use brand A, whereas individuals 1 and 2 will use brand B (given that the most positive attitude dictates the choice). In the regression model, it is assumed that the more positive the attitude relative to other people's attitudes, the more likely it is the individual will perform the behavior. By contrast, in the preference structure approach, it is assumed that the more positive the attitude relative to the person's attitude toward other decision options, the more likely it is the person will perform the behavior.

TABLE 3

PREFERENCE STRUCTURE ANALYSIS FOR THREE INDIVIDUALS

Individual	Brand A	Brand B
1	6	9
2	4	8
3	2	-5

A second difference in the two approaches concerns the specification of factors other than attitudes that are relevant to behavioral prediction. A number of social scientists (e.g., Wicker, 1969; Triandis, 1977) have argued that a person's attitude toward an act is only one of a number of variables that influence behavior or behavioral intent. Several models have been proposed which investigate such additional factors as attitude toward the situation (Rokeach and Kliejunas, 1972), morals (Triandis, 1977), and normative beliefs (Fishbein, 1972). In the preference structure approach, the "additional variables" are attitudes towards performing the other decision options. Most regression based models do not focus on different decision options. Thus, the approaches differ in where they direct the theorist to look for other variables that can account for attitude-behavior discrepancies.

A third difference between the two approaches concerns the way in which the "other variables" are used within the theoretical network. In the regression model, the predictor variables are given weights representing the importance of the variable in determining intention. Generally, these weights are estimated via multiple regression procedures. The weighted predictor variables are summed to yield an index of predicted behavior. In the preference structure approach, no such weighting parameters are employed nor is there a summative relation among the weighted predictors. Rather, the attitudes toward performing each of the decision options are compared with one another and the option toward which the most positive attitude is held represents the predicted behavior.

One might be tempted to extend regression models of behavioral intention to include decision options, thus resulting in a more "complete" model of decision behavior. Such an approach was suggested by Ajzen and Fishbein (1969, 1980). In the context of Fishbein's model, this involves measuring Aact (attitude towards the behavior) and SN (subjective norm) toward each option and regressing an intention measure for each option onto the appropriate Aact and SN. The combination of Aact and SN would then be dictated by the results of the various regression equations.

There are several problems with this approach relative to the present one. First, the preference structure approach is idiotic and allows prediction of an individual's

behavior knowing only that individual's attitudes toward the decision options. The regression approach, in contrast, is not idiotic. It requires that a group of individuals be studied so that least squares estimates of the weights (w_1 and w_2) can be obtained for any given option. This approach requires that all individuals within the group be homogeneous in terms of how they weight Aact and SN for a given option and also requires some rather stringent measurement assumptions (e.g., all individuals interpret the rating scales in the same way). Thus, deriving accurate estimates of how to weight the multiple predictors is problematic from the standpoint of psychological explanation (see Gordon 1968 for additional issues in this respect). These assumptions are not requisite in the preference structure approach, because no weighting parameters are involved. Second, if behavioral predictions are based on Aact and SN, the regression approach requires that the standard errors of estimate be low and homogeneous across all options. If the regression analysis yielded a poor goodness-of-fit for just one option, the entire analysis could be jeopardized. Finally, there is no empirical evidence to indicate that normative factors, when used in the context of the preference structure approach, will yield increased behavioral prediction over and above Aact. Initial research efforts therefore might best employ the more parsimonious perspective of focusing on just the attitude construct. This practice would be consistent with the literature on decision making and makes the assumption that the influence of other variables on behavioral decisions is mediated by attitudinal variables. Empirical support for the preference structure approach relative to regression models is presented in Jaccard (1981) and Jaccard and Becker (1985).

Preference structure analysis can also be contrasted with other formal choice models proposed in the consumer literature. Space limitations do not permit detailed comparisons. However, some general observations can be made. First, the importance of measuring attitudes (or some related concept) towards alternative brands has been widely recognized in consumer research (as opposed to psychological theories of behavioral intention which have tended to focus on the analysis of a single option). However, many applications (e.g., Wilkie and Pessimer 1973) use cross-sectional, regression-based strategies for relating the attitude indices to brand choice. Such strategies are subject to the limitations discussed above and contrast with the preference structure approach which uses a purely idiotic method for generating predicted choice.

Second, the majority of applications in the consumer area have focused on attitudes towards "objects" as opposed to attitudes towards "behaviors" (Ajzen and Fishbein 1977). Thus, the attitude toward the brand per se (e.g. a Rolls Royce) is measured as opposed to the attitude toward actually purchasing (i.e. choosing) the brand. Research in psychology has demonstrated the superior predictive power of attitudes towards behaviors (e.g., Jaccard, King, and Pomazal 1977; Ajzen and Fishbein 1977). The preference structure approach uses attitudes towards behaviors.

Third, the preference structure approach conceptualizes attitude as the extent to which the individual feels favorable or unfavorable toward choosing the option in question. Measures of attitude follow directly from the attitude scaling literature, in which the attitude is measured on an unfavorable-favorable rating scale (Jaccard, Weber and Lundmark 1975). Many applications in the consumer area estimate attitude by use of compositional methods, in which perceptions about individual attributes of an option are combined (frequently using a variant of expected-utility theory) to yield an index of attitude. These approaches are generally inferior to the present measurement strategy, because they (a) make strong measurement assumptions (e.g., the presence of ratio level properties), (b) assume that all relevant attributes and no irrelevant attributes have been included in the analysis, (c) vary in the

conceptualization of what the relevant attribute-level measures should be (e.g., measures might include indices of certainty, probability, evaluation, importance, salience, relevance) and/or (d) impose a combinatorial rule on the individual attribute measures which may not be valid. The resulting measures may not reflect the relevant attitude, as conceptualized in the preference structure approach.

Fourth, the preference structure approach states that an individual will choose to perform that option toward which the most positive attitude is held (however, see exceptions discussed later). Several models of choice functions have been suggested in the consumer literature (e.g., Louviere and Woodworth 1983; Currim, 1981; Batsell and Lodish 1981; Reibstein 1978), the most popular being a form of the Luce multinomial logistic function. The model states that the probability of choosing an option A from a set of options can be expressed as the (natural log) evaluation of option A divided by the sum of the (natural log) evaluations of all options considered. This function has primarily been evaluated for aggregate level phenomena, as opposed to individual choice functions. Batsell and Lodish (1981) evaluated the model at the individual level for repeat purchase decisions over time. Psychological research on the model at the individual level has found it to be unsatisfactory (e.g., Becker, DeGroot, and Marschak 1963; Tversky 1972). In its present form, the choice function of the preference structure approach is crude, but has proven to be effective. Future research is needed to better quantify and conceptualize preference structure choice functions.

Applied Implications. Preference structure analysis has numerous applied implications. Consider the case where a consumer psychologist is attempting to influence an individual to perform one of four behavioral options (purchase product A from the class A, B, C, D). The attitude toward each of the options can be measured. Depending on the distribution of the attitudes, different influence strategies would be dictated. First, it may be found that the attitudes toward options C and D are quite low and, hence, these options can be ignored. Three strategies are then possible: (1) make the attitude toward A more positive, (2) make the attitude toward B more negative, or (3) some combination of the above. The attitude scores will, in part, dictate the strategy used. For example, if the attitude toward option B is highly positive, the psychologist would be ill-advised to make the attitude toward alternative A more positive. There would probably be a "ceiling effect" and the only effective strategy would be to lower the attitude toward alternative B in conjunction with raising the attitude toward A. In contrast, if the attitude toward B was moderately positive, with the attitude toward A being slightly less positive, then any of the three strategies could be effective.

If one wanted to strengthen the decision to perform A (i.e., make the decision resistant to change), then this would involve maximizing the discrepancy between option A and option B. This could be accomplished by using any of the three influence strategies outlined above.

The preference structure approach also has implications for the selection of target populations. If the psychologist is trying to increase the number of individuals who perform A, then those individuals most likely to change their behavior will be those whose attitudes towards options A and B are roughly equal (i.e., those who are only slightly more positive toward B than A). In contrast, individuals who have much more positive attitudes toward B than A should be relatively difficult to influence because the discrepancy between attitudes is large. Initial change efforts therefore might be focused on the former group. The strategies used to induce change could differ for one group as opposed to the other. (Parenthetically, the size of the discrepancy between the two most positive options should be related to the stability of behavior over time: The larger the discrepancy, the more likely it is the behavior will be stable.)

The above comments are theoretical approximations, at best, and are made in the spirit of suggesting potential applied implications of preference structure analysis. More precise statements will be possible as research on the choice function is forthcoming.

Error Theory for Preference Structure Analysis. The comparison of attitudes across options for a single individual should address the problem of measurement error. Consumer research which has used individual choice functions to predict choice behavior has ignored the problem of unreliability of measures. In our research, we typically obtain ratings of attitudes on three separate occasions, and use the mean attitude score as an index of the "true" score. Differences between mean scores for any two options are then evaluated relative to an index of the average unreliability across options. This is accomplished using a one way analysis of variance model, in which the different options define the levels of the analysis, and replicates are the ratings in each session. Tukey-based (Kirk 1968, p. 88) critical differences are defined for pairwise comparisons of options to isolate attitude differences that can not be attributed to measurement error. This strategy is similar to the error theory of functional measurement (Anderson 1981, 1982). The major assumption is that within-cell variation reflects only random measurement error. The approach becomes problematic if the number of options is small, because the statistical tests may lack power. This can be offset by increasing the number of repeated assessments.

Non-Optimizing Decision Rules. Thus far, our statement of preference structure analysis assumes an optimizing choice process: The individual chooses that option towards which the most positive attitude is held. Although this will generally be the case, there are instances where behavior will not correspond to the most positive option. One such case can occur when the behavior is not volitional and is controlled by other people or events. In this instance, individuals may be unable to enact the option that they are most positive toward.

Our research on choice of banks has revealed a second moderating variable on the use of an optimizing rule. When individuals first move to a community, they choose the bank towards which they feel most positive. Over time, they might acquire information about a competing bank which leads them to be more positive toward that bank relative to their own bank. However, their behavior does not change because of the costs (both economic, social, and psychological) of switching from one bank to another. This suggests that the costs of switching options relative to the benefits to be gained will be an important mediator of attitude-behavior consistency from an optimizing perspective.

Nomothetic Analyses. Nomothetic (mean) level analyses, requiring minimal assumptions about a common response language, can be conducted on preference structures, if the mean comparisons are between two or more decision options (i.e. between "repeated measures" means). The necessary assumption is one of an approximately common scale unit across individuals (the origin being irrelevant). This assumption will probably be met if the measurement practices described in Jaccard and Wood (1985) are effected. Subgroup comparisons can also be made without recourse to common origin assumptions, if the focus is on group differences in the differences between means (e.g., the difference in mean attitude scores between options A and B for upper class individuals as compared with the difference between mean attitude scores for options A and B for lower class individuals).

Conclusions

We have outlined some of the difficulties with using aggregate level or across individual analyses in testing theories of consumer behavior. We have also briefly described one facet of an idiothetic approach to consumer decision making. Space limitations forced us to deal with the most simplistic aspect of our framework. However,

even this facet has implications for much of the current consumer research using regression based attitude models to explain consumer behavior.

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A REVIEW OF META-ANALYTIC TECHNIQUES

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Abstract

A number of statistical procedures have been developed in recent years to integrate a set of empirical findings. This paper provides a review and synthesis of the strengths and weaknesses of these techniques.

Introduction

With the rapid growth of empirical findings in consumer behavior, there is a need to integrate research results into a coherent body of knowledge. In this paper, we will discuss an approach that can provide the researcher with the tools to integrate a body of literature. The paper will be divided into two sections. In section one, we will present a brief historical overview of the procedures used to integrate research findings. In section two, we will discuss the types of statistical procedures that can be used for the integration of research findings and we will present examples of the use of these procedures.

Integrating Research Findings: A Brief Historical Review

Statistical procedures for the integration of research findings have been available to social science researchers for over 50 years (cf. Pearson 1933; Pearson 1938; Wallis 1942; Fisher 1948; Mosteller & Bush 1954). Those procedures focused primarily on the development of transformations (e.g., natural log, z score transformation) and strategies for weighting individual studies and allow the researcher to combine or to compare the probability levels obtained from independent studies. Recent work on these statistical procedures (e.g., Rosenthal 1978; Glass, McGaw and Smith 1981; Hunter, Schmidt, and Jackson 1982; Hedges 1982, 1983) has extended the work on transformations and has focused on the estimation of the nature and strength of a hypothesized relation. Meta-analysis has been the term developed to describe the use of these statistical procedures for the integration of a set of empirical findings across independent studies (Glass, McGaw and Smith 1981).

In recent years, meta-analytic procedures have been introduced to consumer researchers. Sawyer and Peter (1983) discuss issues associated with meta-analysis in their presentation of statistical significance testing. Substantive applications of meta-analysis have examined the relation between research design and response rates to questionnaires (Yu and Cooper 1983); research design and the reliability of rating scales (Churchill and Peter 1983); and advertising and sales (Assmus, Farley, and Lehmann 1984). Several researchers have discussed the strengths and weaknesses of meta-analysis (Houston, Peter, and Sawyer 1983; Monroe and Krishnan 1983), although those authors do not provide a discussion of the analytic procedures. In section two of this paper, we will focus on a detailed discussion of these procedures.

Limitations of Literature Reviews

Two types of reviews will be discussed: (1) narrative reviews and (2) meta-analytic reviews. In our view, the primary feature that distinguishes narrative from meta-

This paper is a condensed version of a chapter entitled "Meta-Analysis: Techniques for the quantitative integration of research findings" to appear in D. Brinberg & R.J. Lutz (Eds.) Perspectives on Methodology in Consumer Research. New York: Springer-Verlag.

analytic reviews is that the latter uses precise and formal procedures whereas the former uses the reviewers' subjective judgments to address the following set of questions: (1) Is there a relationship between two (or more) variables? (e.g., consumer attitudes and purchase behavior) (2) What is the strength of that relationship? and (3) Under what conditions (e.g., subjects, behaviors, measures, and contexts) will the findings hold?

Narrative reviews can be characterized as an integration of findings by either itemizing each result or by some vote-counting technique (i.e., by tabulating the number of studies consistent with a particular hypothesis). Proponents of meta-analysis have described narrative reviews as limited in their potential for useful information. For instance, Axelson, Federline and Brinberg (1985) conducted a meta-analysis on the relation between food attitudes and food related behavior. In their review, nine studies were found that examined this relation. Seven of those nine studies had a nonsignificant correlation between attitude and behavior. Using a vote counting procedure, these authors would have concluded that no relation exists between food attitudes and food related behavior. Using meta-analytic procedures, however, these authors found a statistically significant (though small) relation between food attitude and food behavior. Thus, the meta-analytic procedures reduced the likelihood of these authors making a Type II error.

There are several limitations associated with the narrative approach. First, when the number of studies is large, the reviewer may have difficulty estimating: (a) whether there is a relationship among the variables being examined and (b) the strength and nature of that relationship. Second, there are losses of information that may occur if information is integrated incorrectly (Light and Smith 1971): (1) weak inferences; that is, the relation under study is stronger than the reviewer infers; (2) overlooked inferences; that is, the reviewer ignores systematic variation in the set of findings and (3) wrong inferences; that is, the reviewer integrates the set of findings in a manner that is inconsistent with the more accurate statistical integration. Third, reviewers may ignore the impact of statistical power when using just the level of significance in their integration of a set of findings (Cook and Leviton 1980). A finding may not reach statistical significance because of a lack of power but still be consistent with the direction of the hypothesized relation. Ignoring that finding or treating it as non-support for the hypothesis may result in a misleading conclusion as illustrated above.

Several researchers have presented limitations that apply to both narrative and meta-analytic reviews, although the discussion by these authors focus on meta-analytic techniques. Wilson and Rachman (1983) and Mintz (1983) have argued that bias can occur in the selection of studies both in terms of the specification of the sampling frame (e.g., only published studies or only those studies with quantified results) as well as in the specification of hypothesized relations. For instance, studies that examine the attitude-behavior relation may measure attitude several ways (e.g., semantic differential, set of belief statements). The reviewer needs to make a judgment concerning what studies are appropriate for inclusion in the literature review; that is, he/she needs to determine what studies will be treated as replicates (and thus, included in the review) and what studies will be treated as different (and thus, excluded from the review).

Another major source of controversy in conducting reviews is the integration of seemingly unrelated studies. For instance, Glass, McGaw and Smith (1981) report a meta-analysis in which they combined a wide variety of psychotherapy treatments and a wide variety of illnesses. A single, overall effect size estimate concerning the effectiveness of psychotherapy was computed. That estimate, however, can be misleading because it may mask ineffective treatments. These authors point out that useful information concerning psychotherapy can be gained when the set of studies are partitioned into different groups and the scope and limits of treatments can be identified.

For most research, we assume those units we treat as a replication factor are homogeneous (e.g., subjects in a between-subject factorial design). The reviewer makes a similar assumption concerning the set of studies to be integrated because the studies are treated as the replication factor. Procedures (to be discussed in section two) are available to determine the uniformity of these studies and to test the viability of this assumption.

The impact of poor quality studies is another source of controversy when conducting literature reviews. Glass and Kliegl (1983) argue that all studies should be included in a review and that the quality of the study should be coded and correlated with outcome variables to determine their relation. If there is a non-significant correlation, the researcher might then conclude that study quality is unrelated to study outcome. Mintz (1983) and Wilson and Rachman (1983), however, argue that including poor studies provides no useful information because no accurate inferences may be made concerning their outcomes. Further, Mintz (1983) argues that coding the quality of the study assumes the researcher is able to develop a valid coding system. Mintz suggests that the reviewer not include all studies but make explicit his/her reasons for excluding any particular study from the review.

A final source of controversy concerns the treatment of studies as independent replicates of a hypothesized relation. If a single study includes more than one piece of information concerning the hypothesized relation and each piece of information is included separately in the review, the researcher is faced with the problem of biasing the integration of the set of studies by placing undue weight on findings from the same study and violating statistical assumptions of independence. Two approaches have been suggested to deal with this problem (Light and Pillemer, 1984). First, the researcher may develop a single statistic for that study. Second, the researcher can include each piece of information in the review but weigh the information in such a way that it receives the same overall weight as the findings from a single study. We do not recommend the use of the second approach because it violates the assumption of independence, although some techniques have been developed recently to adjust for nonindependent findings (Strube 1985).

The Role of Meta-Analysis in the Conduct of Research

Our position is that meta-analytic procedures should be viewed as one strategy within a general research program for studying a focal problem. The primary advantages of the meta-analytic procedures are two-fold: (1) statistical procedures are more precise than intuition in identifying the presence, strength and nature of a hypothesized relation and (2) these procedures can be used to identify the scope and limits of the hypothesized relation.

Several sources of controversy were raised concerning literature reviews which we would like to address. First, in our view, the researcher conducting a meta-analysis is faced with many of the same "subjective" choices as the narrative reviewer (e.g., specification of the sampling frame, the hypothesized relation, the quality of the study, factors that potentially interact with the study outcomes, the scope and limits of the findings). We view both procedures as subjective, although we acknowledge that the meta-analytic procedures may help the researcher

be more explicit in his/her assumptions and be more precise in the integration of probability levels and effect size estimates. Second, the issue concerning the integration of unrelated studies is a question concerning the conceptual clarity of the original hypotheses. A researcher may be interested in only combining studies that operationalize a concept similarly or may be interested in examining all studies that claim to examine the same concept (even if they are operationalized differently). There is no single approach that is correct because the selection of studies depends on the purposes of the reviewer. Each reviewer needs to choose and make explicit the criteria he/she has used to select a set of studies. Third, poor quality studies (i.e., those studies with design flaws or poor execution that result in confounded findings) should not be included in an integration of a set of findings because the outcome of those studies are unclear and will add uninterpretable variation in a review. We have argued to exclude poor quality studies for two reasons: (1) poor quality studies have confounded (i.e., ambiguous) outcomes; thus, no reasonable inference can be made concerning the relation between those studies and other "external" variables, and (2) if the number of studies is sufficiently large to examine the difference between poor and good quality studies, then the researcher is likely to have a sufficient sample size to simply use the good quality studies to examine the hypothesized relation. Fourth, to reduce the problems that occur when including multiple findings from a single study, we recommend that only a single finding from any one study be included in a review. A conservative approach (in terms of Type I errors) is to select the weakest relationship, and a liberal approach is to select the strongest relationship.

The major source of information in any literature review is not in single summary statements concerning the relation but in identifying its scope and limits. Knowing the overall significance level and the overall effect size of a set of studies provides the reviewer with limited information. Only when the reviewer is able to fit it into some nomological network will he/she come to a deeper understanding of that relation.

Statistical techniques have been developed to estimate the impact of partition variables on the presence or absence of a hypothesized relation, across a set of independent studies, and on the strength and nature of that relation. A detailed, and somewhat formal presentation of these techniques will be the topic of discussion for the remainder of this paper.

Quantitative Procedures

This section describes statistical methods for analyzing multiple research studies. We begin by considering the characteristics of effect size measures used in most meta-analyses. After describing the statistical focus of meta-analytic techniques, we consider approaches to the quantitative analysis of multiple studies.

Measures of Effect Size

Numerous indices of effect size have been proposed in the social sciences. One of the more popular indices has focused on the proportion of explained variance in the dependent variable relative to the independent variable. Statistics such as t , r , F (where $df = 1$), and χ^2 (where $df = 1$) can be converted to measures reflecting the proportion of explained variance (EV) in a set of data as follows:

$$\begin{aligned} EV &= r^2 & (1) \\ EV &= \chi^2/N & (2) \\ EV &= F/(F + df \text{ within}) & (3) \\ EV &= t^2/(t^2 + df) & (4) \end{aligned}$$

Meta-analytic techniques typically use two indices of effect size. The approach advocated by Rosenthal (1983) uses an index, r_a , which is the square root of any of the EV measures. The second index is based upon Glass et al.

(1981) and Cohen (1977) and concerns the case of mean scores in two conditions. This index, called d , is defined

$$d = (M_1 - M_2) / s \quad (5)$$

where s is a pooled standard deviation from the two conditions. Cohen (1977) suggests that a d of .2 represents a "weak" relationship, a d of .5 represents a "moderate" relationship, and a d of .8 represents a "strong" relationship (however, see Cohen 1977, p. 24 for additional perspectives on this problem). d is mathematically related to r_r (e.g., d values of .2, .5, and .8 equal r_r values of .10, .25, and .37 respectively. See Cohen (1977) for the mathematical translation of d to r_r and vice versa).

In equation 5, there is some controversy as to the optimal method for defining s in sample data. The value of σ in the population parameter $\delta = (\mu_1 - \mu_2) / \sigma$ is assumed to stem from populations with equal variances. It follows that the best estimate of σ will be based upon traditional formulas used in t tests. In cases where the two groups in question represent a treatment and control group, Glass, McGaw and Smith (1981) recommend the use of the control group standard deviation as the estimate of σ . In contrast, Hunter, Schmidt, and Jackson (1982) advocate the traditional pooled estimate of σ . For most consumer applications, the pooled estimate of σ will be the most appropriate. Discussions in the sections that follow will therefore assume an s based upon a pooled standard deviation estimate. For further consideration of this issue, see Glass et al. (1981), Hunter et al. (1982), and Hedges (1981).

Few studies report the information necessary to compute d directly. However, it can be derived from the t statistic by $d = t \sqrt{(1/n_1 + 1/n_2)}$.

Analyzing p values

Methods for estimating the statistical significance of a relationship across independent studies as a function of p values have been reviewed by Rosenthal (1978) and his associates (Rosenthal and Rubin, 1979). The two most popular methods are the method of adding z 's and the method of adding weighted z 's (also called Stouffer's method). Table 1 presents five hypothetical studies that examined the relationship between an independent and dependent variable by means of a t test. Column 2 of the table presents the t values observed in each study and column 3 indicates the direction of the mean difference (+ means $M_1 > M_2$, - means $M_1 < M_2$). Column 4 reports the df on which each t was based. Column 5 is the one tailed p associated with each t reported in column 2. A one tailed p is always used in this approach by virtue of statistical considerations. Most statistics texts do not provide tables that readily provide these p values. A FORTRAN program for computing the p associated with a t , r , F , or χ^2 statistic is presented in Veldman (1968, p. 222). Extensive tables of p values are provided by Sherman (1984). Column 6 of Table 1 presents the z score equivalents of the p values in question. These are obtained from tables of the standard normal distribution.

TABLE 1

NUMERICAL EXAMPLES FOR ANALYZING p VALUES

Study	t	Direction of difference	df	One tail p value	z
A	1.19	+	40	.12	1.17
B	2.39	+	60	.01	2.33
C	.60	-	10	.72	-.58
D	1.52	+	30	.07	1.48
E	.98	+	20	.17	.95

The method of adding z 's involves summing the scores in column 6 and dividing by k . This calculation yields a z of 2.39. The one tailed p value associated with a z score of

2.39 is obtained from a table of the standard normal distribution and in this case, $p = .009$. For an alpha level of .05, the null hypothesis of no effect or no relationship would be rejected because $.009 < .05$. Note that if the vote counting procedure was applied to these studies, the result would be a failure to reject the null hypothesis.

The method of adding weighted z 's is similar to the above, but each z in column 6 is weighted by the degrees of freedom. This approach gives greater weighting to studies with large N . The critical z uses columns 4 and 6 of Table 1 such that

$$z' = \left(\sum_{j=1}^k df_j z_j \right) / \sqrt{\left(\sum_{j=1}^k df_j^2 \right)} \quad (6)$$

In this case, $z' = 3.01$ with an associated p of .0013. Again, the null hypothesis is rejected. Note that the method of adding unweighted z 's is more conservative than the method of adding weighted z 's. This results from the fact that studies with smaller N typically will observe larger p values, and these are weighted equally in the unweighted case.

When analysis focuses on p values associated with chi square, p values are, by definition, two tailed. Column 5 of Table 1 must therefore be derived by dividing the p value in half. Also, for purposes of executing the weighted z method, the weights are the respective sample sizes (N) rather than df .

One problem with the above meta-analysis procedures is the potential bias introduced by editorial policies of journals. It is commonly believed that statistically non-significant results are less likely to be published, the result being a tendency to underestimate the true value of p . Rosenthal (1980) has referred to this as the "file drawer problem," because numerous unpublished studies with large p values may be tucked away in the researchers' file drawers. One method for addressing this issue is to calculate the number of studies that would have to exist whose mean z is zero such that the observed z' would become marginally non-significant at the .05 alpha level. This can be calculated by

$$NS = \left(\left(\sum z_j \right)^2 / 2.706 \right) - k \quad (7)$$

where NS is the number of studies. As an example, Rosenthal estimated that approximately 3,444 studies with a mean z of zero would have to exist in file drawers for doubt to be cast on the existence of experimenter bias effects. In the current example, the number of such studies would be six.

The above approach assumes that all p values are generated from a common population. This assumption may not be correct in certain instances, in which case it is inappropriate to combine p values. If the individual p values in the studies are quite heterogeneous (holding constant df), then the assumption of a common population is questionable. The procedures outlined in the next section provide a mechanism for testing this assumption.

Analyzing Effect Size Indices

The analysis of effect size indices across studies typically involves a two stage analysis. Given k independent investigations, the first stage is to determine if the population effect sizes across the k studies are equal. If the effect sizes are homogeneous, then the second stage focuses on estimating the size of the effect, based on the k investigations. If the effect sizes are heterogeneous, then the second stage focuses on isolating the sources of heterogeneity.

Stage 1: Testing Homogeneity of Effect Sizes

Many approaches have been suggested for testing homogeneity of effect sizes. We will focus discussion on the analysis of the d statistic and correlation

coefficients, emphasizing approaches that, at present, seem to have the most desirable statistical properties.

Analysis of Mean Differences. Hedges (1981, 1982, 1983) has developed an approach that is applicable to the case of independent means. The technique uses the effect size measure d . Table 2 presents an example with six studies that examine the difference between two means on a common dependent measure. The t was converted to a d statistic by $d = t\sqrt{1/n_1 + 1/n_2}$. The first step involves translating each sample d to an unbiased estimate of δ by multiplying the d by $1 - (3/(4w-1))$ where $w = n_1 + n_2 - 2$. This has been done in column 5 of Table 2. Let \tilde{d}_j be the unbiased estimate of δ in study "j". The intermediate statistic, V , is computed for each study such that

$$V = \frac{n_1 + n_2}{n_1 n_2} + \frac{\tilde{d}_j^2}{2(n_1 + n_2)} \quad (8)$$

Column 7 of Table 2 presents the corresponding V . Then,

$$TS = \sum \tilde{d}_j^2 / V - \frac{(\sum \tilde{d}_j / V_j)^2}{\sum 1/V_j} \quad (9)$$

and TS is approximately distributed as a chi square with $k - 1$ degrees of freedom. For the present example, $TS = 14.212 - (8.889/217.79) = 13.84$. The null hypothesis of homogeneous effect sizes is rejected.

TABLE 2

NUMERICAL EXAMPLE FOR ANALYSIS OF HOMOGENIETY OF d SCORES

Study	n	n	t	d	\tilde{d}	V
A	30	30	.71	.183	.181	.06694
B	30	30	-2.04	-.528	-.521	.06893
C	280	290	-1.56	-.131	-.131	.00703
D	6	11	1.99	1.011	.959	.28462
E	44	40	.45	.098	.097	.04778
F	37	55	2.00	.429	.425	.04619

Correlation Coefficient. Rosenthal (1983) has described an approach which can be used to test the homogeneity of a set of correlation coefficients. Table 3 presents an example with six studies that report the correlation between two variables. r is first converted to Fisher's Z using the transformation $Z = .50 (\ln(1+r) - \ln(1-r))$, where \ln = the natural logarithm. Most statistics texts provide tables for converting r to Z . The relevant Z appear in column 4 of Table 3. An average Z is computed as follows:

$$\bar{Z} = \frac{\sum (N_j - 3) Z_j}{\sum (N_j - 3)} \quad (10)$$

where N = the sample size for study "j". TS is calculated by

$$TS = \sum (N_j - 3) (Z_j - \bar{Z})^2 \quad (11)$$

TABLE 3

NUMERICAL EXAMPLE FOR THE ANALYSIS OF HOMOGENIETY OF CORRELATIONS

Study	N	r	Z	(N-3) Z
A	50	.30	.310	14.57
B	60	.33	.347	19.78
C	40	.25	.255	9.44
D	50	.28	.288	13.54
E	60	.44	.477	27.19
F	40	.46	.497	18.39
				<u>102.91</u>

For the present data, $Z = 102.91/282 = .365$ and $TS = 2.24$. TS is approximately distributed as a chi square with $k-1$ degrees of freedom. For a chi square of $6-1 = 5$ degrees of freedom, the critical value of chi square for $\alpha = .05$ is 11.07. Because 2.24 does not exceed this

value, the null hypothesis of homogeneous correlations is not rejected.

Measurement Error. The above techniques do not take into account fallible measures. Hedges proposes modifications to his formulas to incorporate the effects of measurement error when good reliability estimates are available. Hedges modification involves multiplying the pooled standard deviation estimate, s , in equation 5 by the square root of the reliability coefficient for the dependent variable. The adjusted d scores are then analyzed instead of the observed d scores, using formulas 9 and 10. Because s is rarely provided in research reports, a simpler approach is to multiply the observed value of d by $1/\sqrt{r_{yy}}$, where r_{yy} is the reliability coefficient for the dependent variable.

For the analysis of correlations, the original r 's are multiplied by $1/\sqrt{(r_{xx} r_{yy})}$. Equation 9 is then applied to the adjusted r .

The problem with the above approaches is that they assume accurate estimates of reliability are available. This is rarely the case in consumer research. The most frequently used reliability estimate, test-retest correlation is subject to considerable sampling error and, at best, represents a crude approximation to reliability. This creates a dilemma. On the one hand, the analyst can use the crude reliability estimate, with the knowledge that sampling error in the estimate could undermine the validity of the conclusions made from the analysis. On the other hand, the analyst can ignore the reliability adjustments, which is tantamount to assuming perfectly reliable measures.

We recommend a two step approach in which the test is performed first without the reliability adjustment and then with the reliability adjustment. The reliability estimates used should be a best-guess (based upon theory, past research, and present reliability data) of the lower bound of the reliability of the measures in question. If the results of both analyses lead to the same conclusion, then one has increased confidence in that conclusion. However, if the results of the analysis are discrepant, then any conclusions must be tentative.

Stage 2: The Case of Homogeneous Effect Sizes

If one is confident that homogeneous effect sizes exist, then it is reasonable to average the effect sizes in some manner to estimate the population effect size.

Mean Differences. Hedges has suggested several methods for estimating δ . We will describe the approach advocated in Hedges (1982). The estimate of δ , d' , is calculated from

$$d' = \frac{(\sum \tilde{d}_j / V_j)}{\sum 1/V_j} \quad (12)$$

where all terms are as previously defined. Approximate 95% confidence intervals can be formed by first defining the constant $c = 1.96 \sqrt{(1/1/\sum V_j)}$, and then forming the lower limit by $d' - c$, and the upper limit by $d' + c$.

Correlation Coefficients. Viana (1980) has described a method for estimating ρ from a set of k correlation coefficients across k studies. Table 4 presents five studies reporting correlation coefficients that will serve as a numerical example. Column 2 presents the sample size for each study and column 3 presents the observed sample r . Column 4 presents an approximation to the minimum variance unbiased estimate of ρ , \tilde{r} (Olkin and Pratt, 1958). \tilde{r}_j is computed from r by $\tilde{r}_j = r_j + ((r_j(1-r))/2(N_j - 4))$. The estimate of ρ , r' , is then $\sum (r_j(N_j - 1))/(TN - k)$, where $TN = \sum N_j$. For the data in Table 4, $r' = .312$.

An approximate 95% confidence interval can be constructed for cases where $\rho < .70$, a common situation in consumer research. This involves transforming each observed sample

r to Fisher's Z and then calculating a weight, w, for each Z. w is defined as follows:

$$w = \frac{(N_j - 3)(1 + .5(N_j - 1))}{(TN - 3k)(1 + .5(N_j - 1))} \quad (13)$$

The approximate 95% confidence interval is constructed by defining the 2 constants $c = 1.96 (\sum (w_j^2 / (N_j - 3)))$, and $f = 1 + \sum (w_j / (2(N_j - 1)))$. The lower limit of the interval is $((\sum w_j Z_j) - c)/f$ and the upper limit of the interval is $((\sum w_j Z_j) + c)/f$. This yields values of .088 and .520 for the data in Table 4.

TABLE 4

NUMERICAL EXAMPLE FOR ESTIMATING THE POPULATION CORRELATION

Study	N	r	\tilde{r}	Z	w
A	15	.450	.466	.484	.156
B	16	.191	.198	.193	.169
C	30	.303	.308	.312	.346
D	15	.395	.410	.417	.156
E	16	.193	.200	.195	.169

Measurement Error. Estimates calculated in the above techniques can be adjusted for measurement error using procedures discussed earlier. This involves calculating an adjusted d or an adjusted r, and applying the formulas to the adjusted values rather than the observed values.

Biased Estimates. The validity of all estimation procedures are subject to editorial policies of journals. To the extent that journals only accept articles reporting "large" effect sizes and reject articles reporting "weak" effect sizes (and which are methodologically sound), then estimates will be biased upward. This possibility should be considered when interpreting effect size estimates. Recent perspectives on this problem, and methods for addressing it, are discussed in Hedges (1984).

Orwin (1983) has developed an analogy to Rosenthal's "file drawer" formula for measures of d. One can compute the number of studies ("fail-safe" n) whose mean d is zero that would have to exist in order to reduce the sample mean d to some specified value (e.g., .2 corresponding to a "weak" effect in Cohen's analysis, .5, a "medium" effect, or a .8, a "strong" effect). The estimated number of studies is defined by

$$NS = (k(\bar{d} - d_c))/d_c \quad (14)$$

where NS = the number of studies in the "file drawer," k = the number of studies on which the mean sample effect size is based, \bar{d} = the absolute value of the unweighted mean of the observed d scores across the k studies, and d_c = the criterion value (e.g., .2, .5, .8).

There are several limitations to equation 14. First d must always be greater than zero. At best, the investigator can compute the "fail-safe" n for some trivial criterion effect size (e.g., .01) but not for an effect size of zero. Second, the formula assumes that the k studies have equal N. If the N are not very discrepant, then equation 14 should give a reasonable approximation to the "fail-safe" n. We therefore recommend equation 14 be used cautiously and as a rough guideline.

A similar formula can be derived for correlation coefficients. The formula is

$$NS = (k(\bar{Z}_o - Z_c))/Z_c \quad (15)$$

where \bar{Z}_o is the Fisher Z transform of the mean sample correlation across the k studies, Z_c is the Fisher Z transform of the criterion correlation value, and NS and k are as previously defined. Equation 15 has the same limitations as equation 14.

Stage 2: The Case of Heterogeneous Effect Sizes

When the effect sizes are found to be heterogeneous, it is not appropriate to average them to estimate the relevant population parameter. Instead, additional analyses are required to determine which subsets of effect sizes are heterogeneous. This can be accomplished from either an exploratory perspective or a theory driven perspective. We will consider each, in turn.

Exploratory Analyses. Hedges and Olkin (1983) discuss exploratory procedures for the analysis of d and the correlation coefficient, r. One procedure is based on the Bonferonni multiple comparison procedure developed in analysis of variance. We will first consider the case of d.

The procedure begins by rank ordering effect sizes for the k studies from smallest (rank = 1) to largest (rank = k). This has been done in column 2 of Table 5, which presents d measures (column 3) for five studies. The d_j are first transformed to U statistics by $U_j = 2 c_j n_j$, where $c = \log \sqrt{(d + 8)} - 1.0536$ and $n = (1/k (\sum n_j))^2$. n refers to the number of subjects per group in a given study, assuming equal n in the two groups (the case of unequal n will be considered shortly). Column 4 presents the U measure for each d. The absolute difference between two effect sizes is tested against zero by comparing the absolute difference between corresponding U's with a critical value. The critical value is determined by specifying the number of "steps," ns, between the effect sizes. ns will equal the larger of the two ranks minus the smaller of the two ranks plus one. For example, to compare effect sizes for study F and D, $ns = 5 - 3 + 1 = 3$. The absolute difference between U_F and U_D is .69 and the critical value (alpha = .05) is 3.68. Because .69 does not exceed 3.8, we fail to reject the hypothesis of homogeneous effect sizes for these studies. Using this approach, exploratory comparisons can be made with the possibility that post hoc analyses of differences in effect size will make substantive sense when study characteristics defining "similar" and "different" effect sizes are considered.

TABLE 5

NUMERICAL EXAMPLE FOR ANALYSIS OF d MEASURES BASED AND HEDGES AND OLKIN

Study	Rank	d	U
G	1	-.587	-2.257
E	2	-.494	-1.907
F	3	-.235	-.910
A	4	-.079	-.307
D	5	-.058	-.220
C	6	.091	.350
B	7	.699	2.563

For correlation coefficients, the r is transformed to U by first transforming the sample r to Fisher's Z and then multiplying the Z by $\sqrt{(N-3)}$, where $N = (1/k (\sum N_j - 3))^2$.

Both approaches formally assume equal N across studies, although Hedges and Olkin suggest that unequal N will not drastically affect the outcome. Further, the analysis of d assumes that the two conditions within a study have equal n. In cases of unequal n within a study, a conservative approach is to define n by the smaller n of the two, a liberal approach is to define n by the larger n of the two, and a compromise is to define n as the mean n.

Theoretical Analysis. Hedges (1982) discusses a useful approach for analyzing heterogeneous d measures when the measures can be grouped into clusters a priori on the basis of theoretical concerns. For the data in Table 5, assume the first three studies were conducted with upper class individuals whereas the second three studies were conducted with working class individuals. Using equation 9, the overall chi square, TS is calculated to test the null hypothesis of homogeneous effect sizes across all k studies. The total chi square is then decomposed into two

components, one due to between group differences (as defined by social class) and the other due to within group differences. This procedure is analogous to the partitioning of variance in analysis of variance problems. The chi square for between group differences is calculated as follows: Let p = the number of clusters (in this case $p = 2$, upper and working class), m_i = the number of studies in cluster i , \bar{d}_{ij} = the unbiased estimated effect size of study j in cluster i , V_{ij} = the V measure for study j in cluster i , and d'_i = the average d measure in cluster i (note: the mathematical definition of d' is given shortly). Then, the between groups chi square, TSB, is

$$TSB = \frac{\sum_{i=1}^p \sum_{j=1}^{m_i} d'_{ij} / V_{ij}}{\sum_{i=1}^p \sum_{j=1}^{m_i} 1 / V_{ij}} - \frac{\left(\frac{\sum_{i=1}^p \sum_{j=1}^{m_i} d'_{ij} / V_{ij}}{\sum_{i=1}^p \sum_{j=1}^{m_i} 1 / V_{ij}} \right)^2}{\sum_{i=1}^p \sum_{j=1}^{m_i} 1 / V_{ij}} \quad (16)$$

$$\text{where } d'_i = \frac{\sum_{j=1}^{m_i} d_{ij} / V_{ij}}{\sum_{j=1}^{m_i} 1 / V_{ij}} \quad (17)$$

TSB is distributed as a chi square with $p - 1$ degrees of freedom. For the data in Table 5, $d' = -.137$, $d' = .317$, and $TSB = 7.50$. The chi square for within group differences is $TSW = TS - TSB = 13.84 - 7.50 = 6.34$. TSW is distributed as a chi square with $k - p$ degrees of freedom.

The critical value for TSB, $\alpha = .05$, is 3.84. Because 7.5 exceeds 3.84, the null hypothesis of homogeneous population d is rejected. It is useful to calculate 95% confidence intervals for each d , (see discussion of equation 12). For upper class studies, these are $-.286$ to $.012$. For lower class studies, they are $.028$ to $.606$. Non-overlapping confidence intervals indicate statistically significant differences.

The critical value for TSW, $\alpha = .05$ is 9.49. Because 6.34 is less than 9.49, we fail to reject the null hypothesis of homogeneous effect sizes within clusters, indicating that the calculations of d for the clusters is meaningful. If TSW is statistically significant, then equation 11 can be applied to each cluster separately to determine which group(s) has heterogeneous effect sizes.

The above procedures hold for the case of d measures. Analogous procedures are applicable to the case of correlation coefficients. Each correlation coefficient is converted to Fisher's Z . The total chi square, TS , is computed using equation 11. The between group chi square involves calculating an average Z , Z_i , for each cluster separately using equation 10. Let N_i = the sum of the sample sizes across studies in cluster i , and $Z_{..}$ = the average Z (using equation 10) across all studies. Then

$$TSB = \frac{\sum_{i=1}^p (N_i - 3m_i) (\bar{Z}_i - Z_{..})^2}{\sum_{i=1}^p (N_i - 3m_i)} \quad (18)$$

and $TSW = TS - TSB$. TSB is approximately distributed as a chi square with $p-1$ degrees of freedom. TSW is approximately distributed as a chi square with $k-p$ degrees of freedom. Significance tests are applied, as above. Approximate 95% confidence intervals about each mean r can be calculated, as described earlier.

Summary and Conclusions

In this paper, we have discussed two basic features in the use of meta-analytic techniques. First, we described the strengths and weaknesses of literature reviews, in general, and meta-analytic reviews in particular. Second, we discussed a set of statistical techniques that can be used for summarizing the findings across a set of independent studies. In that discussion, we described two basic summary statistics; a correlation coefficient between an independent and dependent variable and a d statistic (Glass, McGaw and Smith, 1981) as well as discussed the impact of unequal sample size and measurement error on those statistics. Researchers are currently examining the statistical properties of these meta-analytic techniques in great detail (e.g., Hedges, 1984).

In many areas of the social sciences, meta-analytic techniques are receiving increased use as a tool for the systematic integration of a body of literature. Our goal in this paper is two-fold: (1) to make the reader aware of current statistical advances in meta-analytic techniques and (2) to describe how meta-analytic techniques can be used to increase a researchers' understanding about the many facets that can influence a set of findings. Our hope is that the reader will make greater use of these techniques in their own area of interest.

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OBTAINING MSI SUPPORT: THE CASE OF THE PRICING RESEARCH COMPETITION

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Abstract

This paper describes the process for obtaining MSI support for scholarly marketing research. Support may be financial, or it may be in the form of data or expertise. The paper illustrates this process with the case of the four winners of MSI's pricing research competition.

Introduction

Much of the research done by consumer researchers is eligible for support from the Marketing Science Institute (MSI). While not all subjects of interest to marketing academics are pertinent to MSI and marketing practitioners, there are many areas where their interests do overlap, and these subjects may merit MSI support. For instance, research on the effects of advertising on individuals, on the factors affecting consumer demand for durables, and on consumer response to price and to price changes falls within MSI's highest research priorities.

MSI supports academic researchers in several ways. It can offer grants of a few hundred dollars earmarked for surveys or small experiments. It can provide seed grants (of up to approximately \$5,000) to support the early stages of research. It can give larger grants (of \$10,000 to \$50,000 or more in a few cases) to support major projects of particular interest to MSI member companies. It can provide a forum for researchers to share their ideas with business people and receive constructive feedback and advice. It can provide access to corporate or commercial data, and it can open doors for interviews.

This paper has two objectives. First, to describe the process for obtaining MSI support for academics needing research funding, data, or advice. Second, to illustrate this process with the case of the four winners of MSI's 1984 pricing research competition.

The Process of Obtaining MSI Support

Step 1: Matching Researchers' Interests with MSI Priorities

The starting point for obtaining MSI support is the MSI Research Priorities, a booklet which describes the research topics of greatest interest to MSI. Every two years, MSI member company representatives and academics serving on various MSI committees select the priorities, or the topics with the greatest gaps between what marketers need to know and what is already known. These topics become MSI's research objectives, and all research proposals are judged by how well they match the priorities.

The topics listed in the Research Priorities do not cover all aspects of marketing: They cover only topics of potential relevance to marketing practitioners. Researchers are advised to read the questions listed in the booklet closely and to call MSI for clarification or detail as needed. Generally, every researcher will have some interests in common with MSI's research priorities, but it is unlikely that all of a researcher's interests will be relevant to MSI.

Regardless of topic, all research supported by MSI is scholarly (intended to lead to publication) rather than consulting in nature. MSI does not favor one type of approach or methodology over another and supports all forms of research (such as theory or model development, case studies, or empirical or experimental work) as long as the form is appropriate for the study. Finally, MSI will consider supporting research on topics not listed in the Research Priorities if the proposed topics are innovative and have potential relevance for marketers.

As part of the evolving research priorities, international implications of MSI-supported research are increasingly important. Proposals should show awareness of existing research outside the U.S., as well as implications of the methodology and results of the proposed research for non-U.S. settings.

Step 2: Preparing the Proposal

MSI accepts two types of proposals. One is a pre-proposal letter that outlines the topics to be studied and the researchers' preliminary hypotheses. The purpose of this pre-proposal is to let the researcher obtain MSI's reaction to the topic and research concept before investing the time required to write a full proposal, but the more complete the thinking in the pre-proposal, the more likely it is to receive encouragement.

The second type is the full proposal. MSI does not have a required standard format or length, although brevity is appreciated by reviewers, and five to ten pages are usually sufficient. Successful proposals tend, however, to have a number of common elements. These elements are presented as aids to researchers and not as requirements:

1. Background. — includes a brief review of the relevant literature and statement of why the proposed research will advance knowledge. Typically, it also positions the research with regard to MSI's research priorities.
2. Research questions or hypotheses. — describes the issues to be studied, the researchers' initial insights or beliefs, and what should be learned from the study.
3. Research design and methodology. — describes in detail the approach to be used, including sampling and interviewing methods, experimental designs, and analysis plans as appropriate. If the research is to be divided into phases (qualitative research and theory development are sometimes treated as a first phase, with quantitative research as a second phase); this is spelled out here.
4. Timetable and funding or support needs. — includes key research dates and an expected completion date, along with the researchers' needs for funding, data, or other support from MSI.
5. Expected outcomes or new knowledge. — proposals that include this section list expected outcomes, such as a new definition or framework, a new methodology, a better understanding of how key variables affect the marketing process, or new information to assist managers in making better marketing decisions.
6. Vita of the researcher.

Step 3: Evaluating Proposals

All proposals are reviewed by MSI's review committee composed of the President, Executive Director, and Director of Research Operations. Proposals passing this initial screening are usually sent for further review by selected reviewers with a special expertise in the field or by one of MSI's steering groups.

MSI has six steering groups covering topics related to advertising, marketing strategies, services marketing, packaged goods marketing, consumer durables marketing, and industrial marketing. It also has a special interest group concerned with international or global marketing. All groups have both business and academic members.

The following criteria are considered when evaluating proposals:

1. Fit of the proposed topic with MSI priorities
2. Importance of the topic
3. Originality and intellectual appeal of the proposed research
4. Quality of conceptual development
5. Appropriateness of the methodology for the research
6. Feasibility or doability of the research
7. Qualifications of the researchers for that project

The evaluation process is intended to help researchers with their work rather than just offering a yes or no decision. Reviewers' comments and constructive suggestions are shared with the researchers when possible. Frequently, researchers are asked to revise proposals or to meet personally with interested business people to discuss their ideas before beginning work. Most researchers feel their work is improved as a result.

Step 4: Defining Mutual Responsibilities

When a proposal is accepted, a letter of agreement is prepared that outlines the responsibilities of the researchers and of MSI. Researchers select the dates for the halfway point and for the completion of the study. Researchers agree to prepare a written progress report at the halfway point, a working paper describing the results of their research for MSI, and a short (ten-page maximum) Management Summary of the working paper suitable for quick reading by managers. (Having a management summary and working paper printed and distributed by MSI in no way interferes with publication in a scholarly journal.) Typically, the papers will appear in the MSI working paper series before reaching journal publication.

MSI commits to supply funding, access to data or executives, or other support as requested in the proposal. It also often organizes mini-conferences or meetings between the researchers and interested business marketers. In some cases these mini-conferences provide a forum for enlisting the extra financial or data support needed by the researchers. In other cases, they provide the researchers with early feedback on their work or enable the researchers to share their results personally with MSI member companies.

The Case of the Pricing Research Competition

At the 1984 ACR conference, MSI announced a competition for letters of research interest dealing with consumer response to pricing and price changes. This was an unusual step for MSI, undertaken by its Packaged Goods Steering Group to call attention to its eagerness to support research on pricing. Although the competition is a special case of winning MSI support, it illustrates how MSI researchers can work together with MSI to develop projects of mutual interest.

The process began early in 1984 when MSI's Packaged Goods Steering Group selected the subject of pricing as its top priority for research. The group identified five pricing issues on which it particularly wanted to sponsor research:

1. Factors affecting consumer perceptions of "cost" and the role of cost in purchase behavior
2. How price discounting affects consumers' expectations, perceptions, and behavior
3. Measuring the "value" of a brand and how it is affected by changing prices
4. Factors influencing the way retailers determine prices
5. Pros and cons of a price discounting versus an everyday low price strategy

In September, the steering group announced its competition to draw attention to its pricing topics and to initiate a stream of pricing research. The competition (which offered up to four prizes of \$300 each plus a trip to meet with the steering group and discuss mutual research interests) asked academics to prepare a short letter of research interest describing their interests, hypotheses, and methodologies. These were not full-fledged proposals but general statements of which of the five pricing issues the researchers would like to address and how. This competition was announced at conferences such as the annual ACR and TIMS/ORSA conferences, and by mail.

Fourteen letters of research interest were received by the December 1984 deadline. These were reviewed by members of the Packaged Goods Steering Group (including representatives from Beatrice, Campbell, General Foods, General Mills, Gillette, Lever, Nabisco, Polaroid, Quaker and Warner-Lambert as well as Wharton, M.I.T., Vanderbilt, the University of Chicago, and the University of Florida). Four winners were then selected and invited to meet in February 1985 with the members of the steering group.

Two of the winners, Professors James Lattin (Stanford) and Sridhar Moorthy (Yale), were interested in how discounting strategies affect consumers, while the other two winners, Professors Carl Obermiller (University of Washington) and Valarie Zeithaml (Texas A&M), focused on new approaches for studying the relationship among price, quality, and value. At the steering group meeting, each winner described his or her interests and general approach and received feedback from the steering group. Based on this interaction, the winners then individually prepared complete proposals for MSI that incorporated the changes in emphasis or detail suggested at the meeting.

None of the final proposals remained exactly as originally conceived, and all four winners felt the process helped them improve and focus their work. For instance, Professor Lattin narrowed his focus from a general study of factors affecting discount depth and duration to the narrower study of the dynamics (specifically wearout) of consumer response to price discounts. And, after meeting with the group, Professor Valarie Zeithaml split her research on price, perceived quality, and perceived value of packaged goods into two phases (the first for executive interviews and qualitative research and the second for a laboratory experiment to develop measures and test the theory from the first phase).

As of Fall 1985, three of the proposals are under review by the Packaged Goods Steering Group. Professor Zeithaml's project has been approved and the first phase of the research is underway.

The process of obtaining support for marketing research through MSI is clearly a dynamic one, as the case of the pricing competition shows. The researchers and MSI work together to find the overlap in their interests and to strengthen the research. Marketing practitioners from MSI member companies are involved as reviewers and research sponsors or data sources. And, the process benefits all those involved.

I'M HIP:
AN AUTOBIOGRAPHICAL ACCOUNT OF SOME MUSICAL CONSUMPTION EXPERIENCES

Morris B. Holbrook, Columbia University¹

A...lack of rapport was noted by Down Beat in connection with an attempt by Paul Desmond to buy a dacron blanket.

"I'm sorry sir," said the salesgirl, "We seem to be all out of dacron blankets. But wouldn't you like to look at this one?"

"No. I don't think so. I want dacron."

"But, sir, this one is down. It's real down."

"I'm hip," said Desmond. "But I still want dacron."

--Leonard Feather and Jack Tracy (1963),
Laughter from the Hip, New York:
Da Capo Press, pp. 152-153.

I'm hip; I'm no square;
I'm alert, I'm awake,
I'm aware....
Like dig: I'm in step;
When it was hip to be hep, I was hep

--Dave Frishberg and Bob Dorough,
"I'm Hip,"
The Dave Frishberg Songbook
Omnisound Jazz

Music's my life,
And ev-'ry day I live it,
And it's a good life too

--Billy Preston,
"Music's My Life,"
Music Is My Life,
A & M Records

For most of my life, I have tried very hard to be hip. Growing up, I was never the smartest student at school, the best football player on the team, the most popular guy in the class, the most successful in winning student

¹I present this highly egocentric narrative in the spirit of Beth Hirschman's special ACR session and with the hope that it may encourage other consumer researchers to reflect systematically and deeply on their own consumption experiences. I take Beth's autobiographical account of her WASP roots as an example and proceed in the manner of W. T. Tucker's Foundations for a Theory of Consumer Behavior (1967), a work that probably deserves more attention than it has received. Anyone needing a rationale for this kind of storytelling should refer to Beth's recent JCR article on styles of consumer research and to Geraldine Fennell's session on phenomenology at last year's ACR conference (especially the paper by Wertz and Greenhut). Others may choose to regard this effort as one more tedious example of Morris being reprehensibly self-indulgent. Between these extremes, some may simply view my saga charitably as an attempt to convey something quite subjective about a little-studied consumption phenomenon--namely, the ethos of hipness. I thank Sandy, May, Kate, and Teenie; Helen and Tommy; Johnny and Steve; Howie, Kenny, and Stu; Peter and Susie; Sally and Chris; Bob; Paul and Zoey; Lila; and all the others...even Valerie, Barbara, and Dave. They know who they are and what they have meant to me. Finally, I gratefully acknowledge the financial support of the Columbia Business School's Faculty Research Fund. I hope they still would have given me the money had they known that I would spend it on jazz records.

elections, nor the biggest hit with the girls at the small female prep school down the street. But I had one consolation. Even if I wasn't better than my classmates at anything important, I was hipper than at least 99 percent of the other students at the Milwaukee Country Day School. I knew that just as surely as I know that vanilla tastes better than tutti-frutti.

Very early, I learned that the rules for being hip are actually quite simple. They follow a straightforward four-step procedure:

- (1) Find out what most people like
- (2) Treat that with complete indifference (or, when pressed, with scornful contempt)
- (3) Ferret out some obscure treasure admired by at most a few cognoscenti (or, if necessary, by some other group of weirdos)
- (4) Elevate that piece of obscurity to a lofty status of extravagant admiration and treat anyone who cannot appreciate it with pity (sometimes mixed with disdain)

In Milwaukee, Wisconsin--where Lawrence Welk and Liberace were born and raised, where weekday-afternoon radio consisted mostly of polka bands and Hawaiian guitars, and where the Braves were unanimously regarded as the town's greatest cultural achievement--being hip was easy. The four steps come naturally to someone inhabiting a city whose fame depends on the reputation of its leading brand of beer.

At home, things were different. Some of the earliest sounds that I can remember hearing were the tinkling notes of my father's piano as he played Teddy Wilson and Fats Waller arrangements of songs like "China Boy" and "Just a Girl that Men Forget," transcriptions he had painstakingly read and scrupulously committed to memory when he was probably still himself scarcely more than a young boy. On many evenings, I fell asleep with those sweet sounds ringing gently in my ears. Thus, I learned to love jazz at a very early age. I suppose you could say that, for a little kid, I was pretty hip.

I also remember my grandmother effortlessly sight-reading Chopin with her long delicate fingers skimming across the keys of her beautiful black ebony Steinway. And I recall Teenie, our beautiful black housekeeper, pouring out her soul in melodious spirituals as she glided through her housework. Everywhere, I was surrounded by graceful music. Soon I wanted to make some music of my own.

My dad, Sandy, taught me some simple one-finger tunes, but realized very soon that, for the sake of my development and his nerves, I needed some more professional instruction. So, at the age of six, I started into lessons with Helen, a friend of my parents who came from the old school of piano teaching. Helen awarded a gold star if you practiced faithfully and learned your lesson for that week, or a red star if you did not. She lived by the rule that three red stars meant termination. Thanks to gentle but constant prodding from my mother, I never received one of those dread stigmata, but even then I was hip enough to know that red stars belonged in Moscow, not Milwaukee. Later, much later, I learned the difference between extrinsic and intrinsic motivation and that musical activities properly belong in the latter category where even positive external rewards can exert disincentive effects. Meanwhile, Helen taught me to play a few

classical pieces, dragging me through such bleak exercises as Mozart's "Piano Sonata in C-Major." After four years, I could stumble through about three pages of its first movement, but the main lesson I learned from Helen was an abiding sense of what the experience curve means when it says that you need to double the number of trials in order to attain a 20 percent improvement in performance. This doubling and redoubling of effort grew increasingly tedious. Somewhere between the ten and twenty thousandth repetition, my spirit broke. Increasingly, in my frustration, I would lean forward and bite our piano. This noble Steinway still bears ancient teeth marks along its front edge. Realizing that this modus operandi was noticeably less than hip--with support from Sandy and May (who had doubtless grown tired of reminding me to practice)--I asked for a new instructor, someone a little closer to jazz.

By this route, I came to study with Tommy, Milwaukee's leading jazz musician and, purely and simply, the greatest teacher that I have ever known. Since then, I have attended various schools, studied under innumerable professors, and watched many academic colleagues, but I have never encountered Tommy's equal in communicating his vast knowledge and love of his subject matter. Tommy lived and breathed jazz. His students lived and breathed jazz with him.

Tommy started me on boogie-woogie versions of "St. Louis Blues" and "Basin Street," moved me into jazzier swing and show tunes like "Moonglow" and "A Foggy Day," and gradually began showing me chords, harmonic progressions, and the techniques of improvisation. His empathy, patience, and enthusiasm deeply conveyed his passion for music. They instilled in me a lasting faith in his credo: "If it sounds right, it is right." Tommy was the quintessence of hipness, the prototype. He approached the Platonic Form for Hip. Tommy sounded right. Tommy was right.

So, under Tommy's guidance, I marched to the tune of a different drummer, one with a rhythmically advanced sense of time. While everybody else was listening to Rosemary Clooney's "Come On-A My House," Patti Page's "How Much Is That Doggy In The Window," and Doris Day's "Che Sera Sera," I cultivated a devoted attachment to Sandy's collection of Benny Goodman records--precariously breakable 78's and scratchy old 33's that even he had largely forgotten about. I found exactly two other contemporaries, Johnny and Steve, who shared my worshipful fondness for singers like Bing Crosby, Ella Fitzgerald, or Louis Armstrong and for musicians like Lionel Hampton, Gene Krupa, or the King of Swing himself. Johnny and I memorized the Bing-and-Gary duets by singing them with each other for hours over the telephone. Steve and I played and replayed Goodman's 1938 Carnegie Hall Concert in amazed admiration for the intricacies of the wonderful trumpet solos by Harry James and Ziggy Elman. When the film of the Benny Goodman Story appeared, Steve and I were in ecstasy. I tried to learn to play the trumpet, but this task proved impossible for a young man with a horn, an entire mouthful of braces, and an orthodontist whose weekly machinations vividly presaged Sir Laurence Olivier's sadistic performance in The Marathon Man. (I still have my shiny Holton trumpet hanging in our bookcase--unused but not forgotten.) For a while, I even persuaded some of my friends to call me Ziggy. They cooperated but probably did not understand that it was my way of retaliating against society's devotion to Eddie Fisher and "Oh, My Papa."

The arrival of Elvis Presley gave me something new and much more formidable to detest. At this critical moment, Johnny left town to attend Deerfield. Steve--my confrere in vintage-1938 tastes--deserted me, bought a black leather jacket, grew ducktails, and practiced wildly gyrating dances on the tiptoes of his white sweat socks. Things got lonely. I was the only one in my eighth grade class who thought--no, knew!--that Elvis was terrible. Cherishing my adolescent musical iconoclasm like a rare diamond, I searched for a way to remain hip.

Two things saved me. The first involved my discovery of the cool school of West Coast jazz. Gerry Mulligan, Chet Baker, Paul Desmond, Stan Getz, and their cohorts brought me into an ethereal world of restrained, cerebral, progressive music that none of the other eighth graders knew, cared about, or could understand--even if they had been willing to listen to it, which they weren't. I was in orbit. I had found something wonderful that no one else liked. In fact, I had found something supremely beautiful that everyone else hated. I had reached the outer sphere of hipness where few ever tread.

My second salvation came from forming a band or what, in those days, we called a "combo." This combo consisted of Howie on guitar, Kenny on bass, Stu on drums, and me on piano. We learned tunes like "How High the Moon," "Pick Yourself Up," and "Jumpin' With Symphony Sid." In other words, we shunned anything remotely popular. Sometimes we played for parites or for dances, but mostly the combo just practiced by ourselves on Sunday afternoons that were long and arduous for us, as we fumbled and argued our way through incorrect chord changes and botched melody lines, and no doubt even longer and still more arduous for our bewildered parents. The other guys in the combo came from public school. I only saw them on weekends. The rest of the time, surrounded by preppy little eighth graders who showed an ironic fondness for Elvis and other hip-swinging hillbillies, I pursued my own splendid musical isolation. My classmates thought that "hip(s)" was a (plural) noun. I knew that, for me, it was a (singular) adjective. Sometimes, I felt a little outcast in my wayward tastes. But, if you let that sort of thing bother you, then you're not really very hip.

Then, in the first year of high school, Peter arrived. Pete came from across town where he had pursued a roughly parallel development of musical sensibilities. The major difference was that Pete had listened to a wider array of the new jazz than I had heard. Peter exposed me to Miles Davis, Sonny Rollins, and Horace Silver. I had to scramble to compete. I dug back into the recent past and came up with Charlie Parker, Thelonius Monk, and Dizzy Gillespie. Pete reciprocated with Art Pepper, Lee Konitz, Jimmy Giuffre, and Zoot Sims. I countered with Clifford Brown, Milt Jackson, Hampton Hawes, and the Modern Jazz Quartet. These were days of great growth in our evolving musical tastes. Even someone who is very hip needs a kindred spirit. Peter and I spurred each other on.

Once a week or whenever we could pry some allowance money from one of our parents, Pete and I traveled downtown to Radio Doctor's--our mecca--Milwaukee's best record dealer and the finest jazz outlet I would see until I reached New York and found places like Sam Goody's and King Karol or, later, J & R and Tower Records. These weekly pilgrimages to Radio Doctor's invariably produced some great discovery. After hours of sampling every new release in sight and driving the store's otherwise amiable owner nearly crazy, we would triumphantly make our purchase, climb back on the bus, and head for the turntable at my house. (Those recordings usually cost \$4.98. Today the same items, in reissues faithful to the originals, typically cost \$4.99. I can think of no other consumer product with as low a rate of inflation.) I began to think of record stores as my homes away from home. Years later, on the traumatic afternoon when John F. Kennedy was shot, I went straight to the nearest music shop and stood there for three hours, with my ears buried in headphones, listening to all the new jazz releases. Once again, the owner thought that I was very strange, but it made me feel better, like a visit home.

Of course, Peter and I alienated all of our classmates--after all, as I've said, that is part of the point of being hip. While everyone else in our high school was enjoying Harry Belafonte and the Kingston Trio, I entertained myself by writing editorials for the school newspaper, pointing out the inanity of lyrics such as "Banua. Banua,/Banua, Oh-Oh;/Banua, Banua,/Baby I don't know." During our last year at Country Day, Peter and I brought

some 45 r.p.m. jazz records to school and played them incessantly on the little phonograph in the senior room to the exasperated distraction of our fellow students. One day, while we were gone, Dave (captain of the football, hockey, and baseball teams) used our entire collection of cherished 45's as frisbees and sailed them, one by one, out the senior room window into the cool spring daylight. These gems, including one or two rare items like Oscar Peterson's unavailable recording of "The Golden Striker," were never recovered nor replaced. Dave's crime will forever live in infamy and serve as my touchstone for the apotheosis of Anti-Hip.

At graduation, partly because Pete wrote the descriptions, my school yearbook confirmed that I had achieved the status of "the class' leading nonconformist." But clouds had begun to form on the horizons of my hipness. First, I had spent part of the previous summer at the Lenox School of Jazz where some of my greatest idols (John Lewis, J.J. Johnson, George Russell, Gunther Schuller, and Milt Jackson, to name a few) had made it very clear to me that they did not exactly consider me ready for the Jazz Big Time. Needless to say, they were right. Most of those distinguished leaders in the field could not even find enough work to keep their own bands together. And they were musical geniuses! Certainly, that bitter economic reality did not augur well for me. I realized that eventually I would need some other profession.

Second, Ornette Coleman had burst onto the jazz scene, with his little white plastic alto sax, playing music that was too far advanced even for our studiously abstruse tastes. Listening to Ornette's honks and squeaks, Peter and I began to wonder if we would be hip to the jazz wave of the future.

Third, my self-proclaimed hipness had earned me acceptance at Harvard College. I have already confessed that I was not the most intelligent, popular, or athletic student at Country Day. But these were not the criteria of major importance to Harvard's admissions office. Harvard was looking for people who were hip. I was hip, so they took me. The only trouble was that they also admitted about 1,246 other freshmen, every one of whom was at least as hip as I was...or hipper. This staggering competition doubtless accounts for the miserably stressful pressure that I encountered in college. In the land of the blind, the man with one eye is king. In Milwaukee, the person who dug Charlie Parker was hip. I had spent my first eighteen years achieving a blissful degree of utter hipness in my own narrow little world. But, suddenly, I found myself in the midst of hipsters in every domain--music, art, literature, films--claiming interests so esoteric that they tapped levels of nonconformity whose existence I had scarcely suspected. Suddenly, surrounded by the Harvard intelligentsia, I felt positively square by comparison.

Surviving this threat to my unconventionality with my hipness intact proved difficult, but I did it. My *deus ex machina* was the Beatles. Everybody--the Yale men, the Princeton boys, and even the Harvard students--everybody loved the Beatles. It was impossible to dislike their insouciant blend of good spirits and hard-driving rock. Impossible, that is, for everyone but me. With total dedication and fierce perseverance, I managed to accomplish this unexampled feat. I practiced by playing myself Bill Evans and Jim Hall records through earphones while everyone else in the dormitory was blasting "I Want to Hold Your Hand" or "I Saw Her Standing There" at peak volumes on their portable stereos. I had triumphed. At last everyone at Harvard enjoyed something immensely popular that I could detest with self-righteous scorn.

This ploy sustained me through my difficult college years and brought me into the late 1960's to face the new traumas of Columbia University's MBA program, the rigors of life in New York City, the Vietnam War, and a draft board who simply did not understand that I was much too hip to serve in the Army. Through this pain, I was

sustained by Sally, my wonderful new bride, who served not only as a great comfort and shelter against world chaos, but also as a constantly reassuring model of pristine squareness. She hated jazz and loved the Beatles. I loathed the Beatles and adored Paul Desmond. We preserved this delicately balanced symbiosis throughout the terrifying years of the Johnson Administration. I sympathized with those involved in the Columbia sit-ins and riots. I admired the guts of the student protestors, even the ones who disrupted my academic training. They worked for peace. But except for attending a few peace marches and demonstrations in Central Park, I remained aloof. After all, Mark Rudd and the other student protestors were merely yippies and hippies. By contrast, I myself was hip.

Then something terrible happened. Jazz died--or at least it went into deep hibernation for a while. Peter, who had come to New York to earn his MA in English at Columbia and had then returned to Milwaukee to marry my next door neighbor Susie and to teach at Country Day, now moved with Susie to Dublin to write his Ph.D. dissertation on Wilkie Collins. Meanwhile, all our favorite jazz musicians entered semiretirement (Paul Desmond, Gerry Mulligan); went to jail (Art Pepper, Chet Baker); or moved to Europe (Art Farmer, Dexter Gordon). I was left with nothing to listen to, nobody to listen to it with, and a baby on the way.

The sudden total eclipse of jazz in my life, the consciousness raised by impending fatherhood, the agony of the Vietnam Era, and deep doubts about whether it was hip to pursue an MBA career produced two momentous consequences--first, a decision to enter Columbia's Ph.D. program in marketing and, second, an embarrassing regression in my musical tastes. I clung to what little security I could find, sought safety in numbers, and began listening to the Stones, the Who, Traffic, Cream, Simon and Garfunkel, Jefferson Airplane, and--yes--even the Beatles. Just before the Beatles broke up, I fell in love with Abbey Road and started working my way backwards through their oeuvre, buying all their recordings in the retrograde order and finishing with Meet the Beatles, the album that features "I Want to Hold Your Hand." When the rumor started that Paul was dead, I was as concerned as their most loyal fan. Soon the group itself had perished and I had to look elsewhere for musical sustenance. Thus does hipness founder when it crashes against the rocky shores of the Principle of Irony.

Christopher, weighing eight pounds and thirteen ounces and replete with adorable charm from the moment he was born, arrived to fill the breach. His delivery was three weeks late, but we finally induced labor by taking him in utero to a Procol Harum concert at the Filmore East and letting the ear-shattering, belly-thumping sounds of "Salty Dog" and "Whiter Shade of Pale" disturb his peaceful slumber in the womb. Suddenly, my world was filled with new life in the form of Christopher and countless rock groups and artists that were springing up like wildflowers: the Band, Joe Cocker, Cat Stevens, Blind Faith, James Taylor, Blood-Sweat-and-Tears, Van Morrison, Jackson Browne, and so on. Bob, an old classmate from Country Day, moved to New York, entered a partnership with Albert Grossman, and began managing rock stars like Dylan, the Band, Janis Joplin, Seatrain, Blood-Sweat-and-Tears, and Procol Harum. Sally and I were flooded with free lp's and concert tickets. Whenever we could find and afford baby-sitters, we went down to the Filmore. We heard everybody. Maybe it wasn't very hip, but at least it was fun.

I even learned to play a sort of watered-down version of rock on the piano. My fumbling efforts in this direction led to constant feuds with our downstairs neighbors, Valerie and Barbara, who were themselves struggling young musicians and who did not appreciate my musical assault on their folkly sensibilities. On the very afternoon that my new baby grand arrived, Valerie paid me a nasty visit within ten minutes after I started practicing. We endured many such unpleasant scenes, letters to the landlord from

both sides, poundings on their ceiling (our floor), and (once) the arrival of the police (whom I called in a brilliant stroke of oneupmanship). But, in spite of this harassment, I finally learned to play songs like "Ruby Tuesday," "Both Sides Now," and "Bridge Over Troubled Water" in a kind of compromise jazz-rock style.

For a while, I took this reawakened interest in performing into All Angels, the Episcopal church near where we lived. Paul and I showed up there at about the same time, filled with an urge to play some jazz-tinged rock or rock-tinged jazz and convinced that religious services provided an appropriate milieu for that activity. The easiest thing to find was piano players; so I learned to play the Fender bass and let Zoey handle the piano chores. Mac, a marketing professor at Columbia, played electronic keyboards in the band. I wrote countless jazz-rock arrangements of old Episcopal hymns like "Holy, Holy, Holy," "Praise to the Lord," and "Children of the Heavenly King." Moreover, I adopted the philosophy, which I still hold, that any music is suitable for church as long as it is played with the right religious feeling (a subtle variation on Tommy's old doctrine that if it sounds right, it is right). This credo worked well for tunes like "Let It Be" and "Morning Has Broken" (popularized by Cat Stevens and subsequently incorporated into the new Episcopal Hymnal), but it broke down when, on one inspired Sunday morning, I played "Ben" (Michael Jackson's theme music for the movie about a large rat) during Holy Communion. This song deals with the themes of friendship and loyalty and sounded right to me at the time. However, besides establishing my credentials as one of the first Michael Jackson fans, this experience (and many others like it) prompted increasing attempts by the clergy to control my selection of material. Angered, however unreasonably, I rationalized that I was too hip for organized religion.

I turned instead to psychotherapy. In five years of Freudian analysis (four times a week on the couch), Lila listened in about equal proportions to stories about (1) my musical adventures, (2) my trials in the Ph.D. program and tribulations in beginning my first teaching job at Columbia, and (3) the rest of my many problems and interests. Needless to say, thanks to the first of these content areas, Lila has become the hippest psychoanalyst in New York. She has witnessed endless attempts to unravel the mystery of the tingle that starts at the base of my spine and charges upward into goosebumps on the back of my neck. For example, I spent months on the couch trying to figure out why Ray Charles moves me so deeply, deciding that it has something to do with Teenie and those spirituals I heard as a child, but concluding that these revelations only begin to scratch the surface. Similar, still-unresolved questions surround my responses to Paul Desmond, Art Pepper, Bill Evans, and Hampton Hawes. The closest I ever came to understanding my rapturous reactions to Milt Jackson was the analogy that, for me, he does on the vibraphone what Earl Monroe did on the basketball court. As they used to say, Earl the Pearl was a magician--so loose and free, yet deadly accurate. Finally, after such speculations had run rampant for two or three years, Lila pointed out to me that, if I ever wanted to finish psychotherapy, I had better move on to other matters.

Though Lila (like a true Freudian) seldom spoke, a few of her rare and incredibly perceptive comments changed my life forever. One day, after listening to about forty minutes of diatribe on my agonies concerning a particularly difficult and unrewarding piece of marketing research, she innocently asked why I did not do more work like the project for a jazz radio station (WRVR) that I was enjoying so much. I decided that she was right and extrapolated her comment to cover most of my research activities. As my guiding principle, I adopted the goal of getting the names of my favorite singers and musicians into the major journals. Thus did Roberta Flack and Ray Charles soon find their ways, respectively, into the Journal of Consumer Research (1977) and the Journal of Applied Psychology (1978). Encouraged by this initial

success, I have continued to seek homes for my musical heroes in the various publications related to the field of consumer research.

Thanks to Lila, jazz reentered my life in a big way. Along with other aspects of my youth, I began reexamining my musical roots and learned that they were stronger than my branches into church music and rock 'n' roll. Moreover, many of my long-lost jazz idols had awakened from their slumbers and were returning to the recording studios. Recordings by Desmond, Evans, Hawes, Mulligan, Baker, Farmer, Pepper, Sims, and others--sometimes with the masters playing rock tunes as in Desmond's Bridge Over Troubled Water or Baker's Blood, Chet, and Tears--flooded onto the market. I began writing guest reviews for a short-lived jazz publication called Different Drummer. These reviews paid a mere \$4.00 apiece, barely enough to cover the purchase price of the recording, but somehow their appearance in print always cheered me up as a token of my reemerging jazz consciousness. A typical example was my review of Oscar Peterson's Great Connection (MPS MC 21281):

Most of Oscar Peterson's more successful albums recently have been collaborations with other gifted and forceful soloists such as Herb Ellis (MPS), Milt Jackson (MPS), or Joe Pass (Pablo). Somehow, when Oscar sinks comfortably into the cozy familiarity of the conventional piano-bass-drums trio, he seems to lose the urge to experiment with new ideas and begins to wallow in predictability. Indeed, there is a joke circulating that, on such occasions, you can recognize Peterson's virtuosity chiefly by the way he plays the same clichés over and over without making a mistake. The present disc documents this less interesting facet of Peterson's pianistic personality. We are offered routine run-throughs of old chestnuts like "Younger Than Springtime," "Soft Winds," "Just Squeeze Me," and "On the Trail."

Aside from bassist Pedersen's heroic comping and finger-bruising solos, the most captivating moments on the disc occur in Peterson's intriguingly lugubrious reading of "Smile." Elsewhere, Oscar simply reaffirms his supreme technical command over the keyboard. And that's not exactly faint praise.

Meanwhile, my old friend Peter had abandoned Wilkie Collins, moved to London, written Ghost Story, and earned so much money that the British tax system compelled his return to the U.S. He arrived in New York full of ideas about new people worth hearing (Scott Hamilton, Warren Vaché) and old people worth rehearing (Billie Holiday, Lester Young). As always, his instincts were infallibly right. I spent days pawing through second-hand record bins in search of Holiday and Young recordings I had been too ignorant to buy when I was a child and they had been easy to find. Tantalized and encouraged by these events, I entered a new period of hipness from which I hope never to recover, as hipness ripens into eccentricity.

But another force had also emerged on my musical scene: Christopher. Somehow, amidst all these other happenings, Chris has reached the age of 16 years, has learned to play Mozart and Bach like an angel, has stubbornly repudiated jazz, and has built a passionate devotion to rock. Moreover, he has developed the strong conviction that he is a lot hipper than his old man. Can I passively withstand this new questioning of my hipness? Of course not.

So I have tried to catch up by listening to Christopher's favorite recordings of U2, The Smiths, the Minutemen, Talking Heads, and Killing Joke. What generally greets my ears when I play the albums Chris lends me is somewhere between a wailing screech and a screeching wail. Synthesizers appear to have banished real musical instruments, and vocal noises seem to have replaced language. I hate this music instinctively. Listening to it is nearly torture. But I must force myself to do it. I must keep up

with the times. After all, I'm hip, and I need a constantly replenished supply of popular music that I can hate.

Occasionally, however, Chris finds something about which we can enjoy a meeting of the minds. The recent videotape of "We Are the World" (reputed to be the largest-selling single recording of all time) served as a spectacular case in point. Chris can justifiably proclaim the virtues of heartfelt performances by Michael Jackson and Bruce Springsteen. We can both agree on the merits of Stevie Wonder's impassioned outpouring and Cyndi Lauper's two seconds of pure brilliance. And I can have the satisfaction of insisting that the whole production should be interpreted not only in light of its worthwhile social cause, but also as a crowning tribute to the work and spirit of Ray Charles. The entire piece builds ineluctably toward his style and reaches its culmination in his melismatic embellishments of the refrain.

Before concluding, I feel I should recount what has happened to the characters in my egocentric little saga. My grandmother has passed away; her magnificent ebony Steinway now sits unused and gathers dust. Teenie has moved back home to Tuskegee, Alabama. I still sometimes hear Sandy play the old Wilson and Waller arrangements that May and I will always cherish. Helen has mercifully given up teaching by the star system, and Tommy has retired and moved to the Wisconsin Dells, where he remains prototypically hip. Johnny has returned to Milwaukee and lived for a while in my grandfather's old house; but he doesn't listen much to Bing Crosby any more. Steve teaches aviation at the University of Illinois; I doubt that he remembers Ziggy's solo on "And the Angels Sing." Kenny the bassist went into medicine, I believe, and Stu the drummer wound up in LA with no forwarding address. Howie the guitarist came to New York, changed his name to Hod, worked as a musician, and even made some recordings with his own groups, but died tragically in an automobile accident after moving out to California. By a strange turn of coincidence, Hod's younger brother, Michael, now serves on the policy board for the Journal of Consumer Research. Peter's novels, always cluttered with the names of jazz musicians, have reached fabulous success. In Shadowland, he provided the ultimate description of life at Country Day circa 1960 and even included a flattering but fictional account of my own struggling efforts as a jazz pianist:

Morris, standing on the side of the room with the other members of his trio, looked crippled with stage fright.... The three of them filed up the stairs to the stage. Brown picked up his bass, Morris said, "One...one...one...one," and they began playing "Somebody Loves Me." It sounded like sunlight and gold and fast mountain springs, and I switched off everything else and just listened to the music.... During Morris' last number I heard...him insert a quote from "Hail, Hail, the Gang's All Here" into his solo.... He was having, under trying circumstances, the best time he could, which is one definition of heroism (pp. 115-116).

Peter and Susie have moved back to New York permanently and, to my joy, have once again become our near neighbors. They now number many great jazz musicians among their friends and lend these artists their unstinting support. Dave reappeared as my classmate in Columbia's MBA program and has since moved to Connecticut where he now works for a headhunting agency. Ornette, who still specializes in honks and squeaks, showed up in my office one day wanting to know how to reach a wider audience. I told him I didn't think someone as hip as he could do that. The Modern Jazz Quartet--perhaps after being as mean to each other as they had been to me--broke up but have since regrouped and play as miraculously as ever. Harvard still stands on the banks of the Charles, and a recent directory of my classmates confirms their continued hipness; almost all of them are teachers. Sally, still very precious to me after 20 years, continues to hate jazz; we have finally

reached a compromise in our mutual fondness for Bach and black gospel music played at peak volume on the car stereo. Bob left rock management and went into investing in other types of commercial properties; he also manages Peter. Valerie and Barbara still live in the same building and probably still infuriate their new neighbors in our old apartment. Paul and Zoey remain active in church music; both have learned to fit themselves into the liturgy better than I ever could; Mac has become a dean. Lila still practices psychoanalysis in New York and, in fact, now sees one of the other characters in my story; I remain grateful to her insights and for the suggestion that resulted in my populating some of the journals with the names of my favorite singers and musicians. Christopher continues as a source of joy in our lives; I marvel at his ability to absorb Bach and Mozart while simultaneously admiring U2 and The Smiths.

For the past few years, Chris and I have made Christmas tapes containing some samples of our playing and distributed to a few long-suffering friends. Typically, Chris plays some of his classical repertoire. I rattle through a few dimly remembered jazz pieces and end with a reworking of some old Episcopal hymn. The words to one of these hymns remind me of the place for music in my life. Literally, they refer to the eternity and everlasting nature of God Himself. But, for me, they also convey something of the power of music to last forever. Like other artistic forms, music in general and jazz in particular are ultimate consumer durables. They endure from year to year and from generation to generation. They are spiritual and nearly godlike in their permanence:

Abide with me: fast falls the eventide;
The darkness deepens; Lord, with me abide:
When other helpers fail and comforts flee,
O thou who changest not, abide with me.

--William H. Monk (1861),
"Abide With Me,"
Hymn Number 467,
1940 Hymnal

DEEP-SEATED MATERIALISM:
THE CASE OF LEVI'S 501 JEANS¹

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Abstract

A small number of products possess extraordinary symbolic significance to consumers; they are an integral part of popular culture. This paper is a case-study of one such product, Levi's 501 jeans. Quantitative and qualitative data from a variety of sources is employed to examine the social functions performed by this icon of material culture. Functions discussed include social reassurance, consumer personalization, attributions of "magical" qualities, mnemonic capabilities, and ceremonial rites.

Introduction

One way to view products is as material artifacts of social life (Solomon 1983). The use of products as vessels to define and enact social relationships, aspirations, fantasies, and so on leads us away from the emphasis on the products bought by society and toward an emphasis on the products valued by society (cf. Belk 1984a). Consumers form deep and complex attachments to some products; such phenomena deserve greater attention by consumer researchers and other social scientists.

In this spirit, the present paper is a case study of a product which is a cultural icon. A select number of products are such an integral part of contemporary culture that they attain an almost archetypal status. At the least, consumers' allegiance to these material artifacts certainly transcends conventional wisdom regarding brand loyalty or the product life cycle. A list of such products would probably include the Ford Mustang, "Star Wars," the Hershey Bar, Elvis Presley, Marlboro cigarettes, and Coca-Cola (the old version). The recent outcry over the changing of the Coke formula by loyal consumers attests to the "special" place such products occupy in our social system.

In the apparel category, Levi's 501 jeans occupy a dominant (and almost mythical) position in American material culture. The jeans are worn by a cross-section of society, and while it is tempting to regard the product as just another fashion item, its endurance as a staple for over 130 years belies the common vicissitudes of fashion. The unique stature of Levi's as a cultural emblem becomes apparent when one considers that this product is represented in the Americana collection of the Smithsonian Institution, and that the name "Levi's" is included as an entry in Webster's Collegiate Dictionary.

This paper will begin to explore the relationship between Levi's 501 jeans and their wearers. It will focus upon the iconic functions played by the jeans via an examination of several sources of data. These sources include a national telephone survey of 501 owners, an archival examination of letters written to the company by consumers over the last thirty years, information supplied by the company, and data on company performance. Examination of subject verbatims, aggregate responses, letters, etc. will be combined to examine some social and intrapersonal benefits ascribed to the product by consumers.

The intent of this short paper is not to provide a complete history of the product, nor a satisfactory explanation for its popularity. Instead, it is an initial attempt to profile an example of a relationship between consumers and a product which cannot be fully explained by a logical positivist approach to consumption. Despite

its subjectivity, this attachment and kindred phenomena deserve a place in the realm of consumer research.

Company Background

Levi Strauss & Co., based in San Francisco, is the world's largest branded apparel manufacturer. Its motto is "Quality never goes out of style." According to the annual report, net income in 1984 was \$41.4 million on sales of \$2.5 billion. As of the end of 1984, the company employed 37,000 people in over 100 manufacturing and distribution centers.

Product lines are sold in more than 40,000 retail outlets in the U.S. and in over 70 foreign countries. The company spent \$153 million on advertising in 1984; much of this expenditure was associated with sponsorship of the Olympics (the entire 750-member U.S. team was provided with Levi's outfits). The New York Times (7/19/84) estimates Levi's market share at 21%. Its closest competitor is Lee, which holds 12% of the denim jean market.

The company notes that last year's net income fell to its lowest level since 1974. This decline was attributed to such factors as a shift in taste away from basic jeans and toward fashion jeans, weak foreign currencies, expanded production capacity coupled with a flattened jeans market, and strained relationships with some retailers.

Many of the company's problems can be attributed to shifts in clothing symbolism desired by consumers. The major manufacturers, encouraged by a boom beginning in 1981 (and spurred by the release of the movie "Urban Cowboy"), increased production and became complacent about a market which would become flat in later years (The New York Times, 7/19/84). The overall sluggishness of this market is often attributed to the maturing of the baby boom generation. According to industry sources, consumers over 24 tend to buy fewer jeans, and to wear them longer. As will be seen, the extraordinary longevity of Levi's is a mixed blessing for the company.

Despite attempts to diversify product offerings (e.g., a new line designed by Perry Ellis), the original 501 line is still the strongest performer. This is the "basic" blue jean, which is distinguished by a number of features, including the shrink-to-fit fabric which is guaranteed to shrink, wrinkle and fade, the button fly, a waistband patch, the red tab on the right-hand back pocket, and a watch pocket.

The company at some level seems to grasp that its competitive advantage lies in consumer loyalty to its core product --as evidenced by its frequent use of the copy point "We put a little blue jean in everything we make." Levi's 501's continue to be the best-selling jeans in the world, according to the 1984 annual report. In an effort to expand the popularity of this style east of the Mississippi, the company in 1984 launched a \$36 million advertising campaign, which it claims is the largest program ever undertaken on behalf of a single apparel product. The annual report states that unit sales of 501 jeans were up almost 20 percent from the previous year.

Product Background: The 501 Blues

The product was invented by Levi Strauss (1829-1902), an Austrian immigrant who peddled dry goods to prospectors in California during the gold rush. He originally intended to sell rolls of canvas for tents and wagon covers, but realized that the material he had brought with him from New York might serve a better purpose. Strauss seemed to

¹The author would like to thank Levi Strauss & Co. for its cooperation in the preparation of this paper.

exhibit a real marketing orientation, as he responded to the complaints of miners that they could not find pants which would last. The first pants he sold were tailored from heavyweight brown canvas, and they were assigned lot number 501. Strauss switched during the 1850's to a tough cotton fabric made in Nimes, France called "serge de Nimes," which Americans soon came to pronounce as "denim." The term "jeans" originated with the French as well, who identified sailors from Genoa by their heavy cotton pants. These pants were called "genes," a derivation of the French word for Genoa.

Product evolution. Over the years, the pants acquired such distinguishing trademarks as copper rivets, a leather patch depicting two horses struggling to pull the pants apart, and a stitched pattern on the back pockets. This pattern, according to company literature, has been in use longer than any other American apparel trademark. The copper rivets on the back pockets were later replaced due to complaints about the scratching of school desks, saddles, and automobile paint. In the late 1930's, the rivet in the crotch was removed when the president of the company crouched too close to a campfire and the flames heated the rivet to the point of discomfort.

Product diffusion. The jeans remained a purely Western phenomenon until the late 1930's, where cowboys would keep one pair for work and one pair for dress. The onset of the Depression prompted many ranchers to entertain Eastern "dudes" to produce extra income. These vacationers bought the jeans to emulate Western chic, and then co-opted the style by bringing the pants home (perhaps as an ostentatious symbol of ability to travel during the Depression).

During World War II, the production of 501 jeans was declared an essential industry, and only those engaged in defense work were permitted to purchase them. The back stitching was, however declared to be an unnecessary use of thread by the War Production Board. The company substituted orange paint, which led to some concern by consumers that they were receiving counterfeit jeans.

After the war, the company shifted its marketing efforts to a younger segment. The product's symbolic status was transformed by its identification with James Dean, whose moodiness and independence bordering on rebellion captivated many members of this generation.

The company has at times attempted to encourage this association, as evidenced by the successful advertising campaign centered around the mysterious "Travis" and based on a still from the movie "Giant." Nonconformist values were also catalyzed by Marlon Brando, who appeared in the 1954 film "The Wild Ones" with the symbolic entourage of leather jacket, motorcycle, and Levi's 501 jeans.

The independence associated with the jeans was carried over into the politicized era of the 1960's. The pants were intimately associated with the youth culture of that time. An emphasis on the core value of individuality was abetted by the numerous personalizing operations performed on the jeans. Many permutations of tie-dyeing, stitching and patchwork proliferated, with many consumers using Levi's 501's as a common symbolic canvas.

This overlaying of meaning is consistent with Belk's (1984b) observation that symbolism is often added to a product after its purchase. A possible irony here is that this trend toward the embellishment of pants as a form of status display laid the foundation for the popularity of signature goods and other forms of elaborately-detailed designer jeans, which until recently posed a major threat to the basic Levi's.

Product benefits. The set of objective product benefits associated with Levi's 501's may help to explain the psychic benefits which account for their popularity, longevity, and consumer loyalty. The company stresses that 1) the design has virtually remained unchanged for well over a century; 2) the pants shrink-to-fit, which

allows consumers to create their own personal fit; and 3) the fabric softens and becomes increasingly comfortable with each washing. These proclaimed benefits can be used to infer a set of higher-level benefits: The product offers 1) the reassurance of tradition, 2) the capacity for personalization, and 3) it appreciates in (psychic) value as it ages.

These three benefits are the opposite of many contemporary fashion products, which are characterized by novelty, social acceptance, and inevitable obsolescence. In this sense, the jeans may be thought of as "anti-fashion" and these properties may begin to explain the unique attachment of many consumers to them over the years.

Some Social Functions of Levi's 501's: Bases of Attachment

Instrumentality

Confidence. The function of clothing and other expressive products as facilitators of social role-playing has been discussed elsewhere (e.g., Solomon 1983; Solomon and Anand 1985). According to this perspective, product symbolism is used by consumers to place themselves in the correct role and thus retrieve the script appropriate to that role. Unimpeded access to this script results in confidence regarding one's ability to play the role; inappropriate or absent symbolism impedes role performance.

Various disciplines and perspectives have acknowledged the role of material objects in creating or reinforcing security. For example, object-relations theorists in clinical psychology feel that attachment to objects stems from their use as compensation for separation from a mother figure (e.g., Fairbairn 1954). Developmental psychologists have found that the soft, comfortable aspects of a security blanket or article of clothing are the most effective means of reinforcing a sense of security and play a role in identity formation (e.g., Belk 1984b; Weisberg and Russell 1971). Similarly, Furby (1978) notes that control is the main reward quality of objects. Attachment makes salient the role of possessor, which enhances self-confidence. In a recent phone survey of 200 Levi's 501's owners, 10% of the males and 23% of the females used the word "confident" when asked to describe how they felt when wearing the pants. The reliance on the products as a social prop is highlighted by some examples of individual responses to the question: "How do you feel when you wear your Levi's 501's jeans?":

*"Like I don't have to worry about what I'm wearing." (#2017)

*"You don't feel like an outsider." (#2076)

*"I usually feel like I'm 'with-it'...I look as good as any chick there...I feel confident." (#1052)

*"I feel comfortable, self-confident and composed... Like a second skin...I feel that I don't have to be aware of how I look. I don't have to be self-conscious because I know I look good." (#2020)

Magic. While many consumers value this product for the social rewards it offers, for some the attachment seems to go beyond the realm of rational product benefits. Both socially and functionally, some consumers seem to value the "magical" qualities of the jeans. One respondent in the survey noted that she felt like she "...could do anything in them" (#2022), while another (perhaps influenced by the James Dean mythos) attributed life-like qualities to the pants: "They are confident because they walk like they are confident" (#1015).

The jeans also seem to be valued for their (literally) life-saving properties. A survey participant, when asked about any important experiences he had had when wearing the product, replied:

One time I had a horse and I jumped off and got caught in some wire and if I hadn't been wearing Levi's I would have been ripped to pieces. (#1024)

Examination of unsolicited letters which have been written to the company over the years revealed similar stories. There are numerous testimonials to the product's strength, which has reportedly saved people from a variety of serious injuries resulting from accidents in traffic, on construction sites, and even one account of a consumer wearing the jeans for months in a prisoner-of-war camp with no appreciable damage. The following account is representative of this experience:

I was working on a 52 story bank building...and a crane hook caught me in underneath my pocket and the crane swung me out in open air which [sic] I thought I was gone but the hook had me caught so that the Levi's didn't rip until another man brought me back to the side...I wanted to tell you in plains [sic] words that I'll buy when I can your Levi's...Levi's save [sic] my life so I pass it around they are getting their money's worth when they buy Levi's...."

M.H.
Fort Worth, TX
February 1, 1965

Personalization

Interviews with wearers emphasize the role adaptability of the product; they can be worn in a wide variety of situations, with a wide range of other clothing styles, and by a cross-section of subcultures. In this regard, the jeans may be seen as highly individuating. They do not force the wearer to conform to a specific life-style statement, but rather may be molded to the whims of the wearer. Compared to other, more role-specific clothing, they can accompany the wearer in a broader range of role performances. One survey respondent noted, "They feel like part of me -- I'm bare without them" (#1004). Consumers, in a sense, do not have to put on airs when wearing the jeans; the jeans form a sartorial blueprint of the individual instead. As another purchaser noted, "I feel like I can relax. I don't have to be stiff and proper" (#3050).

Mnemonic value. This individuation appears to prompt some 501's owners to regard the jeans as companions, and to value them because they accompanied the wearer during cherished or stressful life experiences. In one study of people's reasons for cherishing objects, 15% of the subjects interviewed reported that such objects embodied past memories (Csikszentmihalyi and Rochberg-Halton 1981). Objects which are retained for long periods of time thus provide a record for the continuity of the self. The value of such products may lie in their ability to modulate arousal during times of social stress. In other contexts, it has been argued that an overstimulated organism values familiar objects (cf. Mehrabian 1976). In the Levi's survey, one respondent observed that "...they be [sic] a good friend...always with me, know me pretty much, like your best friend" (#2076).

Approximately 25% of respondents in the phone survey did in fact associate special memories with their 501 jeans. The majority of these memories were related to romantic encounters. The following are some representative examples of the memories elicited:

- *"The first time I went out with the guy I'm still with" (#1010)
- *"I went to a bar, met my spouse, we got married..." (#2079)
- *"I asked my wife to marry me in 501 jeans" (#2069)
- *"...first time I got laid" (#2075)

*"I got married in them" (#1033)

*"I wore them on my wedding night" (#1020)

Continuity

It seems clear that a significant component of the Levi's phenomenon is the longevity of the product. This attribute poses a bit of a quandary for the company, in that it is somewhat problematic to simultaneously promote staying power and to remind consumers about the desirability of repeat purchase. Unlike most fashion items which (by definition) lose their appeal when they lose their novelty, 501's go through a seasoning process whereby their meaning and value increases with the passage of time. This value seems to endure even after the product has deteriorated; its "essence" is often retained in the form of cut-offs, scraps in a quilt, and so on. Like a trusted horse or sword, the jeans seem to prove themselves on the social battlefield. In the telephone survey of Levi's owners, for example, 35% of respondents said that their oldest pair of 501's were more than two years old, 13% said that they were more than 4 years old, and 4% owned the same pair for more than six years.

The tendency to hold on to the pants is also supported by an examination of letters written to the company. Some excerpts from this (admittedly biased) sample should suffice to make the point:

*"Would you believe a 21-year-old pair of Levis?" (A.M., Cos Cob, CT, 9/18/74)

*"I graduated from high school in May of 1955, and at that time received two pair of Levi jeans. My purpose in writing to you is to inform you that I am still wearing one pair of those jeans..." (R.H.H., Phoenix, Az, 2/25/81)

*"I just wanted you to know after laundering your Levi's for 43 years my husband's Levi jeans still pair up with him for fishing trips, and hang lovingly in the garage --although a little fishy smelling." (G.S., Aptos, Ca, 2/11/81)

*"In October of 1939, my new husband bought a pair of your Levi jeans. He died this last February. After all these years, those jeans are still in very good condition." (R.A.B., Toledo, Oh, 8/15/83)

*"On my first trip to California, while learning engineering on the old ship Madison in the winter of 1913...I bought two pair... of a very heavy blue jeans called Levi's....In spite of all the hard wear, grease and our practice of washing them in lye and steam from the ship's boilers, mine are still good right in 1960. I am sending one pair to you that you may see for yourself. The other will take care of me." (T.R.E., Ophelia, Va, 5/15/60)

Ceremonial rites. Although the examples above are certainly extraordinary, they do hint at the product's staying power. Consumers do more than just hold onto the pants, however. There seem to be at least three distinct ceremonial rites associated with 501's. First, there is the "breaking-in" process, where the consumer repeatedly washes the jeans until they soften and conform to his or her body. This rite resembles those practiced in some other cultures where the self and an object undergo a literal incorporation, such as the practice of licking new possessions or shedding one's blood on them (cf. Beaglehole 1932). It is interesting to note that consumers' desire for aged jeans has spawned an ancillary industry; some companies now sell pre-faded jeans and others sell a detergent additive to "break-in" new jeans.

Second, the jeans seem to take on the status of an heirloom for many consumers. That is, there is a tendency to "hand down" the jeans to one's children. The worn jeans, imbued with memories and experience, seem to provide a

link between generations-- a comforting sense of continuity not provided by many contemporary products designed for everyday rather than ornamental use. The following letter exemplifies this function:

When I was 14 years old, my brother-in-law gave me an old pair of his jeans....The next summer I was in a serious automobile accident and my mom almost threw away my "favorites," thinking they would bring back bad memories. I remember being quite upset about it, and I wasn't happy 'til they were saved and I had them on again.

...Many years went by...and then I married a man with four children...His 12-year-old son wanted to swim in the river...and he needed some shorts. I got out the old reliables and they fit ---...I lost them permanently to him...

The long and the short of it is, those old jeans are Levi's. As nearly as I can determine, they are at least 20 years old...

I watch my boy, and realize that he is the third generation enjoying those Levi's, and I thought you might like to know what fans we are of your product!... (L.W., Chehalis, Wa, 7/1/83)

The third phase is burial. According to the company, there have been a number of instances where a pair of tattered 501's arrive in the mail with a note attached requesting a proper burial. These occurrences illustrate the anthropomorphic attachment generated by a simple product which costs less than \$25, yet which occupies a privileged position in the American psyche.

Conclusions

The preceding discussion is an attempt to highlight by way of example the richness of relationships that consumers form to significant others, even if those "others" are inanimate objects. Some products are deeply engrained in the cultural psyche, and have meaning far beyond that unearthed by concept tests, conjoint analyses, and so on. To better understand such complex relationships, it is necessary to be open to nontraditional forms of inquiry and explanation.

The case study method is one way to approach this issue. It, too, has its problems. It is difficult to rule out alternative explanations, and the researcher must be sensitive to the bias inherent in selecting consumer protocols, etc. Also, this technique treats as legitimate information supplied by the symbol's creator (in this case, the company) or other interested parties -- such sources must always be viewed with some skepticism. This bias highlights the desirability of collecting data from a number of different sources.

Regardless of the problems with this approach, consumer researchers must come to appreciate the special stature of products which are cultural icons. Their effects on consumers can be significant. Levi's 501's are one example of a basic and inexpensive product which is nonetheless the object of considerable attachment by many consumers.

By virtue of its physical properties and the mythology which has come to surround it, the product is used by consumers to perform many social functions, some of which almost resemble those normally performed by other people. The intensity and nature of the bonds formed between consumers and product icons is certainly worthy of further exploration, as a final letter to Levi's indicates:

I...just wanted you to know how my family feels about Levi Strauss. My husband has worn absolutely nothing but Levi's jeans for 35 years.

All he ever asks for, for Christmas and Father's Day...are Levi's. This year I thought I would surprise him and take some of his old and too small Levi's and put them into a quilt, so not only can he wear them all day, but he can sleep with them at night. I guess he would say, "Next to Levi's, I love my wife the best." (K.K., Cincinnati, Oh, 6/21/82)

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SOME ISSUES SURROUNDING RESEARCH ON THE EFFECTS
OF "FEELING ADVERTISEMENTS"

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Abstract

It is argued that our current models of advertising effects are inadequate for explaining the effect of 'feeling' advertisements. A number of theoretical issues concerning affective states are discussed as well as a number of issues concerning alternative hypotheses of how 'feeling' advertisements may work and possible boundary conditions on their effects.

Introduction

There has been increased interest recently in understanding the role of emotion, feelings and affect on human behaviour in both psychology (e.g. Bower 1981; Zajonc 1980) and consumer behaviour (e.g. Holbrook 1985; Kassarian 1985). To some extent, this increased interest may be viewed as a reaction against strict information processing models which implicitly (or explicitly) view human behaviour to be largely based on the processing and interpretation of verbal information. Humans, however, also experience various affective states such as happiness and sorrow, so these states would also seem to comprise a critical element of human behaviour. Unfortunately, there is no general consensus as to the functional role of these affective states. Simon (1967), for instance, has argued that emotions should be regarded as an interrupt in the human information processing system, while others have argued that affective states directly affect the processing of information (e.g. Bower 1981; Isen 1984). Others view affective states as a behavioural homeostatic process as well as a fundamental signaling system (e.g. Plutchik 1984).

In studying affective states, there are two distinctly different approaches that may be taken. First, affective states may be treated as a phenomenon in and of itself. Research using this approach is directed at developing a taxonomy or categorization of different affective states (e.g. Tomkins 1982) or at understanding what variables cause the various affective states to be evoked (e.g., Weiner 1982; Roseman 1983). In this latter case, affective states are treated as a dependent variable. Alternatively, research may be directed at understanding the effect of affective states on some other human activity. For instance, does an individual's affective state effect decision making? Under this approach affective states are treated as an independent variable.

In this paper, we will primarily be concerned with the second approach. More specifically, we will be concerned with the effect of affective states within an advertising context. However, as we will argue in this paper, we will need to have some theoretical understanding of affective states in order to understand their possible effects. Finally, in this paper the term affective state will be used in a generic sense to include all emotional and feeling states. Mood specifically will be viewed as a less intense form of emotion (e.g. Isen 1984).

The issue of how affective states within an advertising context may affect consumer behaviour seems to be an important one since we are faced with a basic contradiction. Most of our current theories of how advertising works are strict information processing models. In these models, consumers must make either verbal responses to advertisements (support arguments) or acquire knowledge about the advertised brand in order to change attitudes which, in turn, are viewed as the primary (only) mediator of behaviour. On the other hand, a very large proportion of the advertisements that appear on television and in magazines contain little product attribute information. Many seem to be designed simply to create an emotional reaction in

the consumer. Following Zielski (1982), we will call these 'feeling' advertisements. In doing so, we wish to differentiate them from advertisements which contain emotional appeals. The effects of these latter types of advertisements presumably can be explained with our current models.

In order to explain the effect of 'feeling' advertisements with our current models, we have to either (1) assume that individuals make considerable verbal responses to these types of advertisements, or (2) assume that these advertisements don't have any affect on consumer behaviour. Alternatively, we can recognize that our current models do not adequately explain the effects of these types of advertisements. At this particular point in time, this latter alternative seems to be the most appropriate since there is both anecdotal evidence that 'feeling' advertising campaigns may increase sales and evidence from laboratory research that the affective states of individuals have an affect on attitude formation in an advertising context. Consequently, the first and second assumptions do not seem to be tenable.

Theoretical Issues

Research on moods and emotions and theories of emotions remains a rather murky area in psychology, both conceptually and in terms of empirical results. The purpose of this section is to briefly review some theoretical issues concerning affective states and some critical empirical results that are the most relevant with respect to developing a model that will explain the effects of 'feeling' advertisements. This review is not meant to examine all the critical conceptual issues surrounding emotion nor to necessarily cover all the various theories of emotion. In this discussion, we will focus primarily on theories and research that attempt to integrate emotion and mood into our current understanding of the human information processing system. Since we have good understanding of this system, it would seem the most fruitful to understand how moods and emotions may affect this system instead of attempting to develop a new model of how 'feeling' advertising may work. In addition, we will only be concerned with how 'feeling' advertisements may work given exposure to the advertisement. It should be noted, however, that other researchers have suggested that consumers may be more likely to attend to these types of advertisements (e.g. Ray and Batra 1983).

The first issue that will be discussed and certainly one of the most critical concerns the conceptualization and measurement of emotion. At least some of the confusion surrounding emotions occurs because it has been measured in many different ways. For instance, emotional states have been measured by using facial expressions (e.g. Ekman 1984), specific behaviours (e.g. Schachter and Singer 1962) and physiological measures (e.g. Lazarus et al. 1965).

Most emotion theorists agree that an emotion has four different elements: (a) subjective feelings, (b) physiological arousal, (c) expressive behaviour (e.g. facial expression) and (d) a behavioural response (e.g. shouting at someone). Following Plutchik (1982), we would like to conceptualize emotion as a hypothetical construct and the different elements as possible measures of the hypothetical construct. Since it is well known that individuals can mask their true emotional state with their expressive behaviour and their behavioural response, and may not correctly report their subjective feelings, measures of affective states based on these three elements will probably contain measurement error and may, in some cases, be biased.

There are also problems with physiological measures. First, cognitive-arousal theories of emotion (e.g. Mandler 1975, 1982; Schachter and Singer 1967) indicate that physiological arousal is a necessary, but not a sufficient condition for someone to be in an affective state. In other words, someone may be in a state of physiological arousal, but not in an emotional state. Second, the empirical evidence indicates that the relationship between physiological arousal and emotion does not appear to be as strong as once thought (e.g. Reizenstein 1983). Finally, there is considerable disagreement as to the type of arousal that accompanies an emotion. Mandler (1985), for instance, argues that it is automatic arousal while others argue that cortical arousal must also be considered in emotional reactions (e.g. Izard 1982). Of all these possible measures, then, measures of subjective feeling states, would seem to be the most appropriate as long as there is no reason for subjects to misrepresent their feelings. In addition, this review suggests that physiological measures should only be used in conjunction with measures of subjective feeling states.

A second issue concerns emotion as motivation or drive. The behavioural school viewed emotion as a drive or a motivator to action. According to this view, affective states, with the accompanying increase in arousal, motivated the individual into action. For instance, a state of anger, would motivate the individual to strike at the target of the anger. In the persuasion literature, this view of emotion resulted in the fear drive model of Janis and Feshbach (1953). Under this model, increases in the level of fear should provide motivation to reduce the cause of the fear. For instance, increasing the fear associated with lung cancer should increase the motivation to stop smoking. As is well known, however, experimental research indicated that in some situations high levels of fear may be less effective than low levels of fear. Consequently, an inverted U shape relationship was hypothesized to exist between fear levels and behavioural compliance.

A number of experimental findings within the fear appeal literature has cast doubts on this model of emotion as drive or motivation. For instance, most studies have been unable to find an interaction between level of fear and efficacy of suggested behaviour (e.g. Mewborn and Rogers 1979; Leventhal 1970). If fear acts as a motivator, then higher levels of fear should cause more behavioural compliance when the suggested behaviour is efficacious. In addition, no effects on behavioural compliance have been found when the fear appeal precedes or follows the message suggesting the appropriate behaviour for reducing the cause of the fear (e.g. Leventhal and Singer 1966). If fear acts as a drive, one would also expect more behavioural compliance when the fear appeal precedes the suggested behaviour. These findings have led Leventhal (1970) to propose an alternative to the fear-drive model, his Parallel Response Model. According to this model, individuals make two parallel responses to a fear appeal message. The first is a response to the cause of the fear (e.g. lung cancer) while the second is a response to the emotion or fear itself. When the level of fear is low, individuals devote most of their energy to reducing the cause of the fear and behavioural compliance is high. However, when the fear is high, individuals focus on strategies for coping with or reducing the level of fear and little energy to the cause of the fear, so behavioural compliance is low. Consequently, this model also results in an inverted U shaped relationship between level of fear and behavioural compliance.

The view of emotion as drive or motivation has also declined in most theories of emotion, but this is probably due more to the decline of the behaviourist school in psychology as opposed to contrary empirical evidence. Exceptions are Tomkins (1984), who views emotions as enhancing the behavioural response of the individual and Buck (1985) who has recently presented a model that

integrates both motivation and emotion.

The third issue concerns the number of different emotions and the relationship between emotions. As might be expected there is no general agreement as to the number of different emotions that exist or, for that matter, a precise definition of emotion and now it differs from other psychological constructs. There seems to be general agreement concerning the fundamental emotions of happiness, sadness, fear, anger, interest, contempt, disgust, surprise, shame and guilt (e.g. Izard 1977; Tomkins 1982), however, other theorists have suggested that others such as pride and hope may also exist (e.g. Lazarus et al. 1980).

A related issue concerns the structural relationship between affective states. A number of studies using a number of different methodologies have examined this issue. In most of these studies, subjects evaluated either facial expressions of subjective feeling states along a number of dimensions. This data was then factor analyzed or submitted to a multidimensional scaling program. Although the number of dimensions found varies across studies, the two dimensions of pleasantness and level of activation seem to consistently appear across studies (e.g. Frijda 1969; Russell 1980). Other researchers, focusing on how the appraisal of the environment affects emotional response, have suggested additional dimensions of attentional activity, control, depth of experience, legitimacy and certainty (e.g. Roseman 1984; Weiner 1982). A recent empirical study by Smith and Ellsworth (1985) which attempted to control for methodological problems in previous empirical studies, found five dimensions underlie different emotional states. These are pleasantness, responsibility/control, certainty, amount of attention, amount of effort and situational/control. The results of these studies are important because we need to understand what dimensions underlie different affective states in order to produce these states with advertising or in the laboratory. As will be mentioned later, most of the current research examining the effect of affective states in an advertising context have examined affective states along the pleasantness dimension only.

The fourth issue concerns the extent to which affective states affect cognitive processing. As mentioned earlier, one approach to understanding the effect of affective states is to understand how these states may affect the processing of information. Currently, there is a growing literature on these effects. For instance, affective states have been found to affect decision making (e.g. Isen and Means 1983), the categorization of ambiguous stimuli (e.g. Isen and Daubman 1984), perceptions of risk (Johnson and Tversky 1983), the helping of others (e.g. Isen and Levin 1972; Moore Underwood and Rosenhan 1973) and the evaluation of objects (e.g. Isen et al. 1978). In addition, a number of studies have found asymmetric effects due to pleasant and unpleasant affective states (e.g. Isen 1984).

What is less clear is why these effects occur. Here a number of different hypotheses have been proposed (e.g. Isen 1984). One is a retrieval hypothesis. Here it is hypothesized that an individual's affective state will effect what information is retrieved from memory. For instance, a number of studies indicate that when individuals are in a pleasant affective state, they are more likely to retrieve positively toned information (e.g. Teasdale and Fogerty 1979). The second is an encoding hypothesis. Here it is hypothesized that the affective state of the individual effects what information is encoded in memory. For instance, individuals are more likely to encode positively toned material when they are in a pleasant affective state (e.g. Bower et al. 1981). However, direct tests of these hypotheses have yielded conflicting results. A further clouding of the issue is caused by the use of different manipulations in the studies to create affective states, so there is some concern

that these different manipulations may confound the results. For instance, Bower et.al. (1981) used hypnosis to induce an affective state and found an encoding effect, while Hasher et.al. (1985), used naturally occurring affective states and found no effects.

In summary, the issue here is, if different affective states cause differences in evaluations and judgments, to what extent can these differences be explained by differences in cognitive processes. For instance, if subjects in a pleasant affective state form more positive evaluations of products, to what extent are these differences caused by differences in the encoding or retrieval of more positive product related information.

The final issue concerns the representation of emotions in memory. There are a number of empirical studies that indicate that memory for affective states persist over time. For instance, Bower (1981) has found evidence for state dependent learning. Individuals that learn information in a particular affective state will retrieve more of the learned information if they are in the same affective state at retrieval.

The current, though somewhat controversial approach to the representation problem is that affective states may be represented as a node in a semantic network (Clark and Isen 1981; Clark 1982; Bower 1981). An extension of this model is that the arousal state of the individual is also represented in memory. Clark, Milberg and Ross (1983), present empirical evidence supporting this proposition.

The main argument against this representation is that the number of linkages between a particular affective node and all the related nodes would be large and if a spreading activation model is used to explain information retrieval, there would be only a very small probability that a particular linked node would be activated. This would make the finding of state dependent learning very unlikely. Given the robustness of semantic network models of memory, however, one could always create refinements in the model that could handle these objections. For instance, one might hypothesize some other type of retrieval process for information linked to an affective node or one might argue that there are many different nodes for a particular emotion that may be differentiated by other contexts that occurred at learning.

Although there are a number of critical unresolved issues in psychology surrounding both the conceptualization of affective states and their effects on information processing, we should not let this deter us in investigating the effects of 'feeling' advertisements. There are a number of critical issues that can be examined given the present state of theoretical development on affective states. These will be discussed in the next section.

Advertising Issues

In this section, a number of theoretical issues concerning the effect of affective states within an advertising context will be discussed. In general, there is increasing evidence that the affective state of individuals affects their responses to advertising messages (e.g. Milberg and Mitchell 1985; Srull 1984). The issues that will be discussed in this section focus on understanding the boundaries and causes of these effects.

The first issue is whether or not these effects can be explained by differences in cognitive processes. For instance, a number of studies indicate that individuals form more positive evaluations of advertised brands when they are in a pleasant affective state (e.g. Srull 1984). These effects might be explained by either the encoding and retrieval hypotheses. If individuals are in a pleasant affective state during exposure to an advertisement they may encode more favorable information about the advertised brand which, in turn, may cause them to evaluate

the advertised brand more favourably. Alternatively, if the retrieval hypothesis is valid, then individuals in a pleasant affective state when evaluating a brand would retrieve more positive information which would also cause them to evaluate the advertised more favourably. Obviously, the encoding hypothesis has the most relevance for the advertiser since advertisers have some control over consumers' affective states through the design of advertisements and the placement of advertisements in specific television shows. In addition, if the encoding hypothesis is valid, it suggests that 'feeling' advertisements will have an effect only if the advertisement contains product information.

In a study designed to examine the validity of the encoding and retrieval hypotheses, Milberg and Mitchell (1984) manipulated the affective state of subjects at both encoding and retrieval. In addition, each product message contained both positive and negative information. The results of the study indicated very strong effects due to the affective state of the subject, however, no differences were found in the valence of the information recalled across conditions. These results suggest that the encoding and retrieval hypotheses cannot explain the attitudinal differences that were found, so that we must now look elsewhere for an explanation of these effects.

The second issue is whether attitude toward the advertisement (e.g. Mitchell and Olson 1981) can explain these effects. First, it might be expected that advertisements that create a pleasant affective state will be liked more than advertisements that create a neutral or unpleasant affective state. If this is true, then attitude toward the advertisement may explain advertisement induced affective state effects. This of course, needs to be demonstrated empirically. An alternative hypothesis is that affective states may produce a response bias. Whenever individuals are in a pleasant affective state they may simply evaluate everything more positively. Consequently, both attitude toward the advertisement and brand attitudes would both be evaluated more positively.

There are a number of ways of testing these rival hypotheses. First we might be able to find some experimental stimuli that could be used in an advertisement (e.g., music) that would have differential effects on the valence of the affective state and the evaluation of the advertisement. For instance, we might be able to find music that would create pleasant affective states, but would cause a neutral evaluation of the advertisement. Alternatively, we might create two experimental conditions where an experimental stimuli is used to induce an affective state prior to and during an advertising message. If attitude toward the advertisement were the same in both conditions, a response bias explanation would seem appropriate.

The third issue concerns the stability of these effects. All the studies that have found that affective states affect the evaluations of the advertised brand have taken measures of brand attitudes shortly after the affective state manipulations. Consequently, although these effects occur in the laboratory, they may disappear shortly after subjects leave the laboratory.

One boundary condition that may affect the stability of these effects is whether or not the subject forms an evaluation of the brand during exposure to the advertisement. Srull (1984), for instance, manipulated whether or not subjects formed an evaluation of an advertised brand during exposure to an advertisement. In this study, pleasant, neutral and unpleasant affective states were induced prior to seeing the advertising message. The results of this study indicated that pleasant and unpleasant affective states had an effect on brand attitudes only when subjects formed an evaluation of the advertised brand during exposure to the advertisement.

The fourth issue is whether affective states have an effect on brand attitudes in an attitude change situation. All of the recent research that has obtained affective state effects on brand attitudes is an attitude formation situation. Previous research (e.g. Janis et.al. 1965) has found attitude change effects with different affective states, however, these studies contain methodological flaws. Consequently, it still is necessary to demonstrate unambiguously that affective states can have an effect in an attitude change situation.

A fifth issue concerns possible differences in effects if the affective state is induced prior to seeing the advertising message or during the message. These differences would be analogous to whether the affective state was induced by the program content prior to the advertisement or whether the affective state was induced by the advertisement. As mentioned previously, Srull (1984) found that when the affective state is induced prior to receiving the advertising message, the affective state has an effect only when subjects form an evaluation of the brand during exposure to the message. It is hypothesized here, that if the affective state is induced during exposure to the message, it will have an effect regardless of whether or not a brand attitude is formed during exposure to the advertisement. Under these conditions, the affective state will become linked to the brand in memory. Consequently, when this attitude is formed at a later point in time, the affective state will still have an effect. As the time period between exposure to the advertisement and the formation of the attitude increases, however, these effects might be expected to weaken since it is generally believed that affective states induced by recalling a particular event where that affective state was present, will be weaker than the affective state that occurred at the time of the event.

The sixth issue concerns the effect of different types of affective states. All of the previous research examining the effects of affective states on brand attitudes in an advertising context has induced either a pleasant or unpleasant affective state. However, as was discussed earlier, pleasantness is only one of the dimensions that has been found to underlie different affective states. It may well be that other dimensions of affective states will also have an effect on brand attitudes, purchase behaviour, or the evaluation of a product usage experience. This will be more likely to occur if it is found that affective states formed during exposure to an advertisement continue to have an effect even if the subject did not form an evaluation of the brand during exposure to the advertisement. It is also hypothesized that if these other dimensions have an effect, they are most likely to occur at the point of purchase or in the evaluation of the usage situation. In addition, it is hypothesized that if the different dimensions of affective states have an effect, these effects will be very product class specific.

The final issue concerns the differential effects of attitudes with a strong cognitive base and attitudes created through pure affect. Theoretically, we can now construct the same attitudes, in terms of valence, based on either product information or affective reactions. These latter reactions may be created either through the creation of an affective state during exposure to the advertisement or by using affect inducing non-informative photographs in the advertisements (e.g. Mitchell 1985). The issues here involve potential differences in the stability of the attitudes that are formed and differences in the attitude-behaviour relationship. Here, it might be hypothesized that attitudes with an informational base will be more stable, but have a weaker attitude behaviour relationship.

Discussion

In this paper, I have provided reasons why it is important to understand the effect of 'feeling' advertisements and briefly outlined some important theoretical issues

concerning affective states that are critical in developing theoretical models of how 'feeling' advertisements may work. In addition, a number of important issues were presented surrounding the effects of 'feeling' advertisements.

A number of problems should also be pointed out that may occur in conducting research in this area. First, it is difficult to develop pure experimental manipulations of affective states. Most manipulations of affective states will also have some other effect on the information processing system. For instance, the use of music in an advertisement to induce a particular affective state may also act as a distractor. This means that there will be alternative explanations for the results that are found. Consequently, it is important to design tightly controlled experiments or use converging operations to rule out alternative explanations (e.g. Gardner, Harke and Erickson 1956). Second, it may be difficult to develop pure manipulations of different affective states since most theories of emotion are cognitive. This means that we need to create different cognitions in order to create different affective states. Consequently, if different effects are found, it will be difficult to determine what is causing the effect, the different cognition or the different affective states. The final problem is that individuals may experience many different emotions at the same time (e.g. Ekman 1984). This will probably be especially true if we use complex stimuli such as advertisements. If we want to investigate the effect of specific affective states with advertising, we will probably need to create advertisements to make sure that we are inducing only the affective state that is of interest. It also means that if we want to measure affective states induced by actual advertisements, we will need to use measurement procedures that are able to measure combinations of emotions.

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CHILDREN'S PURCHASE REQUESTS AND PARENTAL YIELDING:
A CROSS-NATIONAL STUDY

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Abstract

This study explores patterns of children's purchase requests and parental responses to those requests across three cultures. These patterns are found to vary by culture, child's age and amount of television viewing.

Introduction

The purpose of this study is to examine patterns of children's requests for products, and parental reactions to those requests, in three cultures: the United States, Japan, and Great Britain. The topic is an important one, since regulations have been proposed in many countries to affect television advertising targeted at child audiences. These proposals are based, in part, on concerns voiced by critics and activists that television advertising stimulates children to ask their parents to buy things for them, and that such requests may be dysfunctional for parent-child relations. The basic issue seems to be that, since children have relatively little disposable income, they usually must ask parents to buy things. Television advertising may stimulate children to make more requests than they would absent television advertising, and advertising-engendered requests may be more "intense" than requests which do not result from a child's exposure to advertised products. The frequency and intensity of such requests is thought to lead to a corresponding increase in family tensions when parents--especially those in lower socioeconomic brackets--deny the requests.

In addition to regulatory issues, patterns of children's purchase requests and parental responses would seem to be an important part of children's consumer socialization processes. These processes generally refer to the development of consumption-related knowledge, attitudes and skills, and they are influenced by many factors, including advertising, peers, children's experiences, and parental behavior.

Consumer socialization processes will vary depending on the children's experiences resulting from the pattern of reinforcements as children request products and parents respond to these requests. For example, parents who agree to buy most things their children request probably encourage their children to be attentive to advertising and to request things frequently. On the other hand, parents who routinely discuss children's requests with them may encourage children to develop particular skills in selecting and interpreting product information, and in defining product needs carefully. We also expect consumer socialization processes to differ markedly across cultures, due to differences in the marketing environments, broadcast systems, and most importantly, differences in basic patterns of parent-child interaction.

Previous Research

Research in two areas is pertinent to this study: research on patterns of children's product requests and parental responses, and cross-national research comparing aspects of parent-child interaction which may be related to these request-response patterns. Research in the first area has been conducted in the United States. One diary study found that 3-12 year-olds request an average of 14 products a month, and that mothers most often agree to buy what their children request, although they are more likely to buy less expensive items (such as snack foods) than

more expensive items (bicycles, games, etc.) (Isler, Popper and Ward 1979). Other studies (summarized in Adler et al. 1980) have found that the frequency of children's purchase requests varies with age, product category, and, to a lesser extent, social class. Generally, explicit purchase requests decrease when children approach teenage years. This finding has been attributed to a number of factors, including the increased independent spending power of children as they grow older, and to the fact that older children do not need to make many explicit requests, since their parents know favorite products and brands.

Findings also suggest age-related differences in the kinds of products children request. Food products are requested across age groups, but younger children are more likely to request toys and games, while older children request clothing, records and tapes, and the like (Adler et al. 1980). Some evidence of a link between television viewing and purchase requests has been reported. In one study, heavy viewers of Saturday morning television were more likely than light viewers to report asking their parents to make purchases of both breakfast cereals and toys (Atkin 1975). The correlations between frequency of requests and viewing dropped, but remained significant, when age, sex, race, and scholastic performance were controlled. The same study reported that this effect was especially marked among younger children.

Parental agreement to purchase requested products has been found to depend on the knowledge levels and attitudes of parents, the type of product and its expected use, and seasonal factors. Children of mothers who have a good understanding of nutrition have been found to express fewer preferences and request fewer food products than those whose mothers lack this understanding. This finding could be attributable to the children's feeling that such requests would go unheeded, given their mothers' concern for nutritional factors. Studies have found high levels of yielding (about 70% of the time) for inexpensive products children consume (snacks, cereals), but there is some evidence which suggests that mothers act as gatekeepers for children's cereal requests by limiting choices to a few acceptable brands (Robertson 1979).

Parent-child interaction concerning products is especially high around holidays, particularly Christmas. Yielding levels for relatively expensive products are high--about 40%--during holiday seasons. Research on parental responses to children's requests shows that very few parents simply deny their children requests without an explanation. The most frequently-offered explanations for denial were "expense" and "poor value" in one study.

Research among American families has not explicitly examined more general patterns of parent-child interaction which may underlie patterns of purchase requests and parental responses. Socialization researchers agree that the family unit is the primary agent for socialization among pre-adolescent children. Moreover, evidence suggests that family orientations and behaviors differ markedly across cultures. We believe that three particular aspects of parent-child interaction should be strongly related to patterns of children's requests and parental responses: the degree and nature of affect linking parents and children; patterns of dependence; and types of control mechanisms.

Based on various studies, the primary differences in these three areas of socialization across countries are summarized in Exhibit 1. Regarding affective relations, American families are more likely to be verbal and expressive, while

Japanese families are less likely to express affect verbally, despite the fact that Japanese children are more indulged than children in other cultures (Caudill and Schodler 1973, Conroy et al. 1980). Harmony is stressed in Japanese families (Shigaki 1983), while conflict is expected in American families (Conroy et al. 1980). In contrast, relatively low levels of affect characterize British families, which score lowest on nurturance and warmth.

EXHIBIT 1

A CROSS-CULTURAL COMPARISON OF SOCIALIZATION PRACTICES

Socialization Variables	U.S.	England	Japan
Parental warmth	high	low	high for mothers; low for fathers
Parental control	low	high	high
Parent-child contact	high	low	high
Association with peers	medium	high	medium
Time child spends alone	low	high	medium

Sources: Devereux (1970); Fischer (1970); Condon and Saito (1974).

Regarding dependence, American families seek to encourage children to be independent and to "stand out" from the crowd; in contrast, Japanese children are encouraged to "stand in" with culturally-defined groups and lifelong emotional dependence on the family is encouraged (Weisz et al. 1984). Among British families, independence is stressed, and British children come to identify with peer groups at an earlier age than children in the other cultures (Devereux et al. 1969, Devereux 1970).

Finally, families in the three cultures differ in the extent and nature of control exerted. American families are more likely to use psychological rewards and punishments, and to employ guilt-inducing methods (Devereux et al. 1969). Japanese families are least likely to employ direct physical punishments and guilt-inducement. Rather, Japanese parents rely on persuasion and reasoning (Conroy et al. 1980). One author notes that American children are often punished by forced realignment with the family (being "grounded"), while an extreme punishment in a Japanese family might be to lock the child outside the house (Weisz et al. 1984). British families are unlikely to use guilt-inducing mechanisms, but most likely to employ physical punishments (Devereux et al. 1969).

Hypotheses

Based on these streams of research, and using past U.S. research as a benchmark, we pose the following hypotheses:

H1: Japanese children should make fewer requests of their parents, but their parents should most often agree to buy requested products, compared to children in the U.S. or in Britain.

More than American or British children, Japanese children are encouraged to be respectful and harmonious in the family, and purchase requests may be viewed as "pushy"; however, since Japanese parents are highly indulgent of their children, they should most often agree to buy requested items. (It may be that there is a threshold effect, in that too many requests by Japanese children may be viewed as disrespectful, and threatening to parental authority and family harmony.)

H2: Parental agreement to buy requested products will increase with age.

Children become more skillful in their asking behavior with age: they more clearly define products they want, and probably become more adept at asking for things they want. We expect this skill to develop with age among all chil-

ren, regardless of culture.

H3: Heavy-viewing Japanese and British children should request more products than heavy-viewing American children.

American children are more likely to be exposed to television advertising than their Japanese or British counterparts, since commercial broadcast is far more prevalent in the U.S. than in Japan or Britain. Heavy television viewing has been related to frequency of requests (Atkin 1975). However, American children should be satiated with television commercials, compared to children in the other countries. Television advertising may still be relatively novel to Japanese and British children. Consequently, we expect heavy-viewing children in these countries to be more affected by television advertising, and to make more requests than heavy-viewing American children.

H4: Parental responses of "discussion" and "negotiation" should decrease with age.

Research among American children suggests that parents of young children--up to about age seven--are more likely to discuss consumption issues with their children than are parents of older children. For older children, parents most often expect direct and indirect modelling to affect children's consumer socialization. Although there may be some differences in the degree of "expressiveness" among families in the three cultures studied here, we do not expect differences by country in the relative incidence of negotiation and discussion as children mature.

Research Design and Measures

Mothers kept diaries to record one child's purchase request behavior and parental responses over a two-week period in the spring and summer of 1984. A separate diary was maintained to record the focal child's TV watching behavior, and a separate questionnaire was administered at the end of the two-week period to collect demographic information and other data relating to parent and child attitudes and behaviors.

The sample consisted of 267 families in three countries: the U.S. (n=84), Japan (n=118) and Great Britain (n=65). All were two-parent, middle- to upper-middle class households with 2-4 children present. In each family, one child's behavior was observed. The age ranges were 3-4, 5-7 and 8-10 years old, roughly corresponding to pre-operational and concrete operational stages of cognitive development.

Measures and procedures were based on an earlier diary study among American children (Isler, Popper and Ward 1979). Japanese and British colleagues served as study coordinators in their own countries. The diaries were translated into Japanese, and selected portions back-translated; the British questionnaire was adapted slightly. Mothers were asked to record each purchase request made by the child, and to indicate the nature of responses via closed-end items. Measures included how children asked, and, of interest in this study, how parents responded: positive yielding includes "unqualified yes," "yes with discussion," and "yes, with negotiation." Negative responses include "absolute no," "no with discussion," "no with negotiation," and "deferment." Children's television viewing was measured in terms of total minutes of commercial broadcasting recorded over the two-week period by the parent completing the diary.

Results

We hypothesized that Japanese children should make the fewest requests of their parents, but their parents should most often agree to buy requested products, compared to children in other countries.

Purchase request levels in the three countries were compared by a one-way analysis of variance, which revealed a significant main effect by country ($p < .05$). Mean requests for the total sample were 8.81 requests over the study

period in Japan, 19.17 in the U.S. and 14.66 in Great Britain.

Regarding parental agreement to buy requested products, results were as hypothesized: Japanese parents agreed to their children's purchase requests more than U.S. or British parents. This relationship holds when total number of requests is controlled by assessing agreement to buy as a percentage of total requests (see Table 1). The data indicate that Japanese parents are particularly likely simply to agree to buy ("unqualified yes") compared to parents in other countries, while the incidence of discussion and negotiation are roughly comparable across the three countries.

TABLE 1
PARENTAL AGREEMENT TO BUY AS A
PERCENTAGE OF CHILDREN'S TOTAL REQUESTS

Response	Age	U.S.	Japan	Great Britain	All Countries
Unqualified Yes	3-4	29.3	45.1	21.7	33.0
	5-7	32.9	52.0	36.1	38.8
	8-10	35.8	58.6	35.7	41.5
Yes, with Discussion	3-4	14.9	20.6	15.4	17.1
	5-7	11.3	13.4	16.2	13.2
	8-10	17.1	15.9	16.6	16.7
Yes, with Negotiation	3-4	2.6	2.5	3.0	2.6
	5-7	5.8	1.3	4.3	4.2
	8-10	3.9	1.2	3.0	3.0
Total "Yes"	3-4	46.8*	68.2	40.1	52.7
	5-7	50.0	66.7	56.6	56.2
	8-10	56.8	75.7	55.3	61.2
Refused to Buy	3-4	53.2	31.8	59.9	47.3
	5-7	50.0	33.3	43.4	43.8
	8-10	43.2	24.3	44.7	38.8

*To be read: Of total requests made by 3-4 year-old U.S. children, parents agreed to buy in response to 46.8% of the child's requests.

The second hypothesis was that parental agreement to buy would increase with age, and this relationship would hold across cultures. Data in Table 1 show results in the expected direction. Differences between agreement to buy products requested by youngest children (3-4 years old) and oldest children (8-10 years old) are as hypothesized, and significant in each country ($p < .05$).

Greater parental agreement to buy products which older children request may reflect the fact that they make fewer, and perhaps more selective requests. Also operating may be the "passive dictation" phenomenon (Wells 1966), i.e., that parents come to know children's favorite products and brands, so that older children do not have to make requests as frequently.

The third hypothesis was for differential effects of "heavy viewership," since American children may be satiated with commercials, while British and Japanese children may find them more novel, and consequently, may be more sensitive to increased exposure to commercials.

In Japan, only 3-4 year-olds show significant differences in frequency of requests as a function of amount of commercial viewing, and in Great Britain, only 5-7 year-olds show such effects. It may be that, in Japan, the higher levels of requests among youngest children reflect the greater propensity of Japanese parents to yield to young children's product desires, while in Great Britain, the failure to find differential effects may simply reflect the tendency for British children to become more peer-centered, and less family-centered, than children in other countries (Devereux 1969).

TABLE 2

MEAN REQUESTS BY HEAVY AND LIGHT VIEWERS BY COUNTRY AND AGE

Country	Age	Purchase Requests over 14 Days		
		Heavy Viewers	Sig.	Light Viewers
U.S.	3-4	20.2	-	20.6
	5-7	19.3	-	18.2
	8-10	22.9	<.05	12.4
	Total	21.3	<.05	17.7
Japan	3-4	12.6	<.05	8.0
	5-7	10.7	-	9.3
	8-10	5.9	-	6.7
	Total	9.6	-	8.0
Great Britain	3-4	22.0	-	17.9
	5-7	22.4	<.05	11.4
	8-10	12.8	-	9.6
	Total	17.1	-	13.2
Total	3-4	15.3	-	14.5
	5-7	15.7	-	13.4
	8-10	13.5	<.05	8.8
	Total	14.6	-	12.6

The final hypothesis was that parental responses involving "discussion" and "negotiation" should decrease with age. Previous research among American children has shown that verbal interaction is more prevalent with younger children, while older children should be expected to understand parental reasoning, and to be responsive to more indirect cues, viz., modeling parental consumer behaviors (Ward, Wackman and Wartella 1972).

Results are shown in Table 3. While ANOVA results indicate age-related differences in the uses of discussion ($p = .006$) and negotiation ($p = .02$), significant differences were found only between 3-4 and 8-10 year-olds in Japan for discussion ($p = .03$) and for negotiation ($p < .01$).

TABLE 3

MEAN USE OF "DISCUSSION" AND NEGOTIATION" BY PARENTS IN RESPONSE TO CHILDREN'S REQUESTS, BY AGE AND COUNTRY

Country	Age	Mean Responses over 14-Day Period	
		Discussion	Negotiation
U.S.	3-4	8.1	.71
	5-7	6.1	1.5
	8-10	5.8	1.1
Japan	3-4	2.6	.80
	5-7	1.7	.66
	8-10	1.2	.13
Great Britain	3-4	6.8	.81
	5-7	5.2	1.0
	8-10	3.7	.65
Total	3-4	4.9	.78
	5-7	4.1	1.1
	8-10	3.2	.53

Although we did not hypothesize differences between countries in the use of "discussion" and "negotiation", results in Table 3 suggest that Japanese parents are less likely than American and British parents to use these verbal responses.

Conclusions

Previous research among U.S. children has shown that many aspects of consumer socialization vary strongly by age. The present findings indicate that these age differences hold across cultures, and that culture itself is an impor-

tant variable determining differences in parent-child interaction regarding consumption. Literature contrasting parent-child relationships in different countries suggests that Japanese parents are more indulgent of their children, and our data support this notion, and suggest that one form of indulgence is to agree to buy things which children request. Another age-country interaction is seen in the incidence of negotiation and discussion. While the trend across countries is for less negotiation and discussion among older children, American parents are more likely to use these responses than are British and Japanese parents.

On the other hand, some aspects of parent-child interaction involving consumption appear to hold across cultures: our data indicate that parents of older children are more likely to agree to buy requested products, and this holds for all countries in our study.

In future research, we plan to analyze some further determinants of patterns of parent-child interaction within and across cultures. We gathered data concerning general aspects of parent-child interaction, and these measures should add to our understanding of the determinants of children's request behavior and parental responses in different country settings.

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CHILDREN'S RELATIONSHIPS BETWEEN REPETITION AND AFFECT

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Abstract

In this paper an attempt will be made to gain a better understanding of children's affective reactions to brandname repetition. For this, reference will be made to differences in cognitive development. These differences are presumed to affect the conditions that are deemed necessary for positive repetition-affect relationships to take place. One of these conditions is specified by the functional exposure hypothesis. Empirical evidence is presented suggesting that age does influence the type of relationship between repetition and affect.

Introduction

Over the years, repetition-affect phenomena have received a great deal of attention in the psychological and consumer behavior literature. For a recent and comprehensive review on these so-called 'mere exposure phenomena' see Obermiller (1985). Empirical results that were reported in the literature were obtained almost exclusively with adult subjects. It seems justified, however, not to limit research to adult subjects only, as one may assume that also children are frequently and repeatedly exposed to marketing stimuli. For example, when considering the case of brandnames as one type of these stimuli, Atkin and Heald (1977) calculated brandname exposure to be an average of 3.65 times per children's television commercial. In order to get an impression of the total number of children's brandname exposure opportunities, this figure would have to be multiplied by the number of commercials over time and supplemented with brandname exposure through other media. For adults, in (dated) literature some estimates of the number of exposures to marketing stimuli are presented (e.g. Advertising Age, 1970; Bauer and Greyser 1968, Ebel 1957), but for children no such estimates are known to be available. Anyway, apart from the practical significance and methodological problems of such figures, we may safely assume that the number of children's brandname exposures is impressive.

The few studies that were reported on repetition-affect relationships of non-adult subjects produced conflicting results (e.g. Cantor 1968, Heingartner and Hall 1974). Reviewing the available evidence, Rossiter (1980) concludes that a persuasive effect of brandname repetition within a children's commercial is unlikely (p.177). However, one may argue that in its effect upon behavior, the issue of repetition within commercials is less critical than the number of repetitions over commercials. The present paper will address the latter issue, thus not confining itself to the effect of the number of repetitions per advertising message.

The 'mere exposure' hypothesis (Zajonc 1968) states that the mere repeated exposure of an individual to a stimulus object enhances his/her attitude toward it. By 'mere exposure' is meant: a condition which just makes the stimulus accessible to the individual's perception. To put it briefly, empirical studies on exposure effects produced conflicting results. Also, the mere exposure hypothesis directly contradicts the existence of a different phenomenon well established in the literature: the preference for novel as opposed to familiar stimuli (e.g. Berlyne 1980, 1970).

Recently, the 'functional exposure' hypothesis was introduced (Poiesz 1983, and elsewhere these Proceedings) which attempts to provide a consistent explanation for the seemingly contradicting empirical results. This

hypothesis states that positive repetition affect relationships will occur only and to the extent that repetition, or its psychological counterpart: familiarity, may be considered psychologically functional.

The function of familiarity is to be understood as its possibility to help a person reach a desired psychological state. In an ambiguous experimental situation, for example, this would be the possibility to reduce subjective uncertainty - but only to the extent that uncertainty is associated with apprehension as an undesired psychological state. Whether uncertainty will be associated with apprehension can only be ascertained by the simultaneous consideration of the person, the object(s) and the situation involved. If uncertainty/apprehension is reduced by the more familiar stimuli, these stimuli will be evaluated more positively. As another example take an ambiguous laboratory consumer choice situation in which Ss are requested to make a selection out of a number of alternative brands. Also here, the function of the familiarity of brandnames is dependent upon the specific combination of subject, (choice-)objects and situation. If Ss perceive little risk in the choice situation, familiar stimuli can not be functional by reducing that risk. Therefore, the more familiar stimuli will not be evaluated more positively. If perceived risk increases, so does the function of familiarity. However, if perceived risk is high, also the need for choice-relevant information is high. As mere brandname familiarity itself is not choice relevant, its functionality will be low under conditions of high perceived risk. Therefore, in a functional exposure interpretation it is expected that there will be a preference for familiar brandnames only in a condition of intermediate perceived risk and not/less under conditions of low and high perceived risk. The functional exposure hypothesis differs from other uncertainty reduction hypotheses by its emphasis on the function of familiarity as determined by the interaction of person, object and situational variables. According to the functional exposure hypothesis uncertainty reduction alone is neither a sufficient nor a necessary condition for positive repetition-affect relationships to occur.

The empirical evidence supporting the functional exposure hypothesis is of two types (see Poiesz 1983). The first type of evidence was obtained in the social psychological laboratory. Empirical results supported the hypothesis that positive repetition-affect relationships will be found only in task situations in which subjects are uncertain (and apprehensive) with regard to their personal performance on a task. The second type of evidence concerned laboratory subjects' choice behavior in a 'consumer task'. Some support was found for the hypothesis that under conditions of perceived risk (as the consumer behavior counterpart of the concept of subjective uncertainty/apprehension) more familiar brandnames are preferred to less familiar brandnames, and that this preference will be absent/smaller under conditions of high and low perceived risk.

The functional exposure hypothesis does imply some (pre- or sub)conscious cognitive activity. First, the task demands must be well perceived and understood. Second, the assessment of functionality requires some cognitive activity by which familiarity, as a relevant stimulus characteristic, is related to the requirements of the task.

In the developmental literature, strong evidence is provided for the existence of age differences with respect to the conditions stated above. With regard to the first condition, older children (13, 14 years of age

¹The author wants to thank Jan van Gerwen for his valuable contributions.

and up) have been reported better capable of selecting useful (i.e. functional) information from stimulus components and of tailoring attention to task demands (e.g. Roedder 1981, Hale 1979, Flavell and Wellman 1977, Ross 1976, Stevenson 1972).

Regarding the second condition, Piagetian theory and research (see e.g. Chestnut 1979 for a reconsideration of Piagetian theory in children's consumer behavior research) suggest that children of about 14 years of age may be expected to differ from younger children (up to about age 12) in their capacity to cognize about the significance or functionality of events. This should also hold for events taking place in an experimental setting such as the occurrence of exposure frequency differences. Also, the older children are better capable of thinking in terms of self-generated hypothetical propositions, of theorizing about new relationships, and of thinking abstractly (see Roedder 1981). Combining the evidence we may expect the probability of observing positive repetition affect-relationships among experimental subjects in an ambiguous, apprehension-generating situation to increase with age (in the range from 9 to 14 years of age). It is hypothesized, therefore, that children of 13/14 years of age will show more positive repetition-affect relationships in such a situation than children of 9/10 years of age. Parenthetically, reference is made here only to levels in the developmental trend, and not to a strict stage theory of cognitive development. In the developmental trend, levels have been identified that are supported by research and theoretical consensus (Fischer and Silvern 1985). For sake of clarity, the abovementioned hypothesis relates to the difference between age levels on the basis of a global distinction with regard to cognitive development. The hypothesis does not pertain to any particular single aspect of cognitive development as a determinant of the expected effect.

Experiment 1

Method. Subjects: 70 children of 9/10 years of age and 76 children of 13/14 years of age (resp. primary and secondary school) participated in the present experiment.

Stimulus material. The stimuli were 6 slides, each showing the set of eyes of 12 year old children. This type of stimulus was chosen for to exclude the possibility that the nature of the stimulus, such as, for example, its subjective complexity, would interact with age level. The 6 stimuli were selected out of a large set of eye pairs on the basis of their relative affective neutrality which was established by a small group of children at the two age levels; these children did not participate in the experiment. Slides had a standard format, eye pairs had been photographed from a standard distance and only eyes were shown (no hair, etc.). The photographed children all looked straight in the camera and had a "neutral" facial expression when being photographed.

Equipment. The equipment consisted of a Kodak carousel slide projector, a projection screen placed in front of the subjects, a white instruction board with text in brown. The instruction could be easily read by all subjects.

Design and procedure. The design involved two experimental groups of subjects distinguished on the basis of age, and a control group for each of the age levels. The experiment was carried out at the schools of the subject groups, in the respective classrooms. Per condition, subjects participated collectively. Each of the two experimental groups was confronted with the procedure typically employed in repetition-affect studies. That is, there was no explicit task related instruction prior to the exposure frequency manipulation. The affect rating of all stimuli immediately followed this manipulation. For the two control groups, there was no exposure frequency manipulation and subjects in these groups rated affect associated with the various stimuli on the basis of a single exposure to each stimulus only.

Instructions. 'In a few moments I will show you a number of slides of the eyes of children. Later on I will explain you the reason why. The eyes are those of children of the ... school in Eindhoven (a nearby city - note by the author). These children are in the same grade and are of your age. Please look at the screen now'. Subjects in all conditions received these instructions. It was assumed that the combination of the absence of unambiguous instructions and the exposure of unknown stimuli would generate apprehension, an assumption proved valid in comparable experimental situations (Poiesz 1983). A particular stimulus was shown 0, 1, 2, 5, 10 or 20 times. Subjects in the control conditions saw each stimulus once only. Frequencies were intermixed, so that each stimulus did not follow itself. Stimuli were exposed for 2 seconds each. Interstimulus intervals were 4 seconds. Because of practical constraints, the stimulus presentation and the affect rating had to take place for all subjects per condition simultaneously. As a result, the order of the frequency levels in the rating phase was fixed: 5, 0, 20, 1, 10 and 2 (exposure time: 2 seconds each). Stimuli were rated on the 7-point "smiling-faces" scale (Jolibert and Baumgarten 1979). Subjects were instructed how to interpret the scale. They were requested to 'indicate how nice you think the child is whose eyes you just have seen'.

Results and discussion. Assuming psychologically equal intervals at the exposure frequency continuum, linear trendscores were calculated per condition (see Winer 1971). This was also done for the two control conditions, although, in fact, the equal exposure frequencies in these conditions can not be subjected to a trend interpretation. However, for reasons of comparison, trendscores could be calculated without violating analytical rules. A linear trend analysis showed an unexpected significant interaction between the base lines of the two control groups ($F_{1,87} = 15.95, p < .01$), implying that, apparently, stimuli were not equal in affective neutrality and differing for both groups. Consequently, a direct comparison between the two age groups was not possible. The only prudent comparison that could be made was, per age level, the one between the experimental repetition affect relationship and the respective baseline. Then, for children of both age groups, it was observed that repetition-affect relationships differed significantly from the baselines. However, for the younger children the trend of the experimental group was negative relative to its baseline ($F_{1,68} = 7.04, p < .01$), while for the group of older children this trend was positive relative to its baseline ($F_{1,74} = 5.08, p < .05$). Even though these results confirmed the hypothesis - the younger children (9/10 years of age) would show less positive repetition-affect relationships than children of 13/14 years of age - the interpretation is hampered by the significant difference between the control groups of both age levels and by limitations in the set-up of the present experiment: it did not allow for a counterbalancing of stimuli over stimulus repetition levels. Nor could the order of the stimuli in the rating phase be varied. Therefore, a second experiment was set up, in which procedural flaws of the first study were eliminated.

Experiment II

Basically, the theoretical background of Experiment II was identical to the one of the Experiment I. Again, two age groups were confronted with a manipulation of exposure frequency, and it was hypothesized that the repetition-affect relationship of children 13/14 years of age would be more positive than the relationship of children 9/10 years of age.

Method. Subjects: 60 children participated in this experimental study. 30 Children of about 9/10 years of age, and 30 children of about 13/14 years of age (primary and secondary school, respectively).

Stimulus material. For sake of simplicity, in this experiment a less 'multidimensional' type of stimulus was used than in the previous experiment. Stimuli were 6 nonsense words, formed by four consonants and one vowel.

These words has been selected out of a set of 33 words on the basis of their affective neutrality for both age levels. This was done in a study, prior to the actual experiment, with a group of 13 children per age group. These children evaluated stimuli on the "smiling faces" scale referred to earlier. The selected words were DONJW, VINCB, RETBG, SBETG, SGLIB, and FUPKZ. The stimuli were presented on slides, all in the same format.

Equipment. Employed were a KODAK caroussel slide projector and a projection screen, placed at a distance of about 15 ft. from the subjects.

Procedure. In this experiment, subjects participated individually. After entering the experimental room, the subject was requested to sit in front of the screen. The standard instruction was: 'In a few moments, I will show you a few slides. Later, I will explain you why. Each slide shows the name of a child. The names are all unknown to you - you probably never saw them before. Now, look at the screen and I will show you the slides. Please watch them closely'.

During the stimulus presentation, each stimulus was exposed for two seconds. Interstimulus intervals were 4 seconds. The stimuli were presented in random order, but so that each stimulus did not follow itself. A particular stimulus was shown 0, 1, 3, 5, 10 or 15 times. The exposure phase was followed immediately by the rating phase, in which stimuli had to be rated one by one on the 7-point "smiling faces" scale.

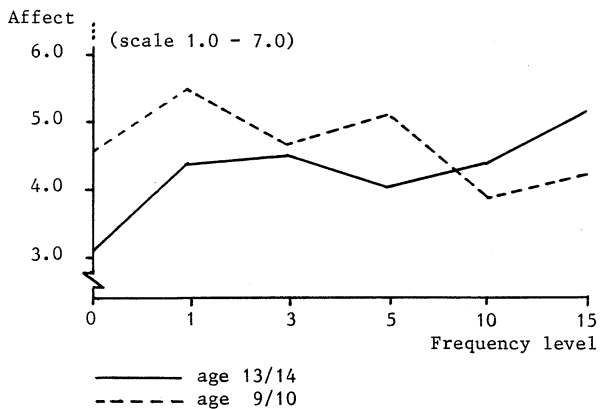
Subjects were instructed how to interpret the scale. In the rating phase, repetition levels were rotated over the exposure positions 1 through 6.

Results. Table 1 and Figure 1 show the average affect score per exposure frequency level and per age group.

TABLE 1
MEAN AFFECT SCORES PER AGE LEVEL AND PER FREQUENCY LEVEL (N=30 PER AGE LEVEL)

Frequency level:	0	1	3	5	10	15
Age 9/10	4.57	5.47	4.67	5.07	3.93	4.23
Age 13/14	3.10	4.37	4.50	4.03	4.40	5.17

FIGURE 1
MEAN AFFECT SCORES PER AGE LEVEL AND PER FREQUENCY LEVEL



The results indicate that there is a difference between the age groups with regard to the slope of the repetition-affect relationship. The tendency for the older children is positive, and for the younger children negative. The difference is significant ($F_{1,58} = 10.28$, $p < .005$), confirming the hypothesis.

General discussion

The results of the two experiments combined provide support for the argument that cognitive development differences co-determine differences between repetition-affect relationships.

The results may be worthwhile in that they suggest that

age level (level of cognitive development?) may have an autonomous influence on the repetition-affect relationship.

Several critical questions remain to be answered, however. One of these questions is whether age related differences exist with regard to the perception of the experimental situation. A second question is whether other age related differences than cognitive development differences can be held responsible for the obtained results. For example, a point that received possible too little attention in the reported experiment is the one concerning the subjective uncertainty/apprehension assumed to be generated by the experimental situation. Yet another question concerns the interpretation of the slopes (positiveness/negativeness) of the observed relationships. Note that no explicit hypotheses were formulated on the slope of the relationship of each of the group - only on the nature of the difference between the two. The average relationship of the older children was found to be more positive than that of the younger children, as expected. For the latter group, the relationship was negative, however. A possible explanation for this effect is that if the more familiar stimuli are not psychologically functional for the younger children, the repeated exposure of these stimuli may generate boredom or even irritation. This would have expressed itself in more negative affect towards these more familiar stimuli.

It would be premature to consider the external validity and significance of these findings, considering the artificial nature of the controlled experimental situation in which they were obtained and the importance of yet unanswered questions. However, two points suggest the possible relevance of additional research. First, although the stimuli employed in both studies were not marketing stimuli in the strict sense, there may not be a fundamental difference between the nonsense words as used in the second experiment and real life brandnames. Second, even though the experimental situation with which subjects were confronted here was not a consumer choice situation, the behavior in both situations may often be conceived of as problem-solving behavior involving perceived risk or uncertainty as conceptualized here.

Converging the evidence on adult repetition-affect relationships and the obtained (limited) evidence on children's repetition-affect relationships, three hypotheses may be formulated:

- 1) Children of age 13/14 on (including adults) will show positive affect towards frequently exposed brandnames in buying situations with a moderate degree of perceived risk (which is to be interpreted as determined by the interaction of consumer, product and situational variables).
- 2) Children up to age 9/10 will show no positive affect towards frequently exposed brandnames in buying situations with a moderate degree of perceived risk.
- 3) Children (and adults) of all ages will show no positive affect towards frequently exposed brandnames in buying situations with either a very high or a very low degree of perceived risk.

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BRAND FAMILIARITY AND ADVERTISING:
EFFECTS ON THE EVOKED SET AND BRAND PREFERENCE

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Introduction

It is a well known fact that brand awareness, or familiarity, and brand choice are highly correlated (Axelrod 1968; Haley and Case 1979). This relationship undoubtedly reflects the fact that choice increases awareness, if for no reason other than people will be exposed to the brands they choose more often than brands they leave on the shelf. Of greater interest is the proposition that brand awareness plays some causal role in the choice process. This is implied by the classic hierarchy of effects model of advertising effectiveness (Lavidge and Steiner 1961; Palda 1966) as well as the low involvement hierarchy proposed by Ray, Sawyer, Rothschild, Roger, and Reed (1973). In this paper we explore the theoretical and empirical bases of this proposition.

The Brand Familiarity Construct

In order to facilitate the present discussion, we will adopt a very particular working definition of brand familiarity and examine its viability.

DEFINITION. Brand familiarity is a unidimensional construct that is directly related to the amount of time that has been spent processing information about the brand, regardless of the type or content of the processing that was involved.

Thus, brand familiarity is the most rudimentary form of consumer knowledge. Moreover, this definition specifically assumes that brand familiarity is context-independent and is affected in more or less the same way by advertising exposures, purchase behavior, and product consumption or usage. This seems to be the simplest definition possible and is therefore a reasonable starting point for our investigation. In the remainder of this paper we examine two principal ways in which brand familiarity might affect brand choice: (1) by increasing the likelihood that the brand is included in the evoked set, and (2) by contributing to brand preference.

Brand Familiarity and the Evoked Set

Wright and Barbour (1975) list three stages of a consumer decision - defining the pool of alternatives, reviewing relevant information in memory and applying a decision rule. The pool of alternatives has been referred to as an evoked or consideration set (Howard and Sheth 1969; Urban 1975). Evidence suggests that while consumers may have knowledge of a large number of brands in a product class, they may consider only a few of these for purchase on any particular occasion Bettman and Park 1980; Lussier and Olshavsky 1979). The composition of such an evoked set has important influences on subsequent probabilities of brand choice. First, a brand that is not considered cannot be chosen. Further, probability of choice is a function of both the number and nature of the other brands included in the evoked set (e.g., agenda effects, Tversky 1972). It is, therefore, important to examine in some detail factors that determine inclusion of a brand in the consumer's evoked set.

Brands can be included in an evoked set either by being recognized in the environment (in the case of a stimulus-based choice) or by being recalled from memory (in the

case of memory-based choice; Bettman 1979; Lynch and Srull 1982). In both instances, the cues available to the consumer could determine the set of brands considered for choice. The traditional role ascribed to brand familiarity in such instances may be summarized in the following propositions:

PROPOSITION 1: In stimulus-based choice situations, brand familiarity enables quicker and easier perceptual identification of a brand and, therefore, facilitates inclusion in the evoked set.

PROPOSITION 2: In memory-based choice situations, brand familiarity increases the probability of a brand being recalled and, therefore, facilitates inclusion in the evoked set.

In the following sections we shall examine these propositions in greater detail.

Brand Recognition

Simple item familiarity, or strength, is no longer widely accepted as an explanation of recognition in the typical list learning tasks frequently studied by psychologists (see Crowder 1976, ch. 11; Mandler 1981). However, it can be argued that this is because the task requires items to be discriminated on the basis of the context at the time of encoding (i.e., the list in which they occurred). This task does not seem especially relevant for determining which brands will be included in a stimulus-based evoked set. More directly relevant are perceptual identification tasks, such as reading words and naming objects. For instance, word recognition tasks typically present words in some perceptually degraded fashion (e.g., visually masked, extremely brief duration, with missing letters, etc.) and require subjects to read the word aloud or simply indicate whether, or not, it is an actual English word. It seems plausible that the perceptual processes involved in such tasks are quite similar to those involved in quickly scanning a store shelf for brands to consider.

One of the most influential accounts of word recognition has been the logogen model of Morton (1969). This model originally assumed that words are represented by entities, called "logogens," that correspond to the meaning constituents of words (i.e., morphemes). The appropriate logogens must be activated in order for a given word to be identified and each activation lowers the threshold for subsequent activations. These lowered thresholds were intended to account for the fact that previous exposures to a word facilitate later word recognition (referred to as a "priming" effect). Thus, the logogen model provides a natural theoretical basis for brand familiarity on perceptual identification.

A number of recent empirical findings have questioned the validity of the logogen model, however. Morton (1979) found that facilitation occurred only at input. Specifically, if a subject was given the definition of a word and asked to produce the word in response, this did not facilitate later recognition of the word when visually presented. Further, he found that priming in the auditory modality did not generate facilitation in the visual modality. Morton (1979) extended his model by separating the input and output systems and by hypothesizing that the logogens for each modality were independent and distinct.

Recent research has found, however, that priming effects can be even more context-specific. Of special interest is the finding that changes in the surface features of the stimulus, such as upper vs. lower case letters or identical vs. similar pictures of the same object, can significantly reduce the effectiveness of priming (Jacoby and Brooks 1984). This effect is most evident when initial processing is merely perceptual and does not involve naming the stimulus. We suspect that such merely perceptual processing is also more characteristic of advertising exposures. Some authors have interpreted this evidence as supporting the idea that the cognitive procedures in operation during encoding form some part of the memory trace (see Jacoby and Brooks 1984; Kolers and Roediger 1984; Tulving 1984, 1985). Thus, advertising exposures will be most effective if the viewer engages in the same mental operations that will be required at the time of purchase (e.g., comparing brands, recognizing packaging and store displays, etc.).

The above information should not be overinterpreted. There is still considerable evidence that context independent familiarity can affect perceptual identification (again see Jacoby and Brooks 1984). What has been learned from recent research is that this is not the only, or even dominant, source of familiarity effects on perceptual identification. In fact, context independent familiarity may simply be the aggregate result of many context-specific traces. Such context-specific traces may correspond to lower-order logogens (Morton 1979), episodic memories (Jacoby and Brooks 1984; Tulving 1984, 1985), or activation patterns in a distributed memory network (McClelland and Rumelhart 1985).

Brand Recall

Most current accounts of recall postulate that information in memory is accessed via retrieval cues (Crowder 1976). Such cues may originate in the immediate environment, or they may be internally generated by the individual. In general, two types of retrieval cues could render a brand accessible on a particular choice occasion: (1) specific attributes or benefits, and (2) product class cues.

Specific attributes or benefits. Recent research on the usage situation suggests that a large percentage of variance in choice may be accounted for by considering the situation in which the product is purchased or consumed (e.g., Belk 1975; Day, Shocker and Srivastava 1979; Ptacek and Shanteau 1979). Currently, usage situations are believed to influence consumer choice by altering the importance weights of attributes in a multiattribute framework (e.g., Miller and Ginter 1979). In addition to affecting attribute utilities the usage situation exerts an important influence on choice by providing retrieval cues, specific to the situation. A consumer faced with product choice in a usage situation makes use of these retrieval cues to recall and consider brands strongly associated with them. Thus, for the product class of beverages, the usage situation of "lunch" may render the attributes "light" and "refreshing" salient, while the usage situation of "a wild party" may render "mixable with alcohol" and "popularity" salient. In both situations, beverages high on these attributes will be retrieved and included in the evoked set.

As this discussion suggests, whenever situation specific cues trigger retrieval, a general familiarity with the brand may not be as important as familiarity with the brand in that situation. A beverage that is not "light and refreshing" may never be recalled in the context of lunch, although the consumer may be very familiar with it. On the other hand, a beverage with which the consumer is less familiar may have a higher probability of being recalled merely because it is perceived as being light and refreshing. As discussed earlier, the probability of retrieval will then have important influences on the probability of final choice. In many instances then, situation-specific familiarity may exert a greater

influence on probability of choice than brand familiarity in general.

In an exploratory study subjects were given usage situational cues and asked to list the brands that came to mind, within specific product classes. Low correlations were obtained for probability of brand recall across situations, specially when the most salient or familiar brands were excluded from the analysis. The study was replicated across a number of product classes. While one or two major brands (e.g., MacDonalds in the case of restaurants, Coke in the case of non-alcoholic beverages, or Burdines and Sears in the case of stores), tended to be recalled consistently whenever the product class was mentioned, probability of recall of other brands tended to be driven by situational cues. This suggests that except in the case of extremely familiar brands such as Coke, overall brand familiarity may influence recall less than context-specific considerations. Further work is in progress to study the important role of contextual cues on choice (Nedungadi 1985).

Brand familiarity, devoid of context may still play an important role in retrieval in a number of instances. This is most certainly the case in product classes where the usage-situation does not account for large amounts of variance in choice. In addition, cues other than attributes sought often guide retrieval in a purchase context.

Product-class cues. The product class or subcategory to which the brand belongs could serve as a retrieval cue in many instances. A consumer may seek a "fruit juice" to have with a meal or a "soda" to mix with alcohol. Research on categorization processes has established the importance of "prototypicality" as a determinant of the strength of association between a category concept and members of the category (e.g., Rosch 1975; Smith & Medin 1981). Prototypicality of a brand is a measure of how representative the brand is of its product category. Operationally, prototypicality is measured by individuals' ratings of how "good an example" they consider the object of a category. When the product class serves as a retrieval cue, brands that are prototypical are likely to be recalled faster and more often (Nedungadi and Hutchinson 1985; also see Barsalou 1985; Rosch and Mervis 1975). This should lead to a higher probability of inclusion in the evoked set and probably to higher probability of choice.

Research on typicality has examined the influence of overall familiarity on representativeness. Ashcraft (1978) and Malt and Smith (1982) found that typicality increased as exemplars became more familiar. However, Barsalou (1985) compared the relative effects of overall familiarity (subjective estimates of frequency of encounter across all contexts) and context-specific frequency (subjective estimates of the frequency of category instantiation) information on prototypicality ratings and output dominance (frequency of production) of category members. Frequency of instantiation was found to be a better predictor of both prototypicality and output dominance than overall familiarity, across a large number of categories. In addition, an exemplar's similarities to the "average" and the "ideal" members of the category were found to be independently correlated with both measures.

Brand Familiarity and Preference

This section of the paper will explore two processes by which brand familiarity may directly mediate choice behavior through brand preference formation. The first of these processes is the exposure effect which is directly related to Zajonc's (1968) mere exposure hypothesis. The second of these processes is the frequency effect which is derived directly from the automatic frequency counting mechanism proposed by Hasher and Zacks (1984).

In the present section we explore two propositions related to this thesis:

PROPOSITION 3: Brand familiarity generates a positive affective response to the brand that requires no effortful information processing, only brand perception. This affect may serve as an input to brand choice.

PROPOSITION 4: Brand familiarity can directly mediate choice behavior, but only when mediators which are the product of higher level information (i.e., performance attributes) are not available or cannot discriminate between brand alternatives.

The Exposure Effect

Zajonc (1968) has demonstrated that exposure to a stimulus can enhance the liking for that stimulus independently of cognitive evaluations or contextual associations. Basically, this stream of research has demonstrated that affect is a linear function of the logarithm of exposure frequency (see Harrison 1977). So, as exposure to a brand increases affective reactions to the brand become more favorable.

Zajonc takes the extreme position that the exposure effect can mediate liking without increasing subjective recognition, the perception of being more familiar with the stimulus object. Causal path analyses demonstrating significant mediational effects of exposure beyond subjective recognition (Moreland and Zajonc 1977, 1979) and experimental evidence of the effect occurring without subjective recognition (Wilson 1979) provide the supporting evidence for this position (Wilson 1979). The Moreland and Zajonc research, however, has been convincingly critiqued (see Birnbaum and Mellers 1979) and attempts to replicate the Wilson results have failed (Obermiller 1985).

Thus, while there is strong, consistent evidence of an exposure effect mediated by perceived familiarity with the stimulus, there is contradictory evidence regarding the mere exposure hypothesis. The key point for marketers is that subjective familiarity does mediate the exposure effect (Obermiller 1985; Stang 1975; Moreland and Zajonc 1977) and that brand directed attention without elaboration will generate this subjective familiarity (Obermiller 1985; Greenwald and Leavitt 1984).

Potential Causes of Exposure Induced Preference. The cause of the exposure effect is likely to be closely linked with the concept of stimulus habituation (Harrison 1977; Zajonc 1968, 1980; Berlyne 1970). Essentially, novel stimuli generate high levels of arousal that trigger an avoidance response. Repeated exposure decreases arousal, facilitating stimulus habituation, affect formation, and an approach tendency. Therefore, the exposure effect may be considered a very basic, adaptive mechanism that on the basis of prior encounters tells us what is and is not safe to approach. Stimuli which have been encountered many times without ill effects are safer and, hence, more approachable than new, untested stimuli. In a marketing context, this approach may be perceived by consumers as perceived risk or what Obermiller (1985) refers to as uncertainty reduction, a component of perceived risk.

The unique factor in this "persuasion process" is the absence of any required cognitive or contextual elaboration to generate the affective response. The response occurs effortlessly and automatically as a natural consequence of exposure. Cognitive requirements are limited to stimulus-directed focal attention (Greenwald & Leavitt 1984). Thus, the exposure effect may be a product of the automatic processing system (Posner and Snyder 1975; Schiffrin & Schneider 1977; Bargh 1984).

The Frequency Effect

Research by Hasher and Zacks (1984) suggests another process by which brand familiarity may mediate brand preference. It suggests that effects of automatic processing can provide the input to evaluative inferences consumers draw about brands. This research strongly suggests that

an automatic frequency counting mechanism exists in memory. Basically, the mechanism effortlessly provides relative frequency information which can be the basis for consumer inference-making (i.e., "I've seen this more than other brands. It must sell well. It must be good. I'll buy it").

It requires only focal attention to operate and is not facilitated by higher order cognitive processing. This mechanism, like the habituation effect, is adaptive in that it allows individuals to effortlessly assess the subjective probability of one event over another. To differentiate this process from the exposure effect, it will be dubbed "the frequency effect".

Like the habituation process, the automatic accessibility of frequency information is adaptive in that it allows individuals to effortlessly assess the subjective probability of one event over another and to react accordingly. And, like the habituation process, it requires only sufficient attention to generate brand perception to operate.

The key difference between this process and the exposure effect is the cognitive requirement of a deliberate, pre-choice evaluative inference based on the accessed frequency information. The amount of cognitive effort required to generate an evaluation through this process is greater than the exposure effect because it explicitly requires comprehension of the source of the affect (the frequency information) and an evaluative inference derived from that source. The evaluation generated by the exposure effect requires no such inference, only retrieval of affect.

Given this difference, from a marketing point of view the exposure effect may be operative when consumers are completely uninvolved in the decision process, while the latter process may be accurate when consumers are more involved, but either have no substantive information on which to judge alternatives or perceive no difference between alternatives on available information.

Moderators of Brand Familiarity Effects

Empirical research suggests that the duration of attention, not the number of prior exposures facilitates the exposure effect. Crandall (1972) demonstrated an exposure-effect relationship at two exposures when exposure duration potential was 50 minutes. At the other extreme Zajonc, Crandall and Kail (1974) did not find evidence of a significant exposure effect until a frequency of 243 exposures when the exposure duration was a fraction of a second.

Research by Obermiller (1985) suggests that the exposure effect is also facilitated by attentional strength. In this research, a greater average liking for brands occurred when attention towards the stimulus was facilitated rather than distracted. When cognitive elaboration (e.g., stimulus is not only perceived, but is given meaning) of the stimulus was facilitated, however, average liking decreased. Thus, the level of focal attention increases the strength of exposure-induced brand liking, but cognitive elaboration is inhibitory. This finding is consistent with the principle of higher order dominance which asserts that effects of elaboration (e.g., formation of performance beliefs) inhibit effects of focal attention (e.g., effortlessly retrieved affect) on brand evaluation (Greenwald and Leavitt 1984).

In summary, the exposure effect seems to be mediated by attentional duration and attentional level, not the rate of exposure and not by cognitive elaboration of the stimulus. Therefore, if the communication goal is facilitation of the exposure effect, then advertising should be designed to maintain focal attention towards the brand name or package without causing the consumer to negatively elaborate on the message.

In contrast, if the communication goal is facilitation of the frequency effect, then the critical determinant of advertising success is to have more total exposures than the competition. Since the frequency effect operates through the automatic counting mechanism (Hasher and Zacks 1984), attentional strength and duration are irrelevant. Advertisements which are short, but effective in generating sufficient attention to cause brand perception will operationalize this strategy at the minimum cost in advertising dollars.

Attitudinal Versus Choice Effects

Since brand attitude formation does not require explicit interbrand comparisons, the absolute level of affect generated by brand familiarity will directly influence the level of brand liking. Except in the cases of habitual purchase behavior, however, brand choice explicitly requires interbrand comparisons. Thus, the relative level of brand familiarity among brand alternatives is the critical independent variable. The extent of the comparison is dependent on factors such as prior product class knowledge and decision involvement (Bettman 1979; Bettman and Park 1980).

With regard to the exposure effect, the nature of the exposure-frequency function suggests that both absolute and relative effects may be difficult to achieve if the brand(s) involved in the evaluation have high brand familiarity prior to subsequent exposures (Harrison 1977). In these cases, brand position on the frequency-affect curve may be at the asymptote. In the case of brand attitude, increased exposure may not be sufficient to generate a perceivable change in affect. In the case of brand choice, increased exposure may not create greater liking of a brand over an alternative. This suggests that the viability of the exposure effect as a communication goal may be limited to situations where subjective brand familiarity of the advertised brand is not on the asymptote of the frequency-affect curve.

With regard to the frequency effect, perceivable between brand differences in exposure-based habituation is not the issue. Operation of the frequency effect depends only on the recognition that one brand has been seen more than another. The only requirement for an effect on either choice or attitude is that the difference in frequency of exposure between alternatives is large enough to perceive. The required size of this difference as total frequency of exposure increases among all alternatives is an empirical issue (e.g., 5 versus 1 exposure is very noticeable, but is 105 versus 101 exposures perceptible?).

Evidence Directly Relevant to Marketing Applications

If brand familiarity can motivate purchase behavior, then it must be considered to be a viable marketing communications strategy in and of itself. Validation of brand familiarity effects in marketing contexts and the establishment of their limits are prerequisites to strategic applications. Below, evidence relating to marketing applications of brand familiarity is briefly reviewed.

Three early experiments that tested the generalizability of the exposure effect provided the first evidence that brand familiarity can directly mediate consumers' purchase decisions. First, "advertisements" consisting solely of Turkish words were placed in a school newspaper. Exposure frequency mediated attitude toward the words (Zajonc and Rakecki 1969). Second, nonsense syllables were differentially exposed to subjects and subsequently identified with boxes containing nylon stockings. Exposure generated familiarity significantly influenced brand preference and brand choice (Becknell, Wilson and Baird 1963). Finally, posters of fictitious candidates were placed about a university campus in varying frequency. No information other than the candidate names and the contested elected position were on the posters. Students who had seen the posters most fre-

quently were most likely to vote for the most publicized candidates (Stang 1974, in Harrison 1977).

These three studies are important because they demonstrate that (1) brand name familiarity is a sufficient condition to enhance brand attitudes and brand choice and (2) that these effects occur in natural settings. One limiting characteristic of all three studies, however, is that no information was available to form evaluations other than exposure related information. Thus, these experiments support the potential for brand name familiarity based marketing strategies, but they were achieved in informationally sparse decision environments.

Recent studies have attempted to generalize effects of brand name familiarity into decision contexts where other evaluative information is present. Using an advertising format, Moore and Hutchinson (1985), measured subjects' reactions to affective associates to the brand (e.g., advertising background visuals) and levels of brand familiarity. Two days after exposure to advertisements, subjects' reactions to the ads' affective associates were the strongest mediators of brand liking. One week after exposure, however, brand name familiarity ratings were the dominant attitudinal mediator. The pattern of findings strongly suggests that brand name familiarity became the dominant mediator in delay because affective reactions to the ads were forgotten.

In another advertising experiment, subjects were provided brand attribute information, affective associations to the brand, and varying levels of brand name exposure (Baker 1985). Significant effects of brand name familiarity on purchase intention occurred, but like Moore and Hutchinson (1985), only after a week's delay from advertisement exposure. Interestingly, the significant effects of brand name familiarity occurred only when (1) the accessibility of advertisement execution information and brand attribute information was at its lowest level and (2) relative brand name familiarity (brand name familiarity relative to competing brand alternatives) was at its highest level.

Evidence from these two experiments suggests that if meaning is conferred to the stimulus through a complex cognitive process such as attribute belief formation (Lutz 1975) or simple process such as source evaluation (Petty, Cacioppo and Schumann 1983; Sternthal, Dholakia and Leavitt 1978; Holbrook 1978), then the direct effects of brand name familiarity on evaluation will be attenuated. The findings are consistent with the principle of higher order dominance (Greenwald and Leavitt 1984).

On the positive side, both sets of the results also suggest that higher order effects of advertising decay much more rapidly than effects of brand familiarity. This suggests that when information from advertisements are not effortfully integrated into brand memory structures, simple effects such as brand familiarity may dominate advertising-based brand evaluation, especially if there is any significant delay between the time of message exposure and brand evaluation.

Finally, neither the Moore and Hutchinson (1985) nor the Baker (1985) experiments provided evidence to discriminate whether the exposure effect or the frequency effect was the operative brand familiarity based process. Future research must (1) empirically discriminate between these processes and (2) identify the factors that determine which of these processes will be operative in a given situation.

The Viability of Brand Familiarity Based Strategies

Given the evidence to date, it appears that brand familiarity is a viable independent mediator of brand liking and choice, but only in limited decision contexts. If sources of evaluation (i.e., brand attribute beliefs or source credibility) which require greater information processing intensity are not accessible or cannot discriminate between brand alternatives, then brand famil-

ilarity may be a viable marketing communications strategy. Two likely indicators of these types of situations are product class knowledge and decision involvement.

When a consumer has no prior product class knowledge then by definition there can be no memory-based opportunity for higher order knowledge to inhibit the accessibility of exposure-based affect (Greenwald and Leavitt 1984; Bargh 1984). And, if decision involvement is so low that automatically retrieved affect is likely to be the only input into the preference formation process at the point of decision, then facilitation of the exposure effect may be a viable advertising strategy.

If on the other hand, prior knowledge exists and is likely to be accessed and there is sufficient decision involvement to expect cognitive elaboration in the decision process, but there is no perceived difference between brand alternatives on performance dimensions, the facilitation of the frequency effect may be a viable advertising strategy.

Concluding Remark

The thesis explored in this paper is that brand familiarity exerts important effects on brand choice. The magnitude of brand familiarity effects and the processes mediating such effects have received little empirical and theoretical attention. The intent of the present paper was to discuss mechanisms that may account for familiarity effects and to examine the generality of such effects. After examining relevant literature we are led to the conclusion that brand familiarity is a viable, albeit limited, marketing tool for influencing consumer decisions.

Brand familiarity is likely to: 1) Enhance perceptual identification of a brand, 2) increase the probability of inclusion in the evoked set, 3) generate positive affect toward the brand, and 4) motivate purchase behavior. The primary caveat to these conclusions is that brand familiarity effects may be highly context dependent. Specifically, perceptual identification will be impaired if cues present in the environment during purchase do not match those present during previous exposures to the brand. Evoked sets are dependent upon the usage situation and hence, inclusion in the evoked set will be determined more by brand/situation associations than by overall familiarity with the brand. Finally, brand familiarity is unlikely to exert a robust effect on consumers' brand attitudes and decisions when extensive product knowledge is available or when involvement is high.

Footnote

1. Berlyne (1970) theorized that novelty is pleasing, but familiarity is not. This is clearly a direct contradiction of the exposure effect thesis. Berlyne developed a two-factor theory of exposure effects. The first factor is stimulus habituation, which mediates positive affect. The second factor is tedium/irritation and leads to attitude attenuation. Berlyne argues that initial exposure leads to a positive habituation, but continued exposure promotes tedium/irritation, which attenuates affect. This process describes an inverted U-shaped relationship between exposure and affect.

The two factor process explanation is not really inconsistent with the exposure effect. The difference is in factor emphasis, which has led to different framework conceptualizations. Berlyne observed a large effect of tedium/irritation and gave the effect status equal to the habituation effect in his model. Exposure effect supporters view habituation-based affect as the "true" effect and consider situational tedium a moderator of the fact. The position taken in this paper is that the one-factor exposure effect model not only offers the most parsimonious explanation of exposure-based affect, but is also more relevant to explaining advertising exposure effects because:

1. It centers on the relationship between the stimulus and the individual, which is a central marketing concern. Situational irritation is an association to the stimulus, but not a reaction to the stimulus itself.
2. The effect of the tedium/irritation factor is apparently short-lived relative to the effect of familiarity. The temporary nature of irritational effects suggests its role is an exposure effect moderator rather than a central factor in the model.

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A MODEL OF CONSUMER MEMORY AND JUDGMENT

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Abstract

One of the most perplexing problems in advertising research over the past several decades has been a failure to find any consistent relationship between memory for information presented in an ad and product evaluation. A general model of the relationship between recall and judgment is outlined, and several empirical tests of the model are reported.

The purpose of the present paper is to consider carefully the relationship between consumer memory and judgment. Many psychological theories assume implicitly that there should be a close correspondence between the specific facts that can be recalled about an object and any global evaluation that is made of that object. This is true in most theories of attribution, impression formation, and other areas of social judgment. In general, the person is assumed to recall specific episodic events involving the target, and then determine the implications of these events for the judgment to be made. Theorists differ on how elaborate the intervening combinatorial process is hypothesized to be, but there is almost universal agreement that there should be a strong relationship between the evaluative implications of whatever events are recalled and the extremity of any evaluative judgment that is made. The extent of this agreement is so strong that Hastie and Carlston (1980) have referred to this as the "traditional model."

While theorists have been nearly universal in stating what should happen, empirical examinations have painted quite a different picture. For example, there are approximately fifty published experiments in the psychology literature that have examined the relationship between memory and judgment (Hastie and Park 1985). The typical procedure is to present subjects with information, wait for some period of time, and then ask them to recall as much of the information as possible and make some type of judgment of the target. The average evaluative implication of each item recalled is then correlated across subjects with the judgments that are made. Do subjects who recall the most favorable information make the most favorable judgments? Usually not; the correlations described above are invariably quite small, and seldom statistically different from zero.

It is somewhat surprising from current psychological theory that one would ever find such a lack of correspondence between the specific facts that are recalled and the judgments that are made. It is even more surprising how general and robust this finding appears to be. For example, in a classic impression formation study, Anderson and Hubert (1963) provided subjects with trait adjectives. Their essential finding was that there are strong primacy effects in impression formation, but reasonably large recency effects in recall. The authors concluded from this that the impression judgments and memory for the trait adjectives must be independently stored and accessed in memory. In a later study, Dreben, Fiske, and Hastie (1979) replicated these effects, and also found that temporal delays had a large effect on recall but very modest changes in impression ratings. They also concluded from this that there must be some independence between episodic memory and abstract evaluative impressions (see also Riskey 1979).

There is also a long line of persuasion studies that have found a very weak relationship between memory for information in a persuasive communication and attitude formation and attitude change. A good illustration of this is a classic set of studies reported by Greenwald (1968). Subjects were presented with arguments concerning two separate controversial issues. Subjects first received an opinion pretest followed by the presentation of the commu-

nication. Upon reading the communication subjects were asked to write a one-sentence reaction to the main point of the paragraph. Subjects' opinions were again assessed followed by an unexpected recall test. Following a one week interval, the opinion posttest and the recall test were unexpectedly readministered again. Greenwald found no correlation between posttest opinion and retention of communication content at either of the delay intervals. He concluded from this that memory for information in a persuasive communication is not a mediating variable of subject attitude change. A number of other studies are also consistent with this general conclusion (see e.g., Insko 1964; Miller and Campbell 1959; Watts and McGuire 1964). These failures to find the predicted relationship represent the type of concern that led to the "cognitive response" approach to the study of persuasion that is so dominant today.

The same essential conclusion has been reached in the study of attributions of causality. For example, Fiske, Taylor, Etcoff, and Laufer (1979) conducted a series of studies examining whether imagery accounts for the effects of empathy on attributions. No correlation between what was remembered and the attributions that were made was observed in any of these studies. Similar to many other experiments, there was no evidence for any recall-attribution link. Fiske et al. concluded that these results parallel those found in the other domains, a conclusion that has also been reached in more recent reviews (Hastie and Park 1985; Lichtenstein and Srull 1985).

A very similar situation exists in the psychology of advertising (Beattie and Mitchell 1985; Lichtenstein and Srull 1985). Most theorists have assumed that there should be a close correspondence between the specific facts that are recalled about a product and any general evaluative judgment that is made of that product. Because of this, one of the most popular measures of advertising effectiveness is recall. Again, however, the empirical evidence is quite different. There have recently been four separate reviews of the relationship between recall and judgment within an advertising context. In each case, the relationship has been found to be very small, and only in rare cases was it significantly different from zero (Gibson 1983; Ross 1982; Stout 1981; Young 1972).

It is seldom that theory and data stand in such stark contrast. Is it possible for so many theorists to be misguided on such a fundamental issue? It may be possible, but it is also doubtful. In the following sections of the paper, recent advances in cognitive psychology are used to explicate the conditions under which a strong correspondence between memory and judgment should and should not be expected on conceptual grounds. In the process, a general model that can be used to conceptualize the judgment process will be outlined. Several lines of empirical evidence bearing on the model will then be summarized.

The model proposed is based on a more comprehensive theory of information processing developed by Wyer and Srull (1980; 1985). The Wyer and Srull theory is relatively complex and well beyond the scope of the present discussion. However, two aspects of it are of particular importance. First, the theory suggests that the mental representation of product information will often differ as a function of the initial processing objectives of the consumer. The importance of differing mental representations in understanding the recall-judgment relationship will soon become apparent.

The second noteworthy aspect of the Wyer and Srull theory concerns its broad scope. Because it is intended to

trace the flow of information from the initial encoding stage to the final response stage, it makes specific statements about how any given mental representation should be reflected in various performance measures. Although different representations may "look the same" on the basis of some dependent measures (e.g., overall levels of recall) they can be differentiated on the basis of others (e.g., probe reaction time or the types of judgments that are made). As just one example, Lichtenstein and Srull (1986) have used the theory to generate predictions for six separate measures of performance: (1) overall levels of recall, (2) the extremity of evaluative judgments, (3) the relationship between the episodic facts that are recalled and the judgments that are made, (4) serial position order effects in recall, (5) serial position order effects in judgment, and (6) the relationship between spew recall order and judgment. The underlying assumption of this work is that our understanding of the recall-judgment relation will be best advanced by simultaneously considering all six aspects of performance in conjunction with one another.

An additional virtue of the Wyer and Srull theory is that it incorporates the distinction between "retrieval" and "computational" processes. Imagine a consumer is asked, "Is the Ford Thunderbird a luxury automobile?" A retrieval model would suggest that, at least for some people, the answer to such a question has already been determined and stored in memory. Thus, one simply needs to "retrieve" it from memory in order to answer such a question.

In contrast, a computational model would suggest that, at least for some consumers, the answer to such a question has not already been determined. That is, the mental representation of Ford Thunderbird does not contain any propositional knowledge indicating a value along some luxury dimension (or membership in some luxury-related category). In order to answer such a question, one would need to retrieve as much information about the Ford Thunderbird as possible, compare it to one's referent for "luxury automobile," and then "compute" or figure out an answer on the spot. Of course, if one were asked the same question again he/she would no need to re-compute an answer but simply retrieve the previous judgment (Wyer and Srull 1985).

Although the distinction between retrieval and computational processes is not often discussed, a number of researchers in both social cognition (e.g., Allen and Ebbesen 1981; Ebbesen and Allen 1979) and consumer behavior (e.g., Bettman 1979; Burke 1980; Brucks and Mitchell 1981; Mitchell and Smith 1982; Smith, Mitchell, and Meyer 1982) have recently found it to be useful. This distinction turns out to be crucial in understanding when there will and will not be a relationship between recall and judgment. In particular, the model proposed suggests that the consumer's information processing objectives or "goals" are a critical mediating variable that determines the nature of the relationship between recall and judgment. The reason for this is that such processing objectives often determine whether product evaluations have been pre-stored or need to be computed on the spot.

The model postulates that when a consumer acquires ad information with the (implicit or explicit) objective of making an evaluative judgment of the product, the global evaluation will be made at the time of information acquisition and stored in memory separately and independently from the specific episodic facts that are learned. If the consumer is later asked to make a specific judgment, the evaluation will have already been "computed" and will simply be accessed at that time. This is consistent with a large body of literature that suggests self-generated evaluations are much more accessible in memory than externally presented information (Johnson and Raye, 1981; Ostrom, Lingle, Pryor and Geva 1980; Slamecka and Graf 1978). Thus, under these conditions, there is no reason to expect any strong relationship between the specific facts that are recalled and the global evaluation that is made. One can see that this is a very straightforward retrieval model in which the previous judgment and the specific episodic facts on which it is based are independently stored and accessed. It is a process that is consistent with the conceptualizations outlined by Anderson and Hubert (1963) and Dreben et al.

There are occasions in which an alternative process will apply. Specifically, when a person acquires ad information with no specific objective in mind, or only a very general objective such as to comprehend the information being presented, a global evaluation of the product will not be made at the time of information acquisition. Thus, no evaluation will be incorporated into the resulting mental representation. If later asked to make a specific judgment, the consumer will be forced to retrieve the previously acquired information, or some subset of it, and use it as a basis for his/her evaluative judgment of the product. In other words, a judgment will have to be computed on the spot. Under these conditions, a strong relationship would therefore be expected between the global evaluation and the evaluative implications of the information that is recalled.

As an initial test of the model, Lichtenstein and Srull (1985) presented undergraduate students with print ads that: (a) were as complex as possible in the sense that they contained a large amount of attribute information, and (b) pertained to products with which subjects were likely to have little prior familiarity. Three separate stimulus replications were used. Half of the subjects, who participated in what is typically called an on-line processing condition, were told to read the ad with the purpose of forming an evaluation of the product so that they would later be able to judge how desirable it would be relative to other competing brands. The other half, participating in a memory-based processing condition, were told that the ad was written by an undergraduate advertising major. Their task was to read the ad in order to judge how grammatical, coherent, and interesting it was.

After reading the ad, there was either a 5-minute or 48-hour delay. Then subjects were asked to recall as much of the information as possible and make a general evaluative judgment of the product, half of the subjects completing the recall task first and the other half beginning with the judgment task.

The typical way to analyze such data is to have a separate group of subjects rate the evaluative implication of each proposition or "idea unit" in the ad. Then the mean evaluative rating for each proposition recalled by any given subject is determined. These values are then correlated, across subjects, with the product evaluation ratings.

Lichtenstein and Srull found in 12 out of 12 independent comparisons that the correlation between recall and judgment was higher in the memory-based than on-line conditions. Moreover, the correlations in the memory-based conditions were universally large and statistically different from zero. The mean correlation across 12 conditions was .64 in the memory-based condition and .22 in the on-line condition.

More recently Hastie and Park (1985) replicated these effects by using a slightly different paradigm. The on-line condition was very similar to that described earlier. However, for a memory-based condition, they had subjects anticipate making one judgment, but later asked them for a different, unrelated judgment. Across four separate experiments, the average correlation between recall and judgment was .51 in the memory-based condition and .16 in the on-line condition. Srull (1985) also reported several conceptual replications using slightly different orienting tasks.

These findings are very strong and replicate across a variety of laboratories, stimulus sets, content domains, and delay intervals. They suggest that past studies have consistently found only a weak relationship between recall and judgment because subjects have tended to use some type of on-line processing strategy. In the few studies that have included memory-based conditions, however, a strong correspondence between recall and judgment has indeed been found. For example, Sherman, Zehner, Johnson, and Hirt (1983) provided subjects with current information about two historically rival football teams. In one case the goal was to remember the information as well as possible. In

another case, the goal was to form an impression of the potential outcome of an upcoming game between the two teams. Sherman et al. found a very weak relationship between memory for the information and subjects' judgments of the outcome when they had formed their impressions at the time of information acquisition. However, this relationship was quite strong among subjects who had initially been given a memory set. The authors suggest that the "availability" of information in memory will only affect judgments when they are initially unanticipated. A similar finding has recently been reported by Reyes, Thompson, and Bower (1980).

Although the model proposed predicts that the level of correspondence between consumer memory and judgment will vary considerably as a function of the person's initial processing objectives, much more subtle tests of the model are also possible. Srull (1985) reported one experiment that was specifically designed to tap into the intervening processes that are postulated to occur. The presumed difference between a "product evaluation" group (who theoretically are forming their evaluations on-line) and a "comprehension" group (who theoretically are not) is in the amount of computational activity required at the time of judgment. This was tested by examining the amount of time required to make a judgment.

Subjects were presented with a series of 12 print ads. One group was told to read the ads and form an evaluation of each product described. Another group was told to simply comprehend the information presented. The judgment task was then administered either 5 minutes or 48 hours later. The subject sat in front of a computer screen and was probed with "Please rate the desirability of each of the following products." On each of the 12 trials, the screen would display after a rest interval the brand name and a 10-point rating scale, ranging from 0 ("very undesirable") to 9 ("very desirable"). The time interval between stimulus onset and response was recorded on each trial.

The mean reaction time for the product evaluation group was approximately 5 seconds in the 5-minute delay condition, and approximately 6 seconds under the 48-hour delay condition. The mean reaction time for the comprehension group was approximately 10 seconds in the 5-minute delay condition and nearly 20 seconds in the 48-hour delay condition.

The most parsimonious interpretation of these results is that the on-line processing group formed their evaluations of the product at the time of information acquisition. At the time of judgment, they simply needed to access the appropriate evaluation in memory. It took them slightly longer after 48 hours than after 5 minutes. But they were very rapid in both cases. In contrast, the memory-based group must retrieve the episodic facts that were learned, or at least some subset of them, integrate the items that are retrieved into a global evaluative judgment, and finally make an overt response. These subjects took twice as long as the on-line group to make their judgments after 5 minutes, and nearly four times as long after 48 hours.

The most diagnostic test of the process model proposed in the present paper was reported by Lichtenstein and Srull (1985). The experiment was based on the fact that prior retrieval attempts typically aid subsequent recall. For example, consider a group of subjects who attempt to recall information at Time 1 and then again at Time 2. Their performance at Time 2 will generally be better than that of a control group who only recalls at Time 2. This is a very robust phenomenon (see e.g., Modigliani 1976), and it is usually interpreted to mean that prior attempts to recall strengthen the memory traces of the retrieved items.

Lichtenstein and Srull used this phenomenon as a diagnostic tool to determine what information is retrieved from memory under various conditions. Three separate experimental groups were created, each of which was exposed to the same sequence of print ads. One hour after receiving the ad information, one third of the subjects attempted to

recall the information in as much detail as possible. Then, after a 48 hour delay, they tried to recall the information again. A second group made a global evaluative judgment after one hour. Then, after a 48 hour delay, they also tried to recall the information in as much detail as possible. Finally, as a control condition, one third of the subjects were not asked to complete any task after one hour but were asked to recall as much of the original information, in as much detail as possible, after 48 hours. The dependent variable of theoretical interest is the number of attribute units recalled by subjects after 48 hours.

One can consider the group that had no intervening task as a baseline control condition. Lichtenstein and Srull report that levels of recall were essentially the same for on-line and memory-based subjects in this condition. However, subjects who recalled after one hour showed much higher levels of recall after 48 hours than did the control subjects, providing a replication of earlier findings reported in the literature. Moreover, this was true for both the on-line and memory-based subjects and, as before, there was very little difference between them in terms of overall levels of recall.

The most important condition in terms of the underlying theory is that where intervening judgments were made after a one hour delay. The model suggests that memory-based subjects will need to retrieve the original information in order to make such a judgment. If this is true, the same type of recall advantage after 48 hours as is seen with the "recall" group should be observed. In other words, the model suggests that the ultimate recall of memory-based subjects in the "intervening judgment" condition should be: (a) greater than that in the "no intervening activity" condition, and (b) not significantly different than that in the "intervening recall" condition. This is exactly what was found.

The model also makes specific predictions about the on-line subjects in the "intervening judgment" condition. The model suggests that the on-line subjects will have already formed the evaluation at the time of information acquisition. Thus, after one hour, they need not review the original information in order to make the judgment, but simply retrieve their original evaluation from memory. If this process occurs, however, the ultimate memory performance of such subjects should not be as great as that of subjects in the "intervening recall" condition. This was also found.

The results of this experiment are subtle and provide strong converging evidence in support of the model proposed. The fact that intervening product evaluations increase levels of recall (compared to a no-intervening-task control group) for memory-based subjects but not for on-line subjects is difficult to explain without postulating different retrieval mechanisms.

One of the most perplexing problems in advertising research over the past several decades has been the general failure to find any consistent relationship between memory for information presented in an ad and product evaluation. These failures have been met with surprise, discouragement, and some have even used them to question why researchers need to be concerned with memory processes in the first place. The research presented here should help to frame the problem in a somewhat new perspective.

There are three assumptions that are central to the present approach. First, it is assumed that different types of mental representations can only be distinguished by simultaneously examining different aspects of performance. The reason for this is that different underlying representations will often react to experimental manipulations in the same way. Thus, they may appear to be the same even though they are not. In one study reported by Lichtenstein and Srull (1985), for example, the overall levels of recall and the overall levels of judgment were identical for on-line and memory-based subjects. It is only by looking at a range of measures that one can discover con-

verging evidence for how the underlying mental representations must be different from one another.

The second assumption is that theories must be developed to the point at which they have implications for multiple dependent measures if they are going to be distinguishable empirically (see Srull 1984). While plausible alternative interpretations of any single effect can be numerous, building alternative, internally-consistent theories that are capable of accounting for a large array of data is much more difficult. Moreover, even when such alternative accounts are devised, subsequent attempts to distinguish between them are nearly certain to produce substantial theoretical growth (see Srull and Wyer 1984 for an elaboration of this point).

Finally, the model outlined in the present paper is a very general one, within which a variety of more specific theoretical commitments can be made. For example, the exact format of knowledge representation has been left unspecified in the present report. Similarly, there is no commitment to a particular type of retrieval process. At this level of analysis, for these purposes, such commitments are unnecessary. However, as new constraints are added to the model, more sensitive predictions will emerge. Future work should be directed toward examining some of the more subtle implications of the model that emerge when a more specific set of theoretical assumptions are imposed.

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UNDERSTANDING YOUNG CONSUMERS:
COGNITIVE ABILITIES AND TASK CONDITIONS

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Abstract

Over a decade of research has been devoted to assessing the extent to which children can understand advertising messages and product claims, evaluate and judge product alternatives, and make informed product choices. The majority of studies in this area have focused on the issue of whether or not children are able to perform consumer tasks such as evaluating advertising and judging advertised products. In doing so, evidence has accumulated which supports the view that many children, particularly young children, cannot critically evaluate advertising claims and advertised products, cannot direct their attention to important aspects of commercial messages, cannot adequately judge the value of product alternatives, and cannot use product information effectively in making product choices. Findings such as these have contributed to our understanding of children's consumer abilities and have also provided valuable input into public policy concerns regarding children.

Despite the contributions of this line of inquiry, current research in developmental psychology suggests that we should shift our research focus from the question of whether or not children have certain abilities to the issue of when children can be expected to exhibit these abilities. This view is supported by a large body of developmental research which documents the fact that children's abilities are seldom exhibited in an all-or-none fashion--children perform well under some task conditions but not others. In consumer settings, for example, children's ability to understand advertising claims may depend on the terminology used to describe the claim and the amount of commercial time devoted to describing the claim.

By failing to investigate potential factors such as these which may affect children's performance, it is quite possible that we have either underestimated or overestimated children's consumer skills and abilities. This possibility is particularly unsettling due to the fact that past results regarding children's abilities have been the cornerstone for regulatory policies toward marketing to children. Thus, there is a need to extend our scope of investigation beyond the current focus to one which includes a consideration of conditions under which children's abilities can be expected to surface.

This paper examines several classes of factors or conditions which have the potential to influence children's consumer abilities. Based on recent findings from developmental psychology, four types of task factors appear to be influential in this regard: information quantity, information format, instruction set, and response format. Information quantity refers to the number of informational units or chunks that must be processed in completing some task. Large amounts of information are typically more demanding and require more processing skill. Information format pertains to the manner in which task-relevant information is presented. Some formats are more conducive to processing information than others. Instruction sets refer to instructions or directions given to subjects regarding task performance. Instruction sets often provide guidance and suggest strategies to enhance performance on the task. Finally, response format pertains to the manner in which subjects are required to respond to the task. Some methods for measuring performance place greater processing burdens on subjects than others. Evidence pertaining to each of these factors is reviewed and implications for future research are identified.

THE IMPACT OF TASK CONDITIONS ON YOUNG CHILDREN'S PERFORMANCE

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Abstract

Every researcher working with children has observed that an average 7-year old is cognitively more mature than the average 4-year old. In recent years, however, developmental psychologists have increasingly recognized the negative slant of traditional research depicting the cognitive abilities of preschoolers. Gelman (1978) argued that the developmental literature is biased by descriptions of what young children cannot do. The younger child typically appears incompetent when stacked up against the older child.

An underlying reason for this slant emanated from the field's reliance on Piagetian research. A distinguishing characteristic of Piaget's procedures, both his instructions and elicited responses, was their highly verbal nature. For example, tasks designed to assess a child's understanding of conservation were filtered through such words as "same," "less," "more," and "number." Preschoolers allegedly failed to conserve; namely, they focused on the states of objects rather than on the transformations linking the states. Thus, young children did not realize that some quantitative property of an object did not change by a change in perceptual appearance.

With Piaget's number conservation task, young children believed that the number of objects in a row changed when the items were pulled together or spread apart. Gelman (1972) developed a more age-appropriate task that eliminated such ambiguous (at least to the preschooler) terms as, "number," "more," and "less." Displays of values, for example, 2 and 3, were labeled with the words "the winner" and "the loser." The child had to find the winner and tell why one value was so labeled. Further, when the experimenter altered one of the displays, such as by addition, and the child was queried about the transformation. The results from the "magic task" indicated that preschoolers understood that the lengthening or shortening of an array did not change the numerical value.

Piaget also believed that the young child is necessarily egocentric, meaning the child interprets the world in terms of self. For example, in a communications task, children were labeled egocentric because they could not repeat explanations about the workings of watertaps. Shatz and Gelman (1973) argued that the difficulty of the task might prohibit the child's ability to account for the listener's needs. That is, the failure was not due to language insufficiency and/or narrow perspective-taking, but because of task complexity requiring discussion about an unfamiliar object. These researchers asked preschoolers to describe the workings of a toy. Children tailored their speech appropriately; indeed 4-year-olds altered the complexity of syntax and the content of the messages when talking to 2-year-olds versus adults. Thus, young children were shown not be necessarily egocentric communicators.

Therefore, two Piagetian conclusions about the young child were successfully challenged: 1) a failure to conserve and 2) to interpret the world beyond self. Those challenges, briefly illustrated by the preceding examples, suggested the importance of task difficulty, task instructions, and required responses for successful completion. All three factors influence outcomes and subsequent conclusions about the child.

The Piagetian influence has been likewise felt in applied research. Adopting this framework, early researchers on advertising effects found that children's responses meshed with Piaget's stage-like view of

development. One important conclusion about the young child was that he/she did not understand the persuasive intent of television commercials. The conclusion about children's lack of commercial understanding was based on numerous studies that incorporated the stage perspective (e.g., Blatt, Spencer, and Ward 1972). Early works relied upon open-ended questioning to assess abilities. The reader can surmise the limitation of this approach. As developmental psychologists discovered, tasks requiring mature expository skills are slanted towards the older child's success and the younger child's failure.

Advertising researchers have begun to acknowledge the limitation of survey techniques; however, preliminary evidence with other types of techniques indicates that much work is needed to determine the appropriateness of tasks for measuring children's responses. Donohue, Henke, and Donohue (1980) reported results from a picture selection task which indicated 2- and 3-year olds understood commercial intent when asked to pick one of two sketches. Macklin (1985) reported a failure to replicate such indications when the alternatives were widened to include additional product display. It was argued that the original task may have been simply too easy, and that other types of nonverbal measures are needed.

The necessity of multiple measures of commercial understanding is straightforward and reinforces what developmental psychologists have found about the child. Namely, the appropriateness of the task in terms of design, instructions, and required responses affect assessment of children's abilities. Not just one task nor just one measure of abilities can be expected to be definitive of children's skills. Just as children's abilities to conserve quantity or to assume the perspective of another are determined by multiple efforts, an accurate view of children's processing of commercials will require multiple approaches. Advertising researchers must be prepared to provide a converging web of evidence about children's skills in an advertising context.

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CHILDREN'S COGNITIVE RESPONSES TO ADVERTISING¹

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Abstract

We advocate a cognitive response approach for researching children's reactions to advertisements. We suggest that the factors especially likely to influence children's use of cognitive defenses include state of cognitive development, knowledge about advertising, knowledge about the product, spontaneous information processing abilities, emotional involvement with the ad or product being advertised, and verbal ability. Each of these factors and its hypothesized relationship to children's counterarguing is discussed.

Introduction

The long debate over the fairness of television advertising to children hinges on whether advertising messages unfairly manipulate children. To address this issue, researchers have explored the extent of children's "cognitive defenses," generally defined as children's knowledge of the selling intent of commercials and an associated distrust of commercials. But the fact that cognitive defenses exist does not mean that children actually use these defenses when exposed to advertising. We advocate a cognitive response approach for researching children's actual use of cognitive defenses.

Prior Research on Children's Cognitive Defenses

Much research has examined children's acquisition of "cognitive defenses," or more specifically, comprehension of the selling intent of advertising (e.g., Donohue, Henke, and Donohue 1980; Rossiter and Robertson 1974; Ward, Wackman, and Wartella 1977). It appears that most children do not develop a conceptual understanding of the selling intent of advertising until at least 8 years of age. Full comprehension may not occur until 11 years of age. However, it should be noted that research findings concerning the age at which these cognitive defenses are acquired differ, depending on the researcher's definition and operationalization of cognitive defenses. (See Goldberg and Gorn 1983; Roberts and Bachen 1981; and Wartella 1984 for reviews of this literature).

The existence of cognitive defenses does not mean that children actually use these defenses when they are confronted with advertising. To address this issue, several studies have examined children's judgments and preferences as a function of viewing television commercials. These studies suggest that children do not use their generalized understanding of selling intent as a cognitive defense in many situations.

In one study, Ross et al. (1981a) assessed the accuracy of judgment of children from kindergarten to sixth grade regarding the presence of actual fruit in three types of cereals and beverages advertised on television: "real fruit"; "non-fruit" and "artificially fruit-flavored" products. Showing the children these commercials resulted in greater accuracy (regarding the presence of actual fruit) in the "real fruit" and "non-fruit" conditions but greater inaccuracy for the artificially fruit-flavored product condition. These effects were noted regardless of age. The authors concluded that the strategies employed in the commercials for artificially flavored products appeared to overwhelm children's

growing general skepticism, resulting in miscomprehension of the messages.

Similarly Ross et al. (1981b) reasoned that if an understanding of the selling intent and strategies of commercials and a corollary distrust of them is sufficient "defense", older children should be less influenced by extraneous information in a commercial, such as the use of a racing car celebrity or real racing footage in selling a toy racing car. In fact, manipulating the presence or absence of these extraneous factors in commercials shown to older and younger boys resulted in a main exposure effect: the celebrity endorser and real racing footage were effective regardless of age of the boys. No interactions were noted. Older children were no more accurate than younger children in processing the extraneous information presented in the commercials. The researchers concluded that, at least in this television viewing situation, the older children failed to employ the television-related cognitive defenses they may have acquired.

Another study suggests that commercials may cause children to act inconsistently with their established set of preferences (Roedder, Sternthal, and Calder 1983). This study indicated that fourth grade children may respond solely to the momentary influence of a commercial when making product choices, ignoring their prior product preferences. By eighth grade, children appear to select their preferred alternative regardless of advertising. These results may be interpreted as evidence of an "overwhelming" effect of advertising on young children.

To examine the use of cognitive defenses acquired through consumer education, Roberts et al. (1980) showed children an instructional film, which was designed to teach children to adopt a more analytical/critical perspective when viewing TV commercials. A control group saw an irrelevant film. Several days later the researchers returned to show children some commercials. In order to assess the effectiveness of the instructional film, they posed questions to the children regarding each commercial they saw. For example, for a commercial with Bill Cosby endorsing Jello, they asked: "Does Bill Cosby know more about Jello than most people? (Responses could vary along a 4 point scale). Results showed that children who viewed the instructional film were more skeptical than those who viewed the control film. However, this approach begs the question as to whether the issue (in this instance, of celebrity endorsers) was actually salient for the children as they watched the commercials. Specifically, a child who indicated skepticism about Bill Cosby's expertise in response to the researchers' questions may not have questioned Cosby's expertise while viewing the Jello commercial. More generally, we contend that research that poses direct questions to a child may evoke in the child a vigilant, critical orientation, regardless of whether this orientation existed prior to questioning.

In the Roberts et al. (1980) study, larger differences between control and experimental groups were found for the younger as opposed to the older children. Older children in the control groups provided responses skeptical of the commercials even in the absence of the training film. It may be, however, that all we can safely conclude from this type of direct question is that as children grow older (at least by age 11) they learn to give socially "correct" responses:

¹This research was partially supported by a grant from the Business Foundation of North Carolina through the University of North Carolina.

Children's increasingly negative attitudes toward TV advertising do not mean much...they merely acquire an adult-like attitude against TV advertising as a social institution; an attitude which bears little relationship to advertising's actual effects (Rossiter, 1979, p. 232).

The Role for Cognitive Response Measures

The evidence available suggests that "going into" a commercial viewing situation children have a generalized awareness of the selling intent of commercials. Yet there is also evidence that "coming away" from a commercial, children tend to manifest attitudes and behavior suggesting that any generalized awareness has not operated as an effective defensive mechanism. What appears to be missing is evidence of children's actual cognitive experience while watching commercials. What thought processes do children engage in during the TV viewing situation? To what extent and under what conditions do they generate the counterarguments that would be the main substance of a cognitive defense? Moreover do attempts to teach children to adopt an analytical/critical perspective (as with the instructional film in the Roberts et al. 1980 study) succeed in generating counterarguments? Cognitive response measures (responses to a probe such as "What thoughts and feelings were going through your mind as you watched the commercial?") would appear to be an ideal measure in this regard. Counterarguments, which require using prior knowledge to "argue" against implicit and explicit advertising messages, indicate the actual use of cognitive defenses. Other elaborative cognitive responses include support arguments, which are thoughts in favor of advertising messages, and source derogations, which are thoughts critical of advertisers or advertisements (Wright 1973).

Cognitive response measures avoid the potential biasing effect of overly direct questions, and provide data that are directly pertinent to the ongoing processing of information. These data may complement the more inferential findings reviewed above (i.e., Roberts et al. 1980; Roedder, Sternthal, and Calder 1983; Ross et al. 1981a,b).

Some researchers have suggested that cognitive response measures may not fully capture a child's thoughts because children cannot always articulate what they think (e.g., Calder, Robertson, and Rossiter 1976). On the other hand, other researchers contend that cognitive response measures may be the most valid indicator of a child's capacity to defend himself/herself against persuasive TV messages, that unless the child can articulate a concept, he or she cannot really understand it.

...language and cognition are closely related. Without words a child cannot escape from his or her own egocentrism; he or she cannot grapple with concepts as opposed to merely feeling emotions. More specifically the message in advertising (persuasion, selling) cannot be understood or defended against without the use of language (Geis, as cited in FTC, 1981, p. 29; emphasis added).

Factors Affecting Childrens Cognitive Responses

What conditions are most likely to facilitate the use of cognitive defenses by children? We might assume that the situational and source factors found to be related to counterarguing in adults (e.g., time pressure, source credibility, etc.) will also be related to counterarguing in children. More interesting, perhaps, are individual factors (e.g., knowledge, involvement), which usually differ widely between the adult and child context.

Specifically, we suggest that the factors especially likely to influence children's use of cognitive defenses when exposed to advertising include stage of cognitive

development, knowledge about advertising, knowledge about the product, spontaneous information processing abilities, emotional involvement with the ad or product being advertised, and verbal ability.

Stage of Cognitive Development

The traditional cognitive development approaches view progress in children's cognitive skills as a series of stages through which children pass as they grow from infancy to adulthood. Piaget's theory is the best known of the stage theories. (See Flavell 1963, Piaget 1983, Piaget and Inhelder 1969). According to this theory, cognitive development occurs in four main stages: the sensorimotor stage (0-2 years), the preoperational stage (2-7 years), the concrete operational stage (7-11 years), and the formal operational stage (11 through 15 years).

In the sensorimotor stage, the infant's behavior is not at all mediated by thought. In the preoperational stage, the child develops the ability to think in terms of symbols (language and mental imagery), but has poorly organized ways of thinking about objects, events, and ideas. The preoperational child tends to focus on dominant perceptual attributes of objects (e.g., height) while ignoring other attributes (e.g., width). Thought is guided almost entirely by the perceptual characteristics of the immediate environment. Thus it is highly unlikely that elaborative cognitive responses to advertising messages would occur in this stage.

In the concrete operational stage, the child may consider several attributes of an object simultaneously. The child has conceptual skills that allow effective cognitive mediation of perceptual activity, but these thoughts are generally limited to the domain of concrete objects. In contrast, in the formal operational stage, the individual's thoughts may be guided by abstractions (e.g. theories, values, and ideas) that are not directly related to the child's perception of the physical environment. It appears likely that individuals in the formal operational stage would be able to draw upon prior knowledge to generate elaborative cognitive responses.

The question remains, however, whether 7 to 11 year olds (concrete operational stage) are capable of elaborative cognitive responses. Based on Piaget's theory, one might expect concrete operational children to produce elaborative cognitive responses only when concrete knowledge of the product exists in memory. For example, when viewing a commercial for a robot toy that uses closeups to make the toy look bigger, a child who knows the toy is only 6 inches tall may think "They're not that big." In the absence of such product knowledge, however, the child may be unable to apply the abstract concept that advertising is biased (and uses special techniques to show products in the best possible light) in order to generate the counterargument, "It may not be very big." The hypothesis that product knowledge (which is relatively concrete) is more effective in the concrete operational stage than advertising knowledge (which is more abstract) in producing elaborative cognitive responses in children has yet to be empirically tested.

Although Piaget's theory has proved useful in describing age-related cognitive activities, it lacks sufficient mechanistic detail to explain what causes these age-related differences (Roedder 1981). The information processing perspective suggests that age differences in children's cognitive activities result from differing abilities to store and retrieve information. Based on an extensive review of the children's information processing literature, Roedder (1981) proposed three stages of development: limited, cued, and strategic processing. Limited processors do not have the capability to use storage and retrieval strategies as a means for processing information. Cued processors do not spontaneously use such strategies, but they can do so when

prompted or cued. Strategic processors possess and use the skills necessary to store and retrieve information. The ages associated with these stages depend on the cognitive activities involved. For the latest-developing activity, the allocation of attentional effort to central rather than incidental material, the suggested ages are: limited, under 8 years of age; cued, 8-12 years; and strategic, 13 years of age and older. Thus, we may not expect children to be fully able to focus attention on important message arguments and spontaneously counterargue until they are 13 years old. Children 8 to 12 years old may need prompting to focus their attention and to counterargue, while children under 8 may be incapable of doing so at all. Thus, Roedder's theory leads to an empirically testable hypothesis regarding the effect of cueing or prompting on elaborative cognitive responses in the three stages. Specifically, cueing should improve children's use of cognitive response strategies in the middle age group, but it should have little or no effect in the youngest and oldest age group.

The view that post-infancy changes in cognitive activities are "fundamental, qualitative, and stage-like" has been increasingly questioned in recent years (Flavell 1985). The alternative view is that children make continuous progress in their cognitive activities. If this is true, then the role of stage theories like Roedder's and Piaget's is to simplify communication, rather than to provide an accurate description of developmental progress.

Whether or not progress occurs in stages, it is well-documented that children become more and more adept at information processing activities as they grow older. But is this increased facility for cognitive activities due to biological development or can it be explained by other factors? It has been argued that the acquisition of knowledge, rather than age itself, causes the observed increase in facility for information processing (Chi 1981, Flavell 1985).

This distinction is particularly important regarding the public policy issue of advertising to children. If children's ability to defend themselves against persuasive attempts can be substantially affected by acquiring knowledge, then consumer education for children is a potentially useful option. On the other hand, if children's ability to defend themselves against persuasive attempts is blocked by age, then protective regulations may be appropriate. In the next section of the paper, we discuss children's knowledge and its role in cognitive responses.

Children's Knowledge

As children develop, they acquire factual and conceptual knowledge about themselves and the world around them. This is termed "declarative knowledge." In an advertising context, the relevant aspects of declarative knowledge are knowledge about the product being advertised and knowledge about advertising in general. Children also acquire "procedural knowledge", knowledge about how to solve problems and accomplish tasks. In this context, the relevant aspect of procedural knowledge is knowledge of elaborative cognitive responses as a strategy for processing advertising messages. Children must have both declarative and procedural knowledge in order to form cognitive elaborations in response to advertising.

Based on a review of research in cognitive development and cognitive psychology, Siegler (1983) suggested several conclusions about the effects of a child's knowledge on information processing activities. First, knowledge influences the recall of newly presented material. Second, memory improves during periods of development in which there is little improvement in procedural knowledge but substantial improvement in declarative knowledge. Third, age-related differences in measures of basic capacities and information processing strategies may be attributable to changes in declarative

knowledge. Fourth, in some circumstances, differences in declarative knowledge outweigh all other age-related differences.

Product Knowledge. It has been shown that product knowledge facilitates cognitive responses in adults (Edell and Mitchell 1978). However, empirical research on the role of product knowledge on children's cognitive responses to advertising has not been published (although at least one study is currently underway (Costley 1985)). In the light of Siegler's conclusions, it is likely that Edell and Mitchell's results will extend to children as well as adults.

Advertising Knowledge. Much research has been conducted on children's knowledge of the purpose of advertising. The implicit assumption is that children who know that advertising is a biased source will critically evaluate advertising messages, and thus be no more persuasible than adults. Roberts (1982) suggests that children must understand four concepts about advertising before their advertising knowledge can provide them with a usable cognitive defense. Children must recognize (1) that the advertiser and viewer have different perspectives and interests; (2) that the advertiser intends to persuade; (3) that all persuasive messages are necessarily biased; and (4) that biased messages demand different interpretation strategies that do informational, educational, or entertainment-oriented messages. Note that this last concept is procedural rather than declarative knowledge. Roberts further suggests that all four aspects of knowledge typically do not occur until age 10 to 11. Earlier research suggested that children "understand" the persuasive intent of advertising by 7 or 8 (Wartella 1984), but this research generally considered only the first one or two of these four advertising concepts.

The role of advertising knowledge is different from the role of product knowledge in affecting children's cognitive responses to advertising messages. Product knowledge provides a reference point with which to compare information provided in advertising. For example, a child with prior knowledge of Auto-bots who sees close-ups of Auto-bots in a TV commercial may think "Auto-bots aren't really that big." Advertising knowledge, on the other hand, alerts the child to the possibility of hyperbole, puffery, and exaggeration. Advertising knowledge might elicit a cognitive response like, "There they go again, using special techniques to make a product look bigger than it really is."

Procedural Knowledge. As Roberts (1982) implied, procedural knowledge is necessary in order for declarative knowledge to have an effect on cognitive responses. If a child does not know how to critically evaluate messages, then his or her store of declarative knowledge cannot be used. Unfortunately, it seems difficult to instill procedural knowledge about information processing strategies in children. For example, in one study, young children were taught the mnemonic strategy of verbal rehearsal, but used it only when told to do so (Keeney, Cannizzo, and Flavell 1967). This finding has been replicated under a number of conditions (Flavell 1985). This robust finding led Roedder (1981) to define a class of "cued-processors," children who do not use sophisticated information processing strategies spontaneously. In order to provide cued processors with an adequate cognitive defense it may be necessary to provide a cue (perhaps in the form of a public service announcement) during children's TV viewing hours in order to remind them to adopt a critical processing strategy.

It has yet to be empirically determined at what ages children become capable of producing elaborative cognitive responses under cued conditions. Below this age, children are incapable of cognitive responses even if they do have product knowledge and know the selling intent of advertising, since they lack the necessary procedural knowledge. Eventually, children become capable of spontaneous cognitive responses, but this age, too, remains to be empirically determined.

The term "involvement" has come to mean several different but related concepts. In this paper, involvement means degree of "personal relevance" of the message or consequences (Petty, Caccioppo, and Schumann 1983). Petty and Caccioppo (1981) proposed the Elaboration Likelihood Model as a way to understand the effects of involvement on attitude change in adults. This model contends that "as an issue or product increases in personal relevance or consequences, it becomes more important and adaptive to forming a reasoned and veridical opinion. Thus, people are more motivated to devote cognitive effort required to evaluate the true merits of an issue or product when involvement is high rather than low." If this adult model is also appropriate for children, we would hypothesize that children will produce more elaborative cognitive responses when a commercial is personally relevant than when a commercial is not relevant.

We might imagine, however, that children (particularly very young children) might not be motivated to form a "reasoned and veridical" opinion when an advertised product is personally relevant to them, say, for example, Cabbage Patch dolls or Transformers for 9 year old girls and boys, respectively. Casual observation suggests that emotional reactions dominate reasoned and veridical thinking in such situations. In fact, the relationship between level of involvement and number of elaborative cognitive responses may be negative if affective reactions replace cognitive reactions. One might speculate that children need experience with budget constraints and purchasing in general in order to understand the importance of carefully considering purchase alternatives. Thus, we hypothesize that the ELM model does not extend to young children. Specifically, high involvement results in equal or fewer elaborative cognitive responses than low involvement.² This hypothesis remains to be empirically tested. If true, further research on what factors affect the child's transition to the adult model would be interesting and important.

Verbal Ability

It is believed that verbal ability affects the measurement of cognitive responses in adults (Wright 1980). Children display a much wider variance in verbal ability than do adults, most obviously between age groups, but within age groups as well. Thus, it is argued that verbal ability is a particularly important factor to control for in studies of children's cognitive responses. Alternatively, it may be insightful to assess the degree of convergence between level of verbal ability and extent of counterarguing.

Summary and Conclusion

We have argued that cognitive responses are an appropriate measure of the use of children's cognitive defenses to advertising. The individual factors believed to moderate the use of cognitive responses in this context are stage of cognitive development, knowledge about products, knowledge about advertising, knowledge about how to process biased information, degree of involvement, and verbal ability.

²Note, however, that this hypothesis is dependent on the "personal relevance" definition of involvement. According to Batra and Ray (1983), lack of cognitive response is associated with low involvement by definition.

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CHASING THE WUNDT CURVE:
AN ADVENTURE IN CONSUMER ESTHETICS

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Abstract

This paper provides a brief progress report on research investigating the effects of musical tempo on perceived activity and affect. After introducing some key issues, we describe our experimental procedures and report preliminary support for (1) a logarithmic or power function relating tempo to perceived activity, (2) a nonmonotonic Wundt curve relating perceived activity to affect, and (3) a shift in this Wundt curve in response to a change in arousal. We conclude with a discussion of remaining issues that deserve investigation.

Introduction

Many marketers and designers of advertisements have traditionally employed music in their programs to encourage consumer purchasing and to enhance persuasiveness. In particular, music has been used to improve store image (Milliman 1982) and to increase message acceptance (Galizio and Hendrick 1972). Despite the widespread use of music, research documenting its effects has remained limited. One reason for this gap in the literature is that the study of music as a form of communication poses several difficulties. The term "music" denotes a wide range of stimuli (for example, pitch, frequency, density, modality, and tempo) that hang together in an extremely complex gestalt. One pulls apart this gestalt only at one's peril. Nevertheless, through the isolation of individual variables, some provocative findings have begun to emerge. Our general impression is that such findings have appeared most frequently and reliably in work exploring the effects of tempo on perceived activity and affect.

Zimny and Weidenfeller (1963) measured subjects' heart rate and skin resistance to three pieces of music, found that faster music decreased skin resistance, but detected no such changes for neutral or calming music. They interpreted their data as indicating that more exciting music produces an increase in physiological arousal. Similarly, Seidman (1981) found that fast music tends to elicit happiness and excitement, whereas slow music tends to elicit more somber moods such as calmness and sadness. However, there is some evidence that fast tempos may also have debilitating effects. Wakshlag, Reitz, and Zillmann (1982) found that, although faster background music increased selective exposure to an educational program, slower music yielded less decrease in visual attention and information acquisition. In an applied setting, Milliman (1982) found that slower background music resulted in longer in-store traffic flow and increased sales volume.

In the field of consumer research, several studies have shown effects of musical tempo on perceived activity (e.g., Holbrook 1982, 1983; Holbrook and Huber 1983, Huber and Holbrook 1979) and of tempo or perceived activity on affect (e.g., Holbrook 1981, 1983; Holbrook and Corfman 1985; Huber and Holbrook 1980). However, most of the effects reported in the consumer literature have been only directional (e.g., perceptual responses to two levels of tempo) or linear (e.g., affective responses to a range of perceived activity). Yet these linear monotonic effects inadequately represent the underlying theory from conventional psychophysics positing a logarithmic relation between tempo and perceived activity (Fechner 1860, Stevens 1975). Moreover, linear or

¹The second author gratefully acknowledges the support of the Columbia Business School's Faculty Research Fund.

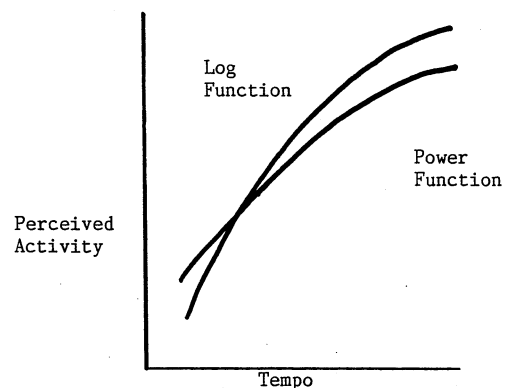
monotonic relationships may seriously distort the nonmonotonic impact of perceived activity on affect (Wundt 1874) described by psychobiologists (e.g., Berlyne 1971, 1974). Both these aspects of the work on musical tempo in consumer esthetics therefore require repair. In addition, further aspects of the effects of tempo deserve exploration.

Tempo and Perceived Activity

Briefly, psychophysics is concerned with the quantitative measurement of sensation. Fechner's Law (1860), modeling the relationship between the strength of an external stimulus and subjective impressions of intensity, is an extension of Weber's Law (1846). Weber proposed that a fixed percentage must be added to a stimulus in order to produce a just noticeable difference (JND). Fechner assumed that each time the stimulus is increased by one JND, the sensation increases by a constant increment. These assumptions imply that perceived activity is a linear function of the logarithm of tempo. By contrast, Stevens (1975) has argued vehemently that magnitude estimates are related to stimulus intensity by a power law by which equal percentage increases in the stimulus produce equal percentage increases in the response so that (for our purposes) a linear relationship would exist between the logarithm of tempo and the logarithm of perceived activity. Baird and Noma (1978) show that, in accord with the debate between Fechner and Stevens, the relative appropriateness of the logarithmic and power laws depends on whether one measures sensation or perception on an equal-interval or a ratio scale. Hence, when scale properties remain in doubt (as in the present case), the choice of models becomes at least partly an empirical issue. The difference between the logarithmic and power functions appears in Figure 1.

FIGURE 1

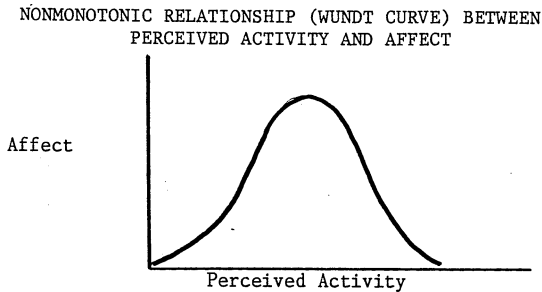
PSYCHOPHYSICAL RELATIONSHIP BETWEEN TEMPO AND PERCEIVED ACTIVITY



Perceived Activity and Affect

Abundant evidence connects affect to fluctuations in arousal (Berlyne 1967, 1971, 1974). Stimulus patterns that give rise to very low or very high levels of arousal will be unpleasant, aversive, and disliked, whereas those that lead to moderate arousal levels will be more pleasurable. Given a direct connection between perceived activity and arousal, the resulting relationship should follow the Wundt curve presented in Figure 2.

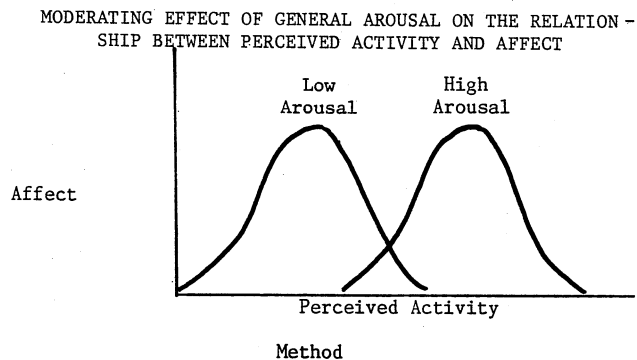
FIGURE 2



The Moderating Effect of General Arousal

In addition, esthetic theory (Berlyne 1971) also suggests that the nonmonotonic Wundt curve should shift toward the right as general arousal increases (due to changes in the situational context). This hypothesized relationship appears in Figure 3.

FIGURE 3



To test these propositions, we varied the tempo of a piece programmed for a Casio keyboard. This instrument was selected because it permits a carefully controlled and precisely replicable range of speed settings. The fourteen tempo levels ranged from 56.6 beats/minute (the Casio's slowest speed) to 348.3 beats/minute (judged to be faster than any tempo likely to be encountered in everyday experience). In the spirit of Weber's Law, each tempo level was determined by adding a constant percentage increment (15%) to the preceding level. Subjects heard all fourteen different levels of tempo in randomly determined orders (cf. Stevens 1975).

General arousal was manipulated by assigning different distraction tasks to different subjects. One group of subjects sat still with their eyes closed while the experimenter changed tape cassettes. The other group worked on four anagram puzzles (related to musical terms and intended to be mildly arousing) between tempo presentations. Thus, in the manner typical of work in psychophysics, tempo varied within subjects (cf. Stevens 1975). By contrast, general arousal was manipulated between treatment groups. Forty-four subjects participated in the experiment. After subjects listened to each tempo, they filled out two instruments intended to measure perceived activity and affect. The affect measure consisted of six bipolar adjectival scales (e.g., unpleasant/pleasant). The perceived activity measure contained eight bipolar adjective scales (e.g., slow/fast). After listening to all the tapes, subjects also provided information on demographics, familiarity with the music, and past musical training.

Extensive data analyses have generated preliminary results that appear strongly to support the three hypothesized relationships. Specifically, (1) perceived activity varies directly with the logarithm of tempo; (2) affect responds nonmonotonically to perceived activity (and to the log of tempo) with a peak at moderate levels of tempo; and (3) this peak shifts from a lower to a higher position on the perceived activity continuum with increases in general arousal. By contrast, demographic variables, familiarity, and past musical training have shown no impact on perceived activity, affect, or the moderating effect of arousal.

Remaining Issues

Amidst these promising preliminary findings, some important issues remain for further analysis. Three appear to deserve special attention.

First, the superiority of the logarithmic versus the power law should depend on whether our index of perceived activity behaves as a category (equal interval) scale or as a scale of numerical magnitude (ratio) estimation (Baird and Noma 1978, Stevens 1975). We can muster arguments for either interpretation of the activity index and therefore feel that the issue should be decided by a careful comparison of the fits obtained by logarithmic and power functions. This analysis still awaits completion.

Second, though most psychophysicists work with group averages based on within-subject designs (Stevens 1975), we shall be more comfortable with our results for the moderating effect of general arousal on the relationship between tempo and affect if these findings retain their significance when tested by the appropriate repeated-measures design (cf. Latour and Miniard 1983).

Third, theory and previous studies suggest the likelihood of sequence effects on both perceived activity (Stevens 1975) and affect (McClelland, Atkinson, Clark and Lowell 1976). Specifically, one's impression of speed or liking for a piece of music should depend in part on the tempo of the last piece heard. The results of preliminary regression analyses suggest that such order effects do indeed occur, but our statistical procedures need further refinement.

In sum, these and other issues still await investigation before we can report our results in full. More generally, the glimpse provided here appears to argue for the more widespread and systematic exploration of the psychophysical aspects of consumption experiences. With rare exceptions (Buchanan and Morrison 1984; Moskowitz, Jacobs, and Firtle 1980), psychophysics has remained a neglected area in consumer research. We hope this study encourages a broader adoption of psychophysical methods to increase our understanding of the relationship between different aspects of music and sensations in particular, the nature of consumer esthetics in general, and ultimately the full spectrum of experience involved in the phenomena of consumption.

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TOWARDS A MODEL OF CONSUMER POST-CHOICE
RESPONSE BEHAVIOR

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Abstract

A process model of consumer post-choice response behavior is developed from four components which include the type of post-choice response, as the dependent variable, and as the independent variables, attribution of the cause of satisfaction/dissatisfaction, the subjective probability of a successful response, the expected consequences of a response, and the characteristics of individual consumers.

Introduction

Two distinct approaches to model consumer post-choice processes have been attempted. The first, called comprehensive models in this paper (Hunt 1979, Wilton and Tse 1983), conceptualizes consumer post-choice processes through flow chart diagrams. This approach describes post-choice activities and their feedback loops, but it fails to specify how determinants of post-choice response interact to affect the consumer's choice of one or more post-choice responses.

The second approach, pioneered by Day and Landon (1977) and subsequently modified by Day (1980, 1984), attempts to specify how post-choice determinants interact through mathematical models. These attempts to model post-choice processes mathematically, plus a desire to use consumer satisfaction/dissatisfaction research and related concepts to help in the development of consumer policy, stimulated our project. The model proposed in this paper represents a first step towards this goal.

A Model of Consumer Post-Choice

The behavioral processes included in this model encompass more of the total behavior and experience of the subject's performance of psychological and behavioral activities than previous formulations. We view the process as the psychological and behavioral activities the subject performs on an object within an environment to attain some specific goals. The activities involve costs and effort, generate feedback and take time. In short, behavioral processes consist of a subject, an object, an environment, the activities, the motives and goals underlying the activities, the costs incurred and the benefits derived, the feedback generated and the time elapsed in the attainment of those goals. The major elements of the model developed in this paper is a vector of post-choice responses as the dependent variable, the attribution of the source of satisfaction or dissatisfaction, the subjective probability of a successful response, the expected consequences of a particular response, and an individual's predisposition to respond. A formulation of the model is as follows:

The relationships specified in the model include the multiplicative nature of the standard expectancy model of subjective probability and expected consequences of a response in the two middle terms. We are not sure of the nature of the functional form of the attribution part of the model. And the individual differences portion is similarly unspecified as discussed near the end of the paper. The subcomponents of the expected consequences component are standard economic theory relationships, with the addition of psychological and social costs and benefits. While not especially wedded to the functional forms, we wanted to include hypothesized relationships where the theory would seem to support them.

The model differs from existing conceptualizations in three ways; it includes responses of both satisfied and dissatisfied consumers, while previous models are generally of complaint behavior by dissatisfied individuals; it is a process model which incorporates feedback from consumers' previous choice and post-choice experiences; and it incorporates consumer's expected psychological, monetary, time and physical costs and benefits as variables in predicting the choice of a variety of possible post-choice responses. Each component, and ways to measure and validate them, are discussed below.

Post-Choice Responses

The model's first component, its dependent side, contains a vector of consumers' psychological and behavioral post-choice response alternatives. It includes the responses of both satisfied and dissatisfied consumers ranging from expressing one's thanks for a good meal at a restaurant by thanking the chef or leaving a tip, to taking a defective product back to the store for an exchange, to bringing suit for a million dollars in damages caused by the faulting engineering design of an automobile. These responses may be complex. They may be engaged in simultaneously, or they may be sequential in nature, one being used after a previous response has been ineffective. Three complexities of this component are discussed below.

First, the literature indicates that satisfied and dissatisfied consumers may engage in a wide variety of psychological and behavioral responses subsequent to their consumption experience. The psychological responses may include changing one's overall belief, attitude, product attribute salience, and repurchase intent towards the product. Behavioral responses include private actions, legal actions, and compensatory behavior.

$$\left[\begin{array}{c} \text{Consumer} \\ \text{Post-Choice} \\ \text{Responses} \\ \text{time } t+1 \end{array} \right] = F \left[\begin{array}{c} \text{Attribution} \\ \text{of Source of} \\ \text{Satisfact./} \\ \text{Dissatisfac.} \\ \text{time } t \end{array} \right] \times \left[\begin{array}{c} \text{Subjective} \\ \text{Prob. of} \\ \text{Successful} \\ \text{Response} \\ \text{time } t \end{array} \right] \times \left[\begin{array}{c} \text{Expected} \\ \text{Consequences} \\ \text{of Particular} \\ \text{Response} \\ \text{time } t \end{array} \right] \times \left[\begin{array}{c} \text{Predisposition} \\ \text{of Individual} \\ \text{to} \\ \text{Respond} \\ \text{time } t \end{array} \right]$$

(see expansion of
this term below)

$$\left[\begin{array}{c} \text{Expected} \\ \text{Consequences} \\ \text{of Particular} \\ \text{Response} \\ \text{time } t \end{array} \right] = \left[\begin{array}{c} \text{Expected} \\ \text{Economic} \\ \text{Soc-Psych} \\ \text{Physical} \\ \text{Time} \\ \text{Gain} \\ \text{time } t \end{array} \right] - \left[\begin{array}{c} \text{Accumul.} \\ \text{Economic} \\ \text{Soc-} \\ \text{Psych} \\ \text{Time} \\ \text{Loss} \\ \text{time } t \end{array} \right] + \left[\begin{array}{c} \text{Expected} \\ \text{Cost} \\ \text{Successful/} \\ \text{Unsuccessful} \\ \text{Response} \\ \text{Social-} \\ \text{Psych} \\ \text{Time} \\ \text{Loss} \\ \text{time } t \end{array} \right]$$

Second, the choice of a specific post-choice response is not discrete. Dissatisfied consumers frequently engage in a number of post-choice responses rather than a single activity (Wilton and Tse 1983, Day and Ash 1979). For example, we know that some dissatisfied consumers have and continue to lower their evaluation of the brand, AND to tell their friends about it, AND complain to the retailer AND to the manufacturer.

Third, Nicosia's (1981) study of how consumers cope with product failure shows that consumers may possess a "hidden agenda" of post-choice responses. Some actions, especially the less extreme activities such as complaining to the sales clerk, are taken first. If the complaints are not favorably received, then other activities are likely to be undertaken.

The number of previous studies of post-choice behavior is skewed towards complaint behavior for obvious reasons. However, recent findings in the TARP (1984) study for the Coca-Cola Company suggest that satisfied consumers engage in psychological and behavioral responses towards the company that are different from the responses of dissatisfied consumers. Further, previous studies tend to concentrate on predicting specific post-choice activities while little or no effort has been expended on predicting the choice of specific sets of responses or the possible sequence development of an agenda of response activities.

Measurement of Post-Choice Responses

Measures of post-choice responses are well established. Psychological responses can be measured by changes in belief, product attribute salience, brand attitude, and repurchase intention. Behavioral responses can be assessed through measuring the activities and the responses in which consumers engage.

This model component is probably best studied by longitudinal consumer surveys, consumer panels and process design experiments in which consumer post-choice responses are simulated to occur in predetermined sequence (Tse 1984). In such designs, consumer's beliefs, attitudes, and repurchase intentions can be measured before and after their consumption experience. In addition, the post-experience questionnaires should include intention measures of various post-choice behavioral activities. Follow-up to validate the behavioral activities are also indicated.

Attribution of Satisfaction/Dissatisfaction

Consumers have expectations about their consumption experiences. The satisfaction/dissatisfaction literature hypothesizes that if these expectations are either positively or negatively disconfirmed, consumers may feel confused and stressed (stress is defined as a general state of arousal (Selye 1976)). The emergent stress is likely to motivate consumers to engage in an attribution process. Attribution studies in psychology suggest that consumers may engage in attribution to reduce their dissonance in addition to conventional dissonance reduction strategies. Models of consumer post-choice behavior (Tse 1984) suggest that consumers who experience dissonance may engage in attribution before adopting other dissonance reduction strategies. We believe that further research on this area will be a part of our task. That is, the research process is directed toward explaining the underlying causes for the disconfirming experiences and how consumers cope with them.

Consumers engage in the attribution process for three major reasons. First, they wish to restore control over their confused environment. Knowing the underlying causes of disconfirmation is a beginning step in this direction. Second, knowledge of the underlying causes of dissatisfaction offers important guidance for subsequent activities. Third, disconfirmed consumers may use the attribution result to reduce their stress, such as reducing their responsibility for the dissatisfaction (Krishnan and Valle 1979, and Tse 1984).

Previous studies of attribution in post-choice processes investigated the concepts of locus - who should be responsible (Valle and Wallendorf 1977), stability - the dynamics of the locus (Folkes 1983), level of specificity - by chance or if the experience can be generalized (Lawther, Krishnan and Valle 1979), and controllability - whether or not the locus is in control of the outcome (Folkes 1984).

Attribution is a process where consumers act as intuitive scientists who develop and test hypotheses about the underlying causes of their experience from the available information. They actively seek evidence to validate their hypotheses and/or revise their prior hypotheses. Feedback from attribution activities are likely to change the consumers' beliefs, attitudes and repurchase intentions. The attribution result has sometimes appeared to be unstable (Folkes 1983) and seldom does there appear to be a clean dichotomy where the attribution is completely recognized to be internal to the individual or the fault of manufacturers, sellers or other external factors (Tse 1984). Because of the process nature of attribution, to fully understand measurement results, researchers need to know if consumers are still in a stage of the attribution process or whether they have already decided on how to attribute a situation.

Measurement of Satisfaction/Dissatisfaction Attribution

The four different attribution dimensions listed above may be measured by either surveys or experiments. Measurement scales may also be developed. Longitudinal surveys or process design experiments are needed to study the notion of an attribution process, that is, to observe how disconfirmed consumers are simulated to engage in attribution, to measure the attribution activities undertaken and the results of those activities, to identify the factors that terminate the attribution process, and, last and most important to our model, to determine how the attribution result influences the choice of subsequent post-choice responses.

Subjective Probability of Success

The second determinant in the model is the subjective probability of success the consumer associates with a specific post-choice response. While this construct has not been incorporated formally into models of post-choice behavior, except in Day (1983), there is evidence in previous studies that this construct is important in consumer's decisions. For example, in complaint behavior surveys, dissatisfied consumers explained that they did not engage in specific form of redress because: "it wouldn't do any good", (Warland, Herman and Willits 1975); they "didn't think it would make any difference" (Leigh and Day 1979); or they "didn't think anything they could do would make any difference" (Day and Ash 1979). It is likely that consumers develop these subjective probabilities from information and/or prior experience.

Measuring Perceptions of Success

In a recent paper, Day (1984), developed some measures of the consumer's subjective estimates of the possible consequences of specific post-choice responses. His measures, for example, the chances of recovering out of pocket costs of complaining, seem to combine both the subjective probability assessment and the consequences of a particular redress activity. Our model is designed to isolate the consumers' subjective estimates of the probability of the success of a particular post-choice response.

Timing of measuring this component is an important issue. Ideally, the measure needs to be administered before the consumer engages in a post-choice response activity if that activity is not to bias the results. Finding an adequate sample of dissatisfied consumers, given that satisfaction/dissatisfaction studies generally have shown that consumers are satisfied with most purchases, appears to be a non-trivial problem. Being able to find and measure their psychological state before any response has been made appears even more difficult.

Subjective Estimate of Consequences of Response

The third determinant in the model is designed to test our hypothesis that the choice of post-choice response is a function of the consumers' expected consequences of that particular response. The model adopts an "holistic" approach to expected costs and benefits by including the effects of the current choice and all previous post-choice activities. The model overtly recognizes the possible importance of feedback from previous responses on the present response. We think this component is the model's most important contribution. It differs from previous and more conventional approaches which have used only the effects of the current product/service experience on post-choice decisions.

For example, a person may bring suit for an apparently trivial matter which on its face seems illogical. However, the sales clerk was rude and unhelpful when they tried to return a faulty product to the department store. A hot argument with the store manager concluded with the manager's parting comment casting doubt on the consumer's parentage. A telephone call to the manufacturer's consumer affair department was put on hold for fifteen minutes and then disconnected. And to add insult to injury, the company ignored their letters of complaint. While this and similar scenarios are infrequent, they have happened. The post-choice response to sue in court is likely the result of the totality of the results of the unfortunate experiences and we feel an attempt should be made to overtly include and accumulate such matters in the model.

The expected consequences component of the model is the net result of summing the expected benefits of a response and subtracting both its expected costs as well as the accrued costs of all previous post-choice responses. The problems associated with these concepts are discussed below.

Expected Costs and Benefits

This component has been considered by others. Different costs and benefits include time (Day 1980), money (Richins 1979), and psychological costs and benefits (Bearden and Teel 1980). We attempt to include within this component responses beyond complaining behavior which include things such as physical costs, e.g., the costs consumers may incur trying to repair their broken appliances, the travel costs to return merchandise and similar costs seldom considered in previous studies. The major challenge in this element is not that of conceptualization, since the ideas are the concepts basic to micro economics. The challenge is how to measure and combine these disparate types of costs into a few measures that are mathematically tractable in the model. A further problem is how to accrue such costs and benefits, as perceived by the consumer, over a number of time periods.

Measuring Expected Costs and Benefits of Response

Measures of each type of cost and benefit has been developed to some degree (Richins 1979). As stated above, what needs to be developed is a method to combine them. Nicosia's (1981) coping study pioneered the use of conjoint analysis in this area. This technique merits further study. Economists have been using tradeoff techniques to measure relative utility of two or more goods or services. We are in the process of investigating whether these techniques, similar in some respects to conjoint analysis, may provide some help in measuring this component. Measuring, incorporating and combining values of psychological costs and benefits with more conventional monetary and time costs presents an additional challenge that will have to be addressed.

Accrued Costs and Benefits

This model component contains the key difference of the proposed model from existing models of consumer complaint behavior. Accrued costs and benefits are defined as the accumulation of the time, monetary, psychological and physical costs and benefits of consumers from all their previ-

ous post-choice responses. The construct is meant to be a "reservoir" or "storage tank". That is, it is a system that captures and records the feedback of all previous post-choice activities and attacks the problem in other models which do not overtly recognize that few consumers enter transactions without previous experience and without existing attitudes towards the exchange transaction. We expect to have to include a forgetting (decay) function in this component as there is much evidence that the salience of both positive and negative feelings about product/service choice and use experience decline over time (Oliver 1981).

Measuring Accrued Cost and Benefit Experience

We have not found previous attempts to measure consumer feedback systems of post-choice response experiences. In this relative void of empirical measurement we presently plan to proceed as follows.

Measures designed to understand behavioral processes must be able to capture consumers' activities and psychological states at different time slices. Having obtained these time series data, we may be able to make inferences about the process(es) through which consumers have gone. Previous studies and discussions on how consumers may change after product experiences suggest studying the following variables in feedback mechanisms. They include attitudes (Nicosia 1966), beliefs (Engel, Kollat, and Blackwell 1978), confidence (Howard and Sheth 1969), salience (Tybout and Yalch 1980), and choice heuristics (Bettman 1979). The above constructs are likely not to be exhaustive. Nonetheless, the idea that there exists a feedback system within consumers which enable them to remember and be changed by their experiences is intuitively realistic. Studying these feedback processes is crucial to understanding and modeling post-choice response behavior.

Individual Consumer Characteristics

This component of the model will either become an error term or will be the pool of data from which one or more characteristics specific to individuals or to groups of consumers will be found that can help in explaining post-choice response. Given the frequent failure of both psychological and consumer behavior research to identify individual differences capable of explaining a significant proportion of variation among individuals, we do not expect much from this variable and expect it will be mainly the error term. However, we could be surprised.

Summary and Future Directions

A process model to explain and predict consumer choice of post-choice behavior in response to satisfied and dissatisfied consumption experiences was outlined. The authors are presently engaged in finding existing data bases to test some portions of the model. A series of research designs are in the planning process to test other aspects of the model.

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THE ROKEACH VALUE SURVEY AND CONSUMER
BEHAVIOR: THEORY, METHOD, AND
RESEARCH GUIDELINES

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Abstract

The Rokeach Value Survey (RVS) has been the primary instrument for the measurement of values in Consumer Behavior. There are, however, theoretical and methodological difficulties involved with the application of the RVS to consumer research. This paper uses an historical perspective derived from the marketing literature and Rokeach's writings to examine these difficulties. The primary argument, in keeping with Rokeach's original development, is that research should emphasize the structure and function, rather than merely the content, of value systems. Of particular concern is the question of the dimensionality of the value system. Specific methodological guidelines are provided to suggest directions for future research.

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EFFECTS OF RECREATION USAGE SITUATION AND PREVIOUS
EXPERIENCE ON SETTING CHOICE

David A. Boag, University of Saskatchewan

"Abstract"

This research focuses on recreation usage situation influences on the choice of recreation setting. The argument presented is that recreation takes place within a specific recreation usage situation and is likely to have been aided, inhibited or guided by the conditions of that situation and the recreationist's previous recreation participation in it. The paper reports the results of an on-site survey of 379 recreationists who reported their preferences toward ten recreation settings in each of ten different usage situations. A two-way analysis of variance indicated that preferences toward recreation settings varied across usage situations. Comparing correlation coefficients for preferences on the basis of a test-retest for high and low participation frequencies in each situation provided no support for the theory that more experienced individuals are more stable in their preferences than those less experienced.

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CLOTHING-RELATED RISK PERCEPTIONS OF DISABLED PEOPLE

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Betty Feather, University of Missouri-Columbia
John W. Vann, University of Missouri-Columbia

Abstract

Wheelchair-bound consumers face special clothing-related problems in dressing, in comfort, and in appearance. The risks which these disabled consumers perceive in buying clothing were examined along the physical, performance, psychological, economic, and social dimensions. Physical risk was rated as the highest clothing-related risk dimension, followed, in order, by the performance, psychological, economic, and social dimensions. The relative positions of physical and social risk were the reverse of what had been reported in earlier studies of able-bodied consumers. Only the performance and social risk dimensions were significantly correlated with an overall risk measure. Collectively, all the dimensions explained only 12% (n.s.) of the variance in overall risk. The highest interdimensional correlation was between economic and performance risk. Those with congenital disabilities perceived greater overall risk than those who had acquire their disabilities.

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THE EFFECT OF STRUCTURAL MODIFICATION ON HOMEOWNERS'
ENERGY CONSERVATION BEHAVIORS

Jeanette A. Brandt, Oregon State University
LaRae Chatelain, Utah State University
Becky O. Beck, Eagle River, Alaska

The hypothesis that homeowners' energy conservation behaviors decrease once structural energy saving modifications are added to residences was refuted by the findings of this study. Using a longitudinal sample from eight western states, the energy conservation behaviors of homeowners who added specific structural energy saving modifications were compared with those who did not by t-tests. Three significant ($p < .05$) positive relationships between the addition of specific structural modifications and concomitant energy conservation behavior change were found. Although no significant difference in behavior change was found for the remaining six hypotheses, the addition of five of the structural modifications were accompanied by increases in energy conservation behavior. Knowledge of the positive relationship between structural modification and concomitant energy conservation behavior may be used by professionals to educate consumers and as a basis on which policy decisions can be made.

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**SUBSTANCE ABUSE IN SPECIAL POPULATIONS:
ALCOHOL USAGE AND THE SENIOR CITIZEN**

Victor A. Christopherson, University of Arizona

Abstract

Interviews were conducted with 444 individuals aged 65 years and older throughout the state of Arizona in order to determine the patterns and amounts of alcohol usage in this group. Respondents were grouped into categories on the basis of the quantity and frequency of alcohol consumption--abstainers, light drinkers, moderate drinkers, and heavy drinkers. Light, moderate, and heavy drinkers were differentiated according to reasons for drinking, as were the various age groupings. Findings indicated that the rural elderly's alcohol use is generally at an acceptable level and style, that alcohol use diminishes with age, and that drinking patterns and reasons generally remain consistent into old age. The fact that life styles prior to age 65 were more instrumental in determining drinking patterns in the later years than any other single factor, gave strong support to the continuity theory of senescence.

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THE IMPACT OF PERCEIVED RISK ON BRAND PREFERENCE

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Russell G. Wahlers, University of Notre Dame

Abstract

This paper examines the relationship between perceived risk and brand preference in four supermarket product categories. One hundred and three individuals were surveyed and the findings suggest that perceived risk is significantly associated with brand preference. A closer examination of the aggregated risk model indicates that disaggregation of the model (i.e., breaking the model into its individual risk dimensions) will likely improve its ability to explain brand preference. The results also suggest that the perceived risk of competing brands should be considered in the analysis. Extending the risk model to include the perceived risk of competitive brands improves the usefulness of the perceived risk construct.

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MODELING THE PROCESS OF ATTRIBUTE BELIEF FORMATION

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Carl Obermiller, University of Washington

Abstract

A model of belief formation is developed to account for beliefs based on interpretation of data, inferences from other beliefs, and halo effects from overall attitudes. The processes are discussed and the following hypotheses are proposed:

- H1: When data-based information is available, beliefs will be formed by a process of interpretation of the data.
- H2: When data-based information is not available, people will infer target beliefs from other belief values.
- H3: When neither interpretation nor inferences are possible, affective halo effects will occur.

The hypotheses are tested with two-stage least squares regression on survey data, which shows some support for a hierarchy of belief formation processes, depending upon the availability of relevant information. It is suggested that controlled experimental settings are needed to more thoroughly investigate the complex processes contributing to belief formation.

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**THE DEVELOPMENT OF CONSUMER AND
NON-CONSUMER SCRIPTS IN CHILDREN**

Audrey Guskey Federouch, University of Pittsburgh

Abstract

The purpose of this research was to study the development of consumer and non-consumer scripts in children of different ages across several varied event contexts. Five scripts (morning, recess, supertime, McDonald's, and grocery shopping) from three age groups of children, representing the Piagetian developmental stages, are compared and contrasted. The five event contexts were chosen because they vary in terms of frequency of experience, participation in the experience, the age of initial exposure, and the role of others in the experience. Using standard procedures, scripts were elicited, recorded and analyzed for 67 children. The results are primarily descriptive and illustrate the early development and salience of consumer scripts. It is shown that there are not always substantial developmental differences between children of different ages for the various scripts on the set of standard development criteria employed. Implications of the findings suggest the temporality of the script, the cultural basis of script knowledge, and the transition from observer to participant within the script. Future research should address the degree of script development and its relationship to the mindless script.

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USING LOG LINEAR MODELS TO EXAMINE THE RELATIONSHIP
BETWEEN PURCHASE INFLUENCER AND INFLUENCEE

Lawrence F. Feick, University of Pittsburgh
Jo Ann Novak, University of Pittsburgh

Abstract

In this paper we illustrate the use of log linear models for analyzing the relationship between opinion leaders and seekers. We show how these models can be used to test three general hypotheses about this relationship. We also illustrate how combinations of these hypotheses can be tested and show how to test product-specific effects on the relationship. To illustrate the use of these models we analyze a classic data set due to Katz and Lazarsfeld (1955). Analyses suggest that in the purchase of common household products, consumers seek advice from individuals of the same social status. For fashion products, more than one model adequately describes the relationship between opinion leader and seeker. While the small dimensions of the table limit our ability to analyze product-specific effects, the models discussed provide a richer interpretation than simple chi-square tests.

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THE DEVELOPMENT OF THE BOUNDARIES
OF GEOGRAPHIC SUBCULTURES

James W. Gentry, Oklahoma State University

Segmentation on a geographical basis has received some support in the literature and much usage in practice. Garreau's (1981) book The Nine Nations of North America has stimulated many marketers to rethink the boundaries of various geographical subcultures. The empirical basis for the Eight Nations in the United States is investigated in this study. Cluster analysis was used to group 53 U.S. cities on the basis of 30 demographic, marketing, and political variables. While the empirically-derived maps have some similarity to that developed by Garreau (1981), consistent differences were uncovered also.

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A DISAGGREGATE NONCOMPENSATORY CHOICE MODEL

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Abstract

Empirical research work modeling consumer multi-attribute choice problems using logit, probit, regression, conjoint, and LINMAP, which are derived from the utility maximization principle, are currently used in almost all applications. However, in their work, Russ (1971), Tversky (1972), Newell and Simon (1972), and Tversky and Sattath (1979) indicate that for many problems, choice behavior appears to be context dependent and hierarchical. The disaggregate hierarchical choice modeling approach has been restricted due to the lack of an efficient operational algorithm. This paper discusses a disaggregate noncompensatory model which estimates threshold tolerances (cutpoints), eliminates nonchosen alternatives, provides choice probabilities, and finally offers diagnostic information regarding the key attributes that are responsible for making a final decision.

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AMPLIFICATION OF THE BIPOLAR SCALE RESPONSE:
WHY UNIPOLAR SCALES SHOULD BE USED

Robert Gilmore, New York University

Abstract

It was argued that when consumers decide between conflicting alternatives, they will appear to have stronger attitudes than indicated by multiattribute measures. An impression formation experiment demonstrated that the bipolar scale response was more extreme (amplified) than predicted by the sum of the positive and negative unipolar scale responses and by the average of the individual attribute evaluations. Amplified responses only occurred when the attributes were affectively inconsistent. It was suggested that opposing response tendencies were simultaneously elicited when subjects responded on bipolar scales, but opposing tendencies were not simultaneously elicited when responses were made on unipolar scales. These conflicting tendencies produced processes which caused the amplified response. Unipolar scales should be used because they avoid conflict processes and because they provide additional information that bipolar scales can not provide.

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PHYSICAL FITNESS: AN INVESTIGATION
OF CONSUMER INVOLVEMENT

Kent L. Granzin, University of Utah
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Abstract

Physical fitness is a growing area of consumer activity. This study investigates the nature of consumers who participate in activities that aid fitness by distinguishing among three consumer segments based on their expenditures for products and services to support physical fitness activities. The results show the segments can be characterized in terms of their patterns of relatively passive and relatively active leisure pursuits, their attitudes, and their demographics and media habits.

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MODELING MULTIATTRIBUTE GROUP CHOICE

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Abstract

This paper proposes a model of multiattribute group choice. The model explicitly accounts for differences among group members regarding: i) the power structure, and ii) the interest of each group member in each attribute. These differences lead to divergent views regarding how much influence each group member should have on the final outcome. So, a consensus mechanism, similar to the Delphi process, is provided to reconcile these differences. The final result is a set of predictions of the influence of each group member over each attribute.

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MENTAL IMAGERY VIVIDNESS IN MARKETING COMMUNICATION

Evelyn Gutman, Boston University

Abstract

This study explored how individual ability in mental representation interacts with presentation modality to affect belief strength and accuracy of recall. Experiments were conducted with health care consumers at a major urban medical center. The same imaginal information was presented in four different modes, i. e., audio, visual, audiovisual and audiokinesthetic. The findings expand our knowledge about imaginal processing. First, imagery vividness was a multidimensional construct by sense. That is, imagery vividness by sense was associated with response outputs, while imagery vividness aggregated across the senses was not useful for evaluating imagery effects. Second, the effects of imagery vividness varied according to type of cognitive response, i. e., belief strength versus accuracy of recall. Third, imagery vividness interacted with presentation modality. The results emphasize the importance of studying imaginal processing in separate senses, suggest that processing among the senses may interact in identifiable ways, and provide direction about how to design, package and communicate information.

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DERMATOLOGICAL PROBLEMS ASSOCIATED WITH
CLOTHING AND HOUSEHOLD TEXTILES

Kathryn Hatch, University of Arizona

Abstract

Wearing clothing is a necessary and also a pleasurable experience. However, consumers sometimes complain of intolerance to certain fabrics and on occasion the dermatologist diagnoses that clothing has caused an adverse skin reaction. This research investigates the types of dermatitis that are caused or aggravated by fabrics, the specific aspect of the fabric (fiber, dye, finish, etc.) responsible for the reaction, and incidence of occurrence. Case histories as given in the medical literature were assessed. Results show that various fibers, dyes and finishes are associated with adverse skin reactions, though incidence rates cannot always be deduced. Evidence of consumer awareness of such reactions is also limited, and research in these areas is needed.

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REPORTED BEHAVIOR AND FUNCTIONAL
MOTIVES: SOME SELF-PERCEPTION INSIGHTS

Paula J. Haynes, University of Tennessee
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Abstract

This paper examines the use of self-perception attributions within Katz' functional approach. A two stage experiment was employed. First a list of 52 frequently purchased or used items was developed. Then a group of 105 undergraduates was given the list of items and four descriptions corresponding to Katz' four functional motives. Subjects were asked to categorize, if possible, their use or purchase of each item to one of the four descriptions. These responses were treated as self-perception attributions of reported behavior. Two questions were examined: 1) Would the four functions be useful in self-perceptions of past behavior, and 2) Would single functions tend to dominate these reports for each item? An across-subject analysis suggested the four functions could be meaningfully employed in a self perception context. Single motives dominated attributions for only six of the 52 items. The paper concludes with some suggestions on further research involving the functional motive approach with self-perception attributions.

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THE ROLE OF EMOTION IN THE CONSUMPTION EXPERIENCE:
ACTIONS AND REACTIONS IN CONSUMER BEHAVIOR

Morris B. Holbrook, Columbia University

Abstract

Recent progress in consumer research has moved toward a fuller understanding of intentional consumer actions. Multiattribute attitude models, decision models, models of buying choices, and other ways of studying rational purchasing behavior have all taken us further toward explaining reasoned action as one type of consumption activity. However, the study of consumer reactions has remained a relatively neglected area of investigation. For example, a prototypical reaction might involve emotional responses to advertising messages or to other symbolic offerings and the types of customer value that result therefrom. This paper proposes a conceptual scheme for integrating such reactive components into an expanded model of consumer behavior and thereby clarifies the role of emotional responses in the consumption experience.

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APPROACH TO LIFE SCALES

Richard Heslin, Purdue University
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Abstract

This study presents initial conceptual and empirical background to the Approach to Life (AL) scales (Heslin and Johnson 1985). These nine scales were developed to assess major behavioral orientations that underlie or facilitate consumer behavior. The scales are entitled (1) Aware of Other's Possessions, (2) Decision Confident, (3) Desires Sensuous Experiences, (4) Seeks Variety, (5) Impulse Buyer, (6) In the Communication Network, (7) Innovator, (8) Materialist, and (9) Go First Class. Care has been taken to avoid common personality inventory mistakes and pitfalls and to build on the procedures of the more careful instrument developers. Indications based on theory and data are that the scales are adequately separated yet all of them relate to the same general construct: Enjoys being a consumer and is likely to spend money. Results from a telephone survey reveal good initial support for the validity of the scales.

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A STATE VARIABLES REFORMULATION OF THE
HOWARD AND SHETH MODEL

Pamela M. Homer, University of Oregon

Abstract

Howard and Sheth's Model of Buyer Behavior has been the topic of both empirical investigation and criticism (e.g., Farley and Ring 1970; Engel, Kollat and Blackwell 1968, 1982; Zaltman and Wallendorf 1983). A reformulation is presented with primary focus on (1) increased parsimony, (2) designation of the precise relationships among the variables, and (3) complete empirical testability. Specifically, 13 variables are classified as either an antecedent, process, inference, or output variable and interrelated with 22 propositions based on past empirical findings. Suggestions of a causal approach for empirical testing are provided. An evaluation of the reformulated model as a theory implies it could ultimately be accepted as a theory of buyer behavior.

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SURREALISTIC ADVERTISING: A SOCIAL
ADAPTATION PERSPECTIVE

Pamela M. Homer, University of Oregon
Lynn R. Kahle, University of Oregon

Abstract

Surrealistic art techniques, an outgrowth of the early 20th century artistic movement, are often visible in modern day advertisements. Although these methods are quite widely used, research concerning their effectiveness and persuasive capabilities is virtually nonexistent. In an experiment subjects were exposed to print ads in which surrealism and priming (i.e., leading subjects to expect forthcoming messages with product-relevant information) were manipulated. Results found that priming influenced recall of message arguments, surrealism led to less incorrect recall of message arguments, and purchase likelihood was significantly related to the interaction of surrealism and priming. These findings were interpreted as supportive of Social Adaptation Theory.

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DISCORDANCE WITHIN CONCORDANCE AMONG MARINE
RECREATIONAL FISHERMEN IN THE SOUTHEAST

Jeffrey Johnson, East Carolina University
David Griffith, East Carolina University

Recreational fishermen target and use or reject fish on the basis of a variety of criteria. Many fish caught incidentally are discarded because of myth, rumor, or perceived negative characteristics that mask the positive values of the fish. To discover how fishermen make consumer decisions about saltwater species, we collected judged similarity data in Florida, North Carolina, and Texas, analyzing these data with multidimensional scaling, hierarchical clustering, and item-by-use matrices. We found that the general perceptions fishermen use to target, use, or discard species were uniform from region to region, but that the specific species which met these broad cognitive criteria varied from region to region. Fish regularly utilized in one region were considered "trashfish" in another. This study demonstrates that, despite general agreement among fishermen, specific decisions based on local information may result in different consumer behaviors toward the same consumer good.

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THE EFFECT OF COLOR VERSUS BLACK AND WHITE
ADVERTISING FORMATS ON AFFECTIVE RATINGS AND
PERCEPTIONS OF PRODUCT QUALITY

Wayne D. Hoyer, University of Texas
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Cathy J. Cobb, University of Illinois

Abstract

A problem with the academic research on color vs. b/w advertisements is that the majority of studies was conducted several decades ago, when the use of color in advertising was quite novel. A further problem is the overwhelming emphasis on the cognitive domain (attention, recognition, recall) in studying consumer response to advertising formats. Yet, there is now some evidence that advertising may work on more of an affective as opposed to a cognitive level. Thus, the present study takes a new look at the effect of color vs. b/w advertising formats, using variables of more current interest to marketers--affect toward the ad and perception of product quality. The study also examines several exploratory issues, such as variations in response across different types of appeals, product categories, levels of product intensity, and amounts of copy. The major finding was greater liking and slightly better ratings of quality for color versions; however, the differences were quite small.

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SOCIAL ADAPTATION THEORY IN CONSUMER BEHAVIOR

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Sharon E. Beatty, University of Oregon

Abstract

Social adaptation theory applies neo-Piagetian concepts to such content areas as attitude change and advertising effectiveness. The theory assumes that schemata grow as a result of dynamic adaptation through assimilation and accommodation, as well as through internal organization of information. Adaptation rather than rationality animates change. This paper elaborates on the theory, compares and contrasts it with other, competing theories, and describes applications of the theory in the research areas of advertising effectiveness, attitude-behavior consistency, self concept, values, and philosophy of science.

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CONDITIONING EMOTIONAL BENEFITS IN SATURATED MARKETS
STRATEGIES AND EMPIRICAL RESULTS

Franz-Josef Konert, University of Paderborn

Abstract

The increasing number of saturated markets in highly industrialized countries creates a considerable number of problems to marketing-management. This paper tries to generate an effective marketing-strategy for firms which are confronted with such markets. This strategy which uses techniques of conditioning is based on results of imagery research and activation theory. The first study examines the conditions of an emotional benefit strategy. These conditions are saturated markets, homogeneous products and the highly perceived quality of life. The empirical results (n=262; survey research) support these conditions. The more pronounced these conditions are the more important are emotional benefits. The second empirical study (n=200; 2x2 experimental design without repeated measurement) tries to verify the effectiveness of this strategy. The experiment was limited to print advertisements. The empirical findings corroborate the strong effect of the strategy for all measures (activation, product evaluation, ad evaluation and memory performance measures).

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CONSUMER ATTITUDES AND PARTICIPATION IN A VOLUNTARY
ENERGY CONSERVATION PROGRAM

Duncan G. LaBay, University of New Hampshire
Cynthia J. Frey, Boston College

Abstract

Participation behavior in a voluntary energy conservation program sponsored by an electric utility firm in New England is evaluated. Participants, who received low-cost home insulation devices free of charge on request, are compared to non-participants on the basis of energy conservation attitudes and prior behaviors, attitudes toward utility firms, dwelling-specific situational differences, and demographic and lifestyle factors. Data were collected through a mail survey utilizing a probability sample of program participants and a matched control group. Response rates of 75% and 51%, respectively, yielded a total of 707 respondents. Significant differences are found to exist between the two groups in a number of energy conservation attitudes and behaviors. Dwelling-specific factors and demographic differences also exist. The results have implications for consumer researchers evaluating the effectiveness of such energy conservation incentive programs, from a private sector and public policy viewpoint.

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PRODUCTS FOR SPECIAL NEEDS:
PROBLEMS EXPERIENCED BY DISABLED CONSUMERS

Roger M. Kramer, University of Arizona

Abstract

This paper examines the need to bring disabled consumers into closer contact with the products they need to make independent living possible. There is a decided lack of information about where to find products. A literature review and a survey of disabled consumers concludes that seldom are they able to secure or find the products they need to alleviate the effects of their disabilities. Traditionally, the disabled are considered customers of the medical-institutional-commercial market. Consequently, many of the products they need are not available in the open market. Architectural, attitudinal, transportation and communication barriers are also restricting their role as consumers. There is a need to advocate for long overdue improvements in their products. Essential goods are lacking altogether in many instances; in others, they may be unreliable or exorbitantly expensive.

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CULTURAL DREAMS, CULTURAL NIGHTMARES:
THE SYMBOLIC DIMENSIONS OF NUCLEAR POWER

John W. G. Lowe, Planmetrics, Inc.

Abstract

The failure to adequately recognize the symbolic dimensions of nuclear power and act accordingly has led to progressive polarization in the nuclear debate, to the ultimate disservice of the consumer. Symbolic attributes associated with nuclear power - timelessness, abnormality, invisibility, and concentrated power - are characteristics of the sacred or spiritual world. To many people, the opposition to nuclear power comes down to "I don't trust having this god-like power in the hands of fallible human beings." The symbolic connotations of nuclear energy require forceful notions of authority and legitimacy among those most intimately associated with it. This is just what is called into question by construction delays and cost overruns, and the adversarial nature of the legal process. The result, a series of feedback loops such as that between legal action and reduction in legitimacy, has been largely responsible for the morphogenesis in nuclear programs around the world, some seemingly quite successful, others, as in the U.S.A., mired in fiscal disaster.

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INTERSPOUSAL INTERACTIVE ROLES ACROSS DECISION STAGES

Oswald A. Mascarenhas, University of Detroit
Ram Kesavan, University of Detroit

Abstract

This research reports interspousal role estimations across prepurchase, purchase and postpurchase decision stages involved in the recent buying of two new jointly used products : TV and car. Forty four evening MBA student couples participated in the study. Roles across prespecified 20 decision substages were estimated on a 100-point constant sum scale, first individually, and then jointly, by the couples, amid much individual reflection and joint interaction. The questionnaire was pretested, and fully explained to the participants for uniformity of understanding of the decision stages and their content, thus assuring the reliability and the validity of the research instrument.

Given the student sample results may not be fully generalizable. Major findings reveal that given the male expertise for these products the husbands did express dominant roles through most of the decision substages. However, the interactive process that lead to the final decision seemed to have been controlled by the female spouses.

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AN INVESTIGATION OF THE RELATIONSHIP
OF BEHAVIORAL, AS COMPARED TO EXPERIENTIAL,
MEASURES OF MUSIC INVOLVEMENT
WITH CONSUMER MARKET RESPONSES TO NEW ROCK MUSIC

Richard Mizerski, Florida State University
Marya J. Pucely, Florida State University
Lori Baldwin, Florida State University

Abstract

This study experimentally tests the relationship of several measures of music involvement to a select group of consumer responses to new rock music. Two measures of music participation and two measures of experiential involvement are evaluated in terms of reliability, and their relationship to affect toward, attention paid, and intention to purchase new rock music. The two usage-based involvement measures were found to have relatively poor internal reliability and a low to nonexistent relationship to memory, evaluation and intent to purchase measures. The experientially-based involvement measures had a significant relationship to evaluative and purchase intent measures, but these relationships were song specific. In total, these results suggest that experientially-based involvement measures outperform usage-based measures in all criteria, and that music involvement appears to be song specific rather than general in nature.

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UNDERSTANDING INVESTMENT FRAUD:
IN SEARCH OF THE POT OF GOLD
AT THE END OF THE RAINBOW

James H. McAlexander, University of Utah
Debra L. Scammon, University of Utah

Abstract

Investment fraud is an increasing problem in the American economy. Spurred on by economic turbulence, high inflation and unemployment, business and investment frauds are siphoning dollars from consumer budgets and rarely do consumers ever recoup their investment. The financial hardship created for fraud victims is perhaps greatest for the elderly. For this reason both the U.S. Senate and House have recently held investigations into the problem of investment fraud. This attention highlights the need for an understanding of the investment decision. Knowledge of the decision process should facilitate the formulation of a solution(s) to the problems created by investment fraud and suggests some lines of research and some research methods that might help elucidate the investment fraud situation.

For further information, write to:

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SEXUAL APPEALS IN ADVERTISING: THE
DETERMINATION OF RECALL

P. J. O'Connor, Baruch College, CUNY
Aylin Bahar, student, Baruch College, CUNY
Bosco Gong, student, Baruch College, CUNY
Elyse Kane, student, Baruch College, CUNY

Abstract

While there have been a number of investigations of sexual appeals in advertising, the results of this research have been somewhat equivocal in nature. In part, this may be due to an oversimplification of the character of sexuality in advertising. A whole host of issues can contribute to the perception of sexual content in an advertisement. Four dimensions of sexuality; functional, fantasy, symbolism, and inappropriate, are employed in the current research. The focus is on the effects these dimensions have on the level of recall of the advertisement. The results indicate that both the level of sexuality and its appropriateness appear to be important characteristics for enhancing recall of the respondents.

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THE EFFECTS OF COMPARATIVE ADVERTISING ON THE
EVALUATION OF INFORMATION

P. J. O'Connor, Baruch College, CUNY
Joan Rosenberg, student, Baruch College, CUNY
Ira Bloom, student, Baruch College, CUNY
Lorraine Abruzzo, student, Baruch College, CUNY

Abstract

In general, research that has been conducted in the area of comparative advertising has focused upon the attitudinal and/or behavioral effects. Also, the comparisons have been made in terms of attributes of the product class. The present study uses "real", i.e. non-student, consumers to investigate the information value of comparative advertising. Specifically, the content, usefulness, and believability of information presented in comparative versus non-comparative formats is analyzed. In addition, pricing superiority as a dimension is explicitly considered. The results indicate that while comparative advertising tends to be superior, the effects are dependent upon the specific type of comparison being made.

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FUNCTIONALISM AND CONSUMER BEHAVIOR RESEARCH

Charles Pickett, Mattel Corporation
George M. Zinkhan, University of Houston
Scot Burton, University of Houston

Abstract

The New Functionalism arose as a philosophy of psychology in the mid-1960's and has become an increasingly important philosophy of science for that discipline. Generally, the New Functionalists view mental states in terms of their causal roles in relation to sensory stimulation, behavioral outputs, and other mental states. Emphasis is placed on the causal role of mental states in the mental life of an organism. Several features of the New Functionalism, including ontological neutrality and the avoidance of teleological explanations and normative claims, make it quite appropriate for theory development in consumer behavior research. Unlike more restrictive perspectives, such as Behaviorism and Physicalism, theories of consumer decision making based on the New Functionalism can incorporate relationships between environmental stimuli, mental events, and behavioral outputs. All entities which can be functionally defined are admissible in theories based on the New Functionalism.

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THE RELATIONSHIP OF BRAND LOYALTIES TO COGNITIVE
DISSONANCE: SOME NEW QUESTIONS TO THE OLD ANSWER

Kathy L. Pettit, Washington State University
Thomas A. Johnson, University of Idaho

Abstract

Brand loyalty has long been of interest to marketing practitioners and academicians. One explanation for its causation concerns Festinger's notion of postpurchase cognitive dissonance. Specifically, the old wisdom was that postpurchase dissonance leads to choice justification and, ultimately, to increases in loyalty to the selected brand, accompanied by decreases in loyalty to the nonselected brand(s). However, results of the current soda-tasting experiment, which explored the effect of dissonance on brand preferences and postdecisional confidence, raise some new questions concerning the effects of dissonance on repeat purchasing and/or brand switching behavior. That is, when higher dissonance was aroused (through tasting of more identical "brands"), and subjects were allowed to justify the choice through an intervening attribute evaluation task, postdecisional choice confidence declined in the final rating task. Thus, future brand considerations and/or loyalties may have been similarly affected for both the selected and "closely-rejected" brands.

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DESIGNING PRODUCTS FOR THE DISABLED:
THE CASE OF CLOTHING

Naomi Reich, University of Arizona

Abstract

The state-of-the-art in clothing for the disabled will be presented from both national and international perspectives. Information and research findings from past and present research, their impact and conclusions from a 1984 study leave abroad investigating the clothing and textile field in relation to the special needs of physically disabled consumers will be discussed. Research work will be discussed under eight main topics; design impact on clothing and aids, potential use of resource centers, research emphasis and its impact on manufacturers, need for improved sizing systems, developments in the use of computers to improve communications and education for disabled people, and the role of source organizations and importance of conferences. The problem-solving approach utilized in the apparel design process, selection of ready-to-wear in the market place and possible garment modifications to meet the special needs of disabled people, especially arthritics, will be outlined. Availability of clothing and related resources for the disabled consumer will be discussed.

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RETAIL PATRONAGE BEHAVIOR

Maija Rökman, University of Tampere

Abstract

Consumers' choice of the purchasing place has several impacts on the surroundings, retailers and civil servants. In this study consumers' purchases are examined by developing a framework to describe and explain patronage behavior in alternative areas. Distance between two areas explains a part of this shopping movement, but the reasons of the other part should be explored to understand the total phenomenon. Store image and area image are the main components of the developed framework. After two mailings the whole data set consisted of 1015 questionnaires representing 17% of all families in the town. The analysis of variance was used to reveal the connections between different components. Results indicate that consumers' perceptions of stores and areas (image) have significant effects on purchases of different products. Negative perceptions have greater effects than positive. This would imply more like "pushing out" than attracting a trading area. This is useful empirical support for retailers.

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WHEN DOES TELEVISION PROGRAMMING AFFECT CONSUMER ATTITUDES TOWARDS AN ADVERTISED PRODUCT?: EXPLAINING CONTEXT EFFECTS USING THE ELABORATION LIKELIHOOD MODEL

David W. Schumann, University of Tennessee

Abstract

With the growth of the television industry in general, the ever increasing number of cable stations, and the staggering cost of television advertising, the relationship between the program and the commercial has become a topic of increasing concern to the marketing and advertising disciplines. How does the context in which a commercial appears, affect the influence an advertisement has on the consumer? Research interest in this topic has grown steadily yet many questions remain unanswered. This paper provides a review of the marketing research concerning context effects, and proposes the use of the Elaboration Likelihood Model (Petty & Cacioppo, 1979, 1981) as a theoretical basis for explaining an important segment of the reported findings.

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HEALTH AS A DETERMINANT ATTRIBUTE IN CONSUMER DECISION MAKING

Joel Rudd, University of Arizona
George B. Sproles, University of Arizona

Abstract

Health-consciousness is one of the major consumer trends of the 1980's. An increasing number of products and services are marketed with consumer health as a central feature, e.g. "health" foods, exercise equipment, sportswear, pharmaceuticals and related personal care products. To what extent is health-consciousness a determinant attribute in consumer decisions? We examine this question by 1) reviewing evidence of the extent to which health is actually considered in consumer choices across product categories, and 2) identifying evidence of the circumstances in which consumers should be encouraged to be health-conscious in decision-making. Findings indicate a substantial literature dealing with central aspects of consumer health, e.g. nutrition, exercise, and hazardous substances. However, published literature on health as a determinant attribute in consumer behavior is limited. Research is needed to further examine health as a major variable in contemporary consumer decision-making.

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DETERMINANTS OF PRODUCT VALUE-EXPRESSIVENESS

M. Joseph Sirgy, Virginia Tech
J. S. Johar, Cal State U San Bernardino
Michael Wood, CUNY, Hunter College

A study was conducted testing the hypothesis that product value-expressiveness is a function of product conspicuousness, differentiation, and common usage. A 3-way repeated measures ANOVA design was used representing the effects of the three factors on value expressiveness. Eight products representing the eight cells in the repeated measures design were selected. Manipulation checks showed that the products did indeed represent conspicuousness, differentiation, and common usage. As expected, the ANOVA results showed three significant main effects and no interaction effects. That is, conspicuousness, differentiation, and common usage were found to significantly contribute to the predicted variance in value expressiveness. This finding was argued to be instrumental in developing future reliable and valid product value-expressiveness measures to be employed in consumer self-concept research.

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CONSUMER RESEARCH FOR THE GLOBAL MARKET: SEGMENTS AND THEMES

Lynette S. Unger, Miami University
Teresa J. Domzal, George Mason University

Abstract

This paper examines some of the reasons for the strong resurgence of interest in global marketing and some implications for consumer research. A distinction between multinational and global marketing is made and the extent to which major corporations are already employing global branding and advertising strategies is discussed. Consumer research currently takes a multinational rather than global approach to cross-cultural similarities as well as differences. Emphasis on psychographic rather than geographic segmentation would be more appropriate to global marketing. Two universal themes, play and leisure and prosocial behavior, are presented, which might be employed in cross-cultural promotion.

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CONSUMER INVOLVEMENT RELATED TO APPAREL PURCHASE BEHAVIOR

Anne L. Vreeman, University of Illinois
Michelle A. Morganosky, University of Illinois

Abstract

The concept of involvement as it relates to apparel products is discussed and developed. A telephone survey was done utilizing systematic random sampling procedures for all names listed in a north central city telephone directory. Results indicate that apparel involvement attitudes and behaviors, such as time spent searching for information about apparel from media sources, time spent looking at apparel in stores, importance of merchandise assortments, brand awareness, brand importance, store displays prompting purchases, and shopping for pleasure or leisure, in part depend upon the extent to which the consumer views apparel as close to his/her "self." These findings give added support to the concept of involvement, and indicate that consumers do evaluate products based on centrally held values, as proposed by many involvement researchers.

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SITUATIONAL CONTEXT AND BUYER PREFERENCES

E. K. Valentin, Weber State College
Kent L. Granzin, University of Utah

This study investigated the influence of situational context, conceptualized as the sum of the object of consumption, intended usage, and user type, on product attribute preferences. Operationally, the object of consumption was represented by three food items and intended usage by three alternative recipients of food. Users were classified as one of three types using a psychographic scale developed prior to the reported study. Data were gathered from 200 subjects via questionnaire and were analyzed using a repeated-measures analysis of variance model. The choice object, intended usage, user type, and object-situation interactions were found to affect preferences for product attributes significantly. The results were found to contain several implications for further research as well as for marketing management.

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NUTRITIONAL EVALUATION AND SAFETY OF VARIOUS FOOD ITEMS

Charles W. Weber, University of Arizona

Abstract

The food consumed daily is essential to life, but it also is a mixture of thousands of chemicals, any one of which, in sufficient quantities could be hazardous or fatal. Even essential nutrients such as zinc, copper, vitamins D and A are toxic in excess, but one can not live without them.

The public in demanding an absolutely safe food supply, free of harmful "chemicals" is mistaken and misdirected as all foods consist exclusively of chemicals. It is equally mistaken to demand a food supply that contains no harmful substances. The chief concern is the amount of material ingested.

Nutritional evaluation of food items are needed on a consistent yearly basis. As new food dishes are prepared, their nutritional evaluation is also needed. For example, the public changes its taste in foods by shifting from hamburgers to Mexican food dishes which are prepared differently from the hamburger.

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APPLYING DISENGAGEMENT THEORY FROM SOCIAL
GERONTOLOGY TO PREDICT AND EXPLAIN
SEGMENTS WITHIN THE SENIOR MARKET

William A. Weeks, Washington State University

Abstract

The purpose of this paper is to explore the social gerontological Disengagement Theory's ability in predicting and explaining segments within the Senior Market. The research approach consisted of an analysis of 20 interest and opinion items from Needham, Harper, and Steers's 1982 consumer panel. Senior consumers are shown to follow one of three retirement adjustment patterns: "disengagement," "re-engagement," or "realignment." The results of this study support the hypothesis that the Senior Market is comprised of unique segments that must be targeted accordingly. Future researchers may want to use an alternative indicator of behavior such as one's use of time.

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A NOTE ON ACR STYLE

Over the course of publishing thirteen volumes of Advances in Consumer Research, The Association for Consumer Research has established a consistent format. Because the style sheet for the conference proceedings does not change much (if at all) from year to year, I decided that it would be useful to include it here and thus make it more widely accessible.

The next two pages reproduce the standard style sheet that was sent to the contributors to this volume. Minor inconsistencies in the appearance of papers result from failure to adhere closely to the guidelines (authors were responsible for providing their own final copy).

Some oversights were particularly common among this year's submissions:

1. ACR does not use commas or other punctuation within an in-text citation, e.g., (Bartels 1979), NOT (Bartels, 1979).
2. ACR uses full names in the reference list. Initials are not considered adequate unless that is the way the author's name appears on the cited article.
3. Consistent alignment and capitalization of headings are necessary to provide a paper that is well-organized in appearance.
4. Each figure and table should have both a label and a title typed in all capital letters and not reduced, even if the figure or table is reduced to fit the available space (i.e., type in the label and title after reducing the table or figure itself).
5. Margins must be treated as firm. This includes the requisite spacing on the first page.
6. Selection of a single typeface (in this case IBM prestige elite) allows minor editorial corrections to be made after submission, rather than returning the entire paper to the author(s) for retyping.

Together with the Journal of Consumer Research style sheet (see, for example, the March 1985 issue) the ACR typing guide provides sufficient detail to ensure an aesthetically pleasing set of published papers.

I hope that publishing the format information in this volume leads to increasing consistency in the appearance of the conference proceedings.

Richard J. Lutz
Editor

ASSOCIATION FOR CONSUMER RESEARCH
GUIDE FOR AUTHORS AND TYPISTS¹

Richard J. Lutz, University of Florida²

Abstract

This sheet provides instructions to authors and typists concerning the format and style of manuscripts to appear in Advances in Consumer Research, Vol. XIII. The volume will be printed by photographing the "oversize" sheets on which you submit your final paper. It is critical that each author follow all instructions very carefully; deviations cannot be accepted.

Instructions to Authors

This guide specifies the format of the paper to be submitted for publication. The 1986 proceedings will be identical in format to Advances in Consumer Research, Vol. XII. If you have questions left unanswered by this sheet, please consult last year's volume.

Papers may not exceed six oversized pages corresponding to about 24 double spaced typewritten pages. This is an absolute limit; no exceptions will be made. With each original oversized manuscript, the author should submit two copies that have been photoreduced to 8½" X 11" (i.e., to 67% of original).

Title

The title should be in all capital letters and centered at the top of the first page (not centered over the left column), starting on the fourth line from the border at the top. If more than one line of title is required, single space between the lines (as illustrated above).

Authors

The author(s) and affiliation(s) should be centered and single spaced, beginning on the second line below the title. Do not use professional titles. Follow the format shown at the top of this page.

Headings

First level headings should be centered and in caps and small letters. Do not underline. (See the "Instructions to Authors" heading.) Second level headings should be left adjusted, in caps and small letters. Do not underline. (See "Title" heading.) If a third level of heading is absolutely necessary, use the run-in side head, underlined and followed by a period. Do not place a heading at the bottom of a column if there is not room to begin the relevant text.

Abstract

An abstract of approximately 50 words should be placed before the body of the text. The word "Abstract" should be centered and treated as a major heading.

Figures and Tables

Figures and tables should be placed as close as possible to the location where they are cited. Labels should be

¹Here, you may wish to give acknowledgements regarding financial support or other help received. For example, I wish to thank Elizabeth Hirschman and Morris Holbrook, on whose "Guide for Authors" this version is based.

²Further details about authors' affiliations or addresses can be given here, if desired.

centered, typed with all solid caps, and located above the table or figures as follows:

TABLE 1 (or FIGURE 1)

A title, typed in all uppercase letters, and describing the content of the table or figure should be centered on the second line following the label.

All figures and tables must be photo-reproducible. Any symbols or parts of a figure which cannot be typed should be carefully drawn in with black ink. If possible, please format your tables and figures to fit within a single column. You may photo-reduce figures to fit within a single column to save space, but keep in mind that the manuscript will be reduced again for printing. If you reduce a table or figure, do not reduce the label and title. In exceptional instances of very large tables or figures, both columns may be used. Without exception, the oversized sheets should not be turned sideways for typing of tables. If necessary, use rubber cement to paste a figure or table produced on a separate sheet of paper within the blue rectangle. Do not use cellophane tape.

Footnotes

Explanatory footnotes should be numbered consecutively and placed at the bottom of the page and column in which they appear. They should be separated from the body of the text by a line one inch long. (A one-inch line is twelve spaces.) Footnotes should not be attached to equations. Please avoid footnotes wherever possible.

Equations

All equations should be placed on separate lines and numbered consecutively. These consecutive numbers should be placed within parentheses and aligned against the right margin:

$$A = f(X_1 + X_2 + \dots + X_n) \quad (1)$$

$$A = \sum_{i=1}^n b_i e_i \quad (2)$$

References

Citations in the text should be according to the current practice of the Journal of Consumer Research. Footnotes should NOT be used for reference purposes and, in general, should be avoided. (see above).

Citations in the text should be by the author's last name and year of publication enclosed in parentheses WITHOUT PUNCTUATION, e.g., (Bartels 1979). If practical, the citation should stand by a punctuation mark. Otherwise, it should be inserted at a logical sentence break. If you use the author's name within the sentence, there is no need to repeat the name in the citation; just use the year of publication in parentheses, e.g., "the paper by Ferber (1976)."

If a particular page, section, or equation is cited, it should be placed within the parentheses: (Olson 1979, p. 127).

The bibliography should include all and only those references cited in the text of the paper and should be entitled "References." This section should appear at the end of your paper. The word "References" should be

centered above the list of references and entries should be in alphabetical order by last name of first author. Follow current JCR practice.

Book reference form should be:

Dean, John P. and Alex Rosen (1955), A Manual of Inter-Group Relations, Chicago: University of Chicago Press.

Journal reference form should be:

Lutz, Richard J. (1975), "Changing Brand Attitudes Through Modification of Cognitive Structure," Journal of Consumer Research, 1 (March), 49-59.

Resolve any additional documentation problem by consulting the Journal of Consumer Research "Style Sheet" published in the March, 1985 issue.

Appendices

Appendices, if needed, should immediately follow the body of the paper preceding the references. The word "Appendix" should be centered at the top of the appendix.

Instructions to Typists

An IBM electric typewriter must be used. The type (freshly cleaned) must be Selectric Prestige elite. Only carbon ribbons may be used.

Corrections

White opaque corrections fluid must be used for corrections. Corrections must be complete and neat. The corrections fluid must be kept thin, be spread evenly, and be thoroughly dry before corrections are typed. No strikeovers can be accepted.

Paper

The camera-ready copy will be prepared by typing on the special oversized paper provided. Type the left-hand rectangle first, then type the right-hand rectangle.

Margins

All paragraphs should begin flush with the left margin, not indented. Please take special care to make right margins as even as possible. Appropriately hyphenating words when feasible is important in obtaining an even right margin. The border serves as the top margin, and except for the title page, typing should begin immediately under the border; do not skip two or three spaces down before starting to type. The border also serves as the bottom margin, and the last line of each column should be as near to it as possible.

The proper margins are outlined with a border on the special "oversized" paper. The border will not reproduce when the pages are photographed; it serves only as your guide to proper margins. Except for the title and author name(s) and affiliation(s) and possible tables and figures, all typing must be within these borders.

Spacing

Single space the body of the paper. Double space before and after first and second level headings, between paragraphs, before and after the words "Appendix" and "References," between the last line of the text and the first line of the footnotes; between footnotes, and between references.

Page Numbers

Do not type in the page numbers, but to keep your paper in the right sequence, please pencil them in on the back. Page numbers to be printed will be inserted by the editor prior to printing.

Special Note to Typist

Please see the section, "Instructions to Authors," for detailed information on the format for titles, headings, figures and tables, footnotes, equations, references (bibliography), and appendices.

Mailing Instructions

Please return the completed oversized manuscript in the same oversized envelope it came in or a similar replacement envelope. Please use the cardboard stiffeners. Bending can cause problems. If you are mailing it within the United States, clearly mark the envelope in several places as FIRST CLASS MAIL and be sure that the full First Class postage is put on it. If you are mailing it from outside the United States, please mark it AIR MAIL and attach sufficient postage.

Please follow all instructions in the accompanying letter and return your manuscript with all the other requested materials to:

Richard J. Lutz
ACR Program Chairman
205 Matherly Hall
University of Florida
Gainesville, Florida 32611

Final Checklist:

- () Manuscript on oversize sheets (no more than 6 pages)
- () Cardboard stiffeners to prevent bending
- () Two (2) photo-reduced copies of paper
- () Copyright form signed by all authors
- () Topic Index form
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