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David M. Gardner
University of Illinois
Editor

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Association for Consumer Research, Inc.

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The Association for Consumer Research was founded for the following purposes:

1. To provide a forum for exchange of ideas among those interested in consumer behavior research in academic disciplines, in government at all levels from local through national, in private business, and in other sectors such as non-profit organizations and foundations.
2. To stimulate research focusing on a better understanding of consumer behavior from a variety of perspectives.
3. To disseminate research findings and other contributions to the understanding of consumer behavior through professional seminars, conferences, and publications.

Membership is open to those who have a professional interest in consumer research.

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Empirical Application of Decision Process Models

Paul Green (University of Pennsylvania) Chairman

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"Industrial Search Behavior and Perceived Risk" - Thomas P. Copley and Frank Callom (Wilkes College and GTE Sylvania respectively)

"Methods for Analyzing Consumer Information Processing Models" - James R. Bettman (University of California)

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"A Multi-Level Approach to Family Role Structure Research" - Donald H. Granbois (Indiana University)

"Determining the Durable Product Needs of Households" - John F. Willenborg (U. of S.C.)

Research by Non-Profit Groups

M. Venkatesan (University of Massachusetts) Chairman

Participants: David Schoenfeld (Consumers Union) and Ray Stokes (Consumer Research Institute)

Discussant: Mr. C. Grove Smith. Office of Domestic Business Policy, U. S. Department of Commerce, Division of Marketing and Consumer Affairs.

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Fred Woodworth (FTC) Chairman

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Gerald J. Thain, Assistant Director of Bureau of Consumer Protection, FTC
Murray Silverman, Consumer Behavior Advisor to Commissioner Mary Gardiner Jones, FTC

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Professor Calvin W. Taylor (Department of Psychology, The University of Utah). "Reactions of Visitors to Parades of Homes vs. Reactions of Inhabitants of Homes."

Dr. Robert Wehrli (Director, Building Systems Section, Building Research Division, National Bureau of Standards). "Models and Strategies for Housing Research."

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Ecology and Marketing

Reza Moinpour (University of Washington) Chairman

Building Consumer Behavior Theory

Gerald Zaitman (Northwestern) Chairman

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Fred Woodworth (FTC) Chairman

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THE FTC'S NEED FOR SOCIAL SCIENCE RESEARCH¹

Commissioner Mary Gardiner Jones
Federal Trade Commission

I am honored to have been invited to address your Second Annual Meeting of the Association for Consumer Research and to have this opportunity to explore with you some of the areas in which your research and expertise can, and hopefully will, be integrated into the work of the Federal Trade Commission.

You have long recognized the need for the interdisciplinary approach to the solution of problems. I am sure you are also very aware of the crucial importance to the success of the interdisciplinary approach to problem-solving for the participants in the various disciplines to understand each other's predispositions and approaches. Before going into some of the specifics of the Commission's need for the type of insight and data on consumer behavior which your association was formed to encourage, therefore, let me digress briefly to make a few generalized observations on the background and approach of the typical government administrator and lawyer to his law enforcement responsibilities.

Unlike academicians, most lawyers have not engaged in any extensive academic work since their graduation from law school. Furthermore, the formal education of many lawyers may lack a grounding in psychology or sociology and their associated research methodologies. The application and potential contribution of newer scientific methodologies which have been developing in the social sciences over the last two decades will in most cases be a relatively unfamiliar phenomenon to most lawyers and law enforcement administrators. Moreover, whatever their academic background and capabilities, lawyers tend in the first instance to think in terms of practices which are to be laid against the statute in order to determine whether the law is being complied with or violated. Thus, the lawyer engaged in law enforcement tends to regard his job from an individual practice or case point of view rather than from a broader, more problem-oriented perspective.

Government antitrust lawyers have had some experience in working with the disciplines of the economists versed in the dynamics of economic behavior, both to define the types of practices which restrain trade and to devise remedial measures designed to restore competition.

In the consumer protection field,² this same concern with defining the illegal practices in terms of the dynamics of consumer behavior and with developing effective remedies once the dynamics have been defined has been a much more recent development. Consumer protection lawyers are just beginning to become aware of the need for obtaining a more thorough understanding of the behavior of the consumers they are attempting to protect.³ However, there is no established framework for operationalizing this interdisciplinary process and much work, therefore, must be done first in familiarizing the lawyer with the potentialities and capabilities of your discipline and second, in developing appropriate methodologies and research projects to help the public policy administrator to come to grips most effectively with problems which at this point he may not even recognize he has.

I do not mean to be pessimistic about the ultimate integration of your research and expertise into the thinking and actual work of the Federal Trade Commission. There is no doubt in my mind as to the essentiality of the

meshing of the legal and consumer behavior disciplines in the field of consumer protection. Indeed, my major objective in addressing you tonight is to highlight the many areas in the Commission's work which I believe can only be effectively addressed by the application of your expertise and discipline. However, we must recognize at the outset that we will frequently start out with different premises, different approaches and, indeed, at times, different short- and long-range objectives.

I

Perhaps the most useful way for me to approach my subject with you tonight is to discuss the broadly-defined areas where your expertise is applicable, and then to focus my remarks more specifically on some of the more recent developments in the Commission's work which I believe are forcing it increasingly to search for new techniques and insights in order to maximize the effectiveness of its enforcement efforts.

I see two broad areas which continually confront the Commission where gaps may exist in our present approaches. The first is the allocation of our resources to problem areas and the second is the development of effective remedies within problem areas.

I strongly feel that our efforts in these two areas can be greatly enhanced by a systematic utilization of research on consumer behavior. The reasons for this should be obvious. Our past efforts have implicitly relied on models of the consumer, and to the extent that these models were lacking, our own efforts were less effective. Discussing each of these areas might be facilitated by focusing on some of the models on which our activities have been premised.

Legally, the model has been consciously articulated in terms of protecting the credulous, the trusting, and even the wayfaring fools.⁴ On the other hand, in defining the practices which restrain trade and in its relief to eliminate practices which are deemed to mislead this type of consumer, the Commission has, in effect, switched models and assumed a wholly different type of consumer -- one who is rational, analytical, intelligent and wholly able and desirous once the deception or restrictive practice is eliminated or explained by some affirmative disclosure, to evaluate bargains, compare products and generally act as the economic theorists assume he must act in order for the competitive system to work effectively.

I do not mean to make judgments about the accuracy or serviceability of these consumer models. Indeed, in determining the impact of any given representation or practice on consumers, it is undoubtedly essential that the Commission look to the least sophisticated consumer if it is to carry out its statutory mandate effectively. Similarly, the rational economic man model may serve to focus attention on areas of need for Commission action such as in the information field, whether or not the information disclosed is capable of immediate assimilation by consumers without the further intervention by communication or educational intermediaries.

I do believe, however, that the generality of these consumer models and the Commission's failure in the past to rely on them in a more conscious, articulated fashion may indeed have prevented it from insuring that its always meager resources are used with maximum effectiveness, both in determining areas in which the Commission's resources should be applied and in insuring that the actions which it does decide to take will, in fact, achieve the end result sought to be obtained.

Let me give you a few examples to illustrate the point. In carrying out its competitive antitrust enforcement responsibilities, the Commission has recently been placing considerable emphasis on availability to consumers of information about product ingredients and performance as an essential element in promoting the effectiveness of competition. The Commission's efforts in

this area rest essentially on the implicit assumption that once available, consumers will in fact make use of this type of information in their purchase decisions.

As another example, while the Commission is fully aware that the perceptions, needs and predispositions of the middle-income consumer show little commonality with those of the ghetto resident, their programs have not always reflected the differences between these groups. Similar perceptual, attitudinal and behavioral gaps abound between other population segments, the elderly, the young, the urban dweller, the rural consumer, etc. The decision processes for each of these different population segments, therefore, may have wide variations. Their perception and use of different types of information will have similar variation. Indeed, each of these different consumer groups will in many instances confront quite different problems in the marketplace and will be susceptible or vulnerable to quite different types of marketplace practices and representations. The requirement of full and complete credit term disclosures, for example, are of obvious assistance to the middle-income consumer who is able to choose among the various credit dispensers for the best bargain. They are of far less utility to a low-income consumer who has limited availability to credit sources. Similarly, representations made to the elderly or to the poor may impact quite differently from the same representations made to other consumer segments of the population.

It is also obvious that much more precise product segmentations could be made by the Commission, particularly in the area of information disclosure, in formulating enforcement programs which will have some reasonable likelihood of reaching real problems. If, in fact, purchases by some consumers of certain products are not made on the basis of price and product performance, then the Commission may be misallocating its resources in developing information programs designed to improve the rationality of consumer purchases in these particular product lines.

It is essential that the Commission's actions take realistic account of these various consumer and product differences in framing its enforcement programs. It is obvious that the Commission must tailor its programs so that its resources are not allocated solely to one segment of the consumer population. It is equally obvious that the Commission must not waste its resources by mandating industry action which is unlikely to have any significant impact on consumer behavior. Creative segmentation analysis would help us both to allocate our resources more effectively and significantly.

Thus, I am convinced that one important role which you can play in strengthening our activities lies in the development of more precise consumer models both to guide our selection of marketplace practices on which to focus our resources and to assist us in fashioning effective remedies which can be expected to have some likelihood of redressing the practices found to violate the laws as well as of freeing the consumer to act in his own interests and to seek his own welfare as he perceives it.

As I have already suggested above, the woeful inadequacy of our resources to even approach a miniscule proportion of the economic and deceptive conduct committed to our jurisdiction makes it imperative that we learn to allocate our resources to the most significant problems and the ones most susceptible to the effective remedial action. And if the Commission is to insist on various remedial steps to the point of making them a test case of its basic power, it must make certain that the remedy it is seeking will, in fact, significantly affect consumer behavior.

I should point out that at present, the Commission has a variety of techniques available to it to determine when and how its resources can and should be most effectively utilized. First and foremost, of course, is its selection of practices to investigate and challenge. At the present time

its actions here are still largely unsystematized. Input at this stage is highly informal and can consist of individual complaints of violations, suggestions from members of the public as to areas of concern to consumers or in need of remedial action or more formal investigations by staff, leading to their determination that certain practices going on are in violation of the statute. In my judgment, there is great need for the Commission to systematize its activities in this area of case selection and to bring to bear all of the research and available skills on the part of consumer behavior specialists in order to determine in advance the relative importance and significance of the various practices claiming the attention of its resources.

Up to this point I have focused on the processes of allocating resources and developing remedies. The third essential ingredient in this sequence is the process of measuring the effectiveness of programs or actions after they have been instituted or taken. In the past, the Commission has done very little of such follow-up evaluation of its consumer protection activities. Again, your research could help us to formulate the standards by which such measurements could be made or could, in fact, make some of the empirical studies on which such evaluation must depend.

Finally, there are two other brief points I would like to make that relate to your expertise.

Traditionally, the FTC has looked upon its statutory responsibilities to promote the welfare of the consumer as most effectively achieved by focusing its attentions primarily on the conduct and behavior of the producers and sellers in the marketplace. Thus, while the ultimate object of the Commission's concern has always been the advancement and protection of the welfare of the consumer, this objective has been typically thought to be most effectively achieved by mandating changes in marketplace conduct and structure. The Commission in recent years has become increasingly aware of the fact that the goals of law enforcement can be achieved by a variety of tools which in no sense are or should be limited to formal individualized adjudicatory action. In this connection, the Commission has increasingly recognized that disseminating information directly to consumers about marketplace practices or product characteristics may be as effective in achieving the ultimate statutory objectives as its own investigations and adjudicatory proceedings. Similarly, the Commission's increasing concern with product information disclosures as a potential mechanism in promoting the competitiveness of markets has also brought into focus the significance of communication in its enforcement activities. Yet, any effective information program, if it is to serve effectively as an enforcement weapon, demands a much more precise knowledge of the actuality of consumer behavior than has ever been sought or at least been made available to the Commission. The Commission must have some certainty as to the way in which consumers utilize and react to the various available communication channels and messages in order to determine which channel to utilize and what format the disclosure should take.

It is, therefore, crucial in my judgment that we make a deliberate and concentrated effort to pool our skills and our resources in order to insure that government information programs in these areas are sensible, meaningful and realistic. Your research might aid in the development of such effective programs for communicating information to the consumer who might use it.

A final area of Commission concern which I believe could be substantially illuminated by the application of your discipline involves the definition of practices which should be encompassed within the operative sections of the Commission's statutory mandate to eliminate the unfair and deceptive act or practice in the marketplace. In today's marketplace with its greatly increased technical and legal complexities, consumers are correspondingly and increasingly less able to rely solely on their own efforts to achieve their purchasing goals

whatever they may be. The imbalance of power and know-how between consumer and businessman has steadily widened. As a result, the Commission in recent years has been placing increasing attention on its mandate to eliminate the "unfair" as well as the "deceptive" practice. Yet, the concept of unfairness is a much more subjective and less verifiable term than deception or untruth. Here again, therefore, the Commission is in need of new insights into what constitutes unfairness in terms of consumer behavior in the marketplace.

II

Up to this point, I have tried to discuss the kinds of gaps that have tended to exist in our activities at the Commission. Let me turn now to a more specific discussion of how I see -- or would like to see -- your skills brought more directly to bear on the Commission's work. There are several potential interface points which I see from my point of view for your input, both directly and indirectly.

I would like to draw on three current Commission programs and concerns to illustrate the types of questions to which I believe consumer behavior research could provide important answers and make a significant contribution to the effectiveness of the Commission's work.

A substantial portion of the Commission's resources is devoted to monitoring the truthfulness and fairness of national advertising. An essential premise of this resource commitment is the assumption that advertising plays an important role in influencing consumer behavior in the marketplace.

As we began to give added attention to this area of advertising over the past year, we felt a need to acquire a more thorough understanding of the basic function and impact of advertising on consumer behavior. Accordingly, we have planned to hold a series of hearings to start this September to elicit testimony and information on three basic areas:

- (1) The role of the advertising agency, including its technical practices and research practices, in mass communications;
- (2) The accumulated knowledge relating to the effects of advertising on consumers;
- (3) The social and cultural impact of advertising.

These hearings are not designed to evaluate existing ads or their claims. Nor is any specific rule under consideration. Their purpose is essentially informational, designed to build a foundation for future policy planning in advertising regulation. In the course of the hearings, the Commission will focus on four areas of primary concern: (1) the impact of TV ads addressed to children; (2) the extent to which TV ads may unfairly exploit desires, fears, and anxieties; (3) the extent to which technical aspects of the preparation and production of TV commercials may facilitate deception; (4) the consumer's physical, emotional and psychological responses to advertising, as they may affect the standards by which advertising is judged.⁵

Looking at the problem from the Commission's regulatory viewpoint, I can already identify now some of the questions which I, as an administrator, would like to see your research directed towards in order to provide us with a much needed perspective on the relative importance of television advertisements on consumer behavior. For example, it would be valuable -- indeed, essential -- for the Commission's program planning to secure data on questions such as the following:

- (1) For which product categories does TV advertising play the most significant role in effecting primary or selective demand?
- (2) What is the relative importance of TV advertising as compared with other media and with other personal influence sources?
- (3) What is the relative importance of TV advertising as compared to variables such as price and other point-of-purchase variables?
- (4) What is the relative importance of TV advertising as compared to information gained through usage experience?

In addition to these types of program planning inquiries, the Commission is, of course, even more directly concerned with determining which of the multitude of advertising messages are unfair or deceptive within the meaning of Section 5 of the Federal Trade Commission Act.

Communication researchers recognize that there are a multitude of controllable variables which determine the "effectiveness" of an ad. The question is at what point the manipulation of those variables constitutes an unfair or deceptive practice. The advertiser has within his control, factors associated with the message itself and the perceptual "surround" associated with the message. These would be the starting points in our search for sources of deception.

However, we must also consider factors outside the control of the advertiser in evaluating the need for protection. In particular the receiver's characteristics cannot be ignored.⁶ The Commission's mandate has been defined in terms of an ad's "capacity to deceive." It must, therefore, concern itself both with the message and its perceptual environment, and with the way in which it is interpreted by the viewer or listener. Certainly here is an important area in which the Commission's findings on this aspect of advertisements could be made far more precise and authoritative if they could take account of available theory and empirical data rather than on unsystematic estimates or assumptions as to how advertising messages impact on different consumer audiences.

In determining whether the Commission's mandate to eliminate unfair representations is applicable to various advertising messages, it would be significant for the Commission to have more precise information on the use and impact of fear appeals, the use of non-informational advertising themes, and the inability of consumers to evaluate the effectiveness claims made for certain types of products. Research addressed to these areas within a policy-oriented methodology might help us in developing a protection framework rooted in an understanding of consumer behavior.

In addition to our need for a cumulative body of policy-oriented research addressed at the advertising area, there are some specific short-range research questions that are relevant to the Commission's current work.

One such area concerns the Commission's actions with respect to fictitious and other forms of deceptive pricing claims. These claims include preticketing, or former price comparisons, where a retailer indicates that a product which formerly sold for one price is now reduced to a second price. The problem in many cases is that very few or no products were sold at the first price. The questions of interest then are, how does the consumer perceive the second price? To what extent is his purchase based on the perceived savings as opposed to other considerations? Similar issues of concern in this general area are the extent to which price savings representations, offers of free goods and the like, act as significant incentives to consumer choices and purchases and whether these offers deflect consumers from making quality or brand comparisons and whether some product lines are more susceptible to these claims than others. In addition, the Commission's program planning in this general pricing claims area could benefit immeasurably from research into the question of the extent to which consumer behavior is, in fact, influenced by such common pricing practices as these free offers, savings representations or bait and switch appeals. Here, as you can see, the Commission's need for your research goes not only to the area of defining what types of conduct are deceptive but also lies in the area of assisting it in making priority assessments as to which of the many areas of deception its resources can be most effectively applied.

Another area of Commission actions which can benefit from your research relates to the development by the Commission of effective remedies by which to eliminate and dissipate the effects of the deceptive and unfair practices which have been found to exist in the marketplace. Let me give you two examples of remedies currently being proposed and considered by the Commission in order to illustrate the types of issues which must be addressed in this vitally significant aspect of the Commission's responsibilities.

Recently, the Commission staff has proposed -- and included in notice orders attached to complaints involving allegations of deceptive and unfair advertising representations -- requirements on advertisers to devote a portion of their future advertising budgets and space to a disclosure of their prior deceptive claims. It would seem reasonable in evaluating the need for and efficacy of such a remedy to have as much data as possible on its impact in terms of variables such as source credibility, repetition, and the placement associated with the "corrective" ad. In general, your research and insights should help clarify the issues involved in this approach to deceptive advertising.

In a somewhat different context, the Commission has recently proposed a trade regulation rule to govern the practices of door-to-door salesmen. One important provision of the proposed regulation is a requirement that door-to-door sellers provide their customers with a three-day cooling-off period within which they have an absolute right to cancel the transaction. Hearings were held on this proposed rule in March of this year. If the record supports the need for a cooling-off period, interesting behavioral implications arise both in terms of the length of time to be applied to such a cooling-off period in order to insure its effectiveness and in terms of the form of disclosures which will be most effective in informing consumers of their cancellation rights. It would seem relevant in finding answers to these questions to know whether distinctions in consumer behavior in utilizing such a right will exist as between product classes and consumer segments. On a broader level, your research could also reveal whether the cooling-off period, in fact, addresses all of the problems which may exist in door-to-door sales transactions or, indeed, put another way, whether significant problems do, in fact, exist with respect to these transactions relative to all of the other areas of potential deception and unfairness which are subject to the Commission's jurisdiction. Many people concerned with door-to-door sales transactions have suggested that these transactions require special regulation because they confront consumers with a purchase situation involving little or no planning and exclude the possibility of comparative shopping. It is also suggested that the stay-at-home customer of the door-to-door salesman has by that fact alone particular vulnerability to high-pressure sales techniques and outright misrepresentations. These areas of consumer behavior are largely untapped in your literature.⁷ Yet, research could throw substantial light on the actual decision and post-decision process of the home customer distinguished from the store customer which would be invaluable in evaluating and predicting the effectiveness of any regulatory action taken with respect to this class of sales transactions.

III

The major purpose of my discussion tonight has been to indicate our interest in the research possibilities in your area of expertise. I have tried to give you a feel for our priorities and our major problems in the consumer protection area. I know that many of you are seriously interested in addressing the public policy issues I have been discussing, and you must be wondering about specific ways in which your research can be effectively applied to Commission programs and, most important, where the funds for these research projects are to come from.

As I have indicated above, the Commission frequently holds public hearings on specific regulatory actions which it is proposing to take, or, as in the case of its advertising hearings, on more generalized topics on which it is seeking open-ended information. Notices of these hearings are made the subject of press releases and announcements in the Federal Register and members of the public are solicited to participate in the hearings either by way of written submission or at testimony or both. These hearings, therefore, constitute one existing channel through which the expertise of your members can be immediately brought to bear on matters which are of active concern to the Commission.

In addition to these proposed regulatory actions, the Commission is constantly concerned with program planning and with the study and investigation of marketplace practices which may engage its jurisdiction. It is constantly searching available literature for material bearing on matters of concern to it and it is receptive to any and all suggestions and data which would illustrate the necessity for action by it or bear on the effectiveness of action which it has already taken. Here, the communication channels with the Commission are essentially informal susceptible to development so that our exchange of ideas and data could be made more systematic.

Meetings, such as the kind in which I and members of the Commission's staff are participating here over the next couple of days can obviously contribute a great deal to our mutual interests.

Let me turn briefly now to the knottier question of funding. Funds for policy-oriented research have always been extremely limited. Unfortunately, I am not here to tell you that the Commission's already strained budget has been expanded to accommodate your research. However, I believe the problem of funding can be attacked from a number of approaches. It is certainly clear that the issues at stake are too important to allow the existing funding constraints to block off the application of your skills and expertise to a formulation of sounder and more effective public policy programs.

Of course, the first course of action would be to exhaust the existing channels for funds. A second course of action I would propose, which I believe may have potential, would be to explore the business community itself as a possible source of funds. Typically, a large part of the research in consumer behavior has been supported by firms interested in employing your findings in their marketing strategies.⁸ Since these firms have something to lose in cases where the Commission or other public bodies make decisions on the basis of analysis lacking in an understanding of the behavioral issues, there is an incentive to gain an unbiased viewpoint from researchers such as yourselves.

I am also increasingly coming to the viewpoint that many of the factual bases for Commission action could lend themselves to research projects jointly agreed upon in advance by the Commission and the industry segment concerned. Here again, the important element in any such joint action would be the quality and independence of the research bodies which will frame and carry out the research. Certainly at this point in time the Commission would need to retain consultants to assist it in working out any such joint research projects. Again, your organization could be of invaluable service in locating the properly qualified consultants.

My last line of thought concerns the possibility that the Commission may be asked by researchers or funders to evaluate proposals relating to our priorities. Depending on the extent to which this occurs, we probably would not have adequate manpower or expertise to perform this function alone. It might be worthwhile, however, to explore the possibility of establishing an advisory board to help us in this respect, and perhaps your organization could provide suggestions as to the creation and functioning of such a board.

Footnotes

¹While this text forms the basis for Miss Jones' oral remarks, it should be used with the understanding that paragraphs of it may have been omitted in the oral presentation and, by the same token, other remarks may have been made orally which do not appear in the text.

²I recognize and essentially agree with those who have pointed out the many limitations and inadequacies of the term "consumer protection" when used to describe the work of the Commission or the general field of consumer welfare with which we are all basically concerned. Nevertheless, I shall use it in my remarks tonight as a simple shorthand for the over-all objectives which are encompassed by both the Commission's statutory responsibilities and your research.

³The recognition of a need to integrate social science research into our activities was first emphasized to the Commission by Professors Dole and Wallace of the University of Iowa College of Law during the 1968 National Consumer Protection Hearings of the Federal Trade Commission. They recognized not only the need for pertinent research but also for sensitizing lawyers to the value of the social sciences. Proposal submitted by Professors Dole and Wallace, National Consumer Protection Hearings, Federal Trade Commission, 1968, p. 147.

More recently, the Commission's Assistant Director in the Office of Policy Planning and Evaluation, gave a speech as part of the Distinguished Lecture Series in Consumer Behavior at the Ohio State University, in which he addressed gaps in Commission programs where behavioral research would serve an important function. Fred L. Woodworth, "Policy Planning and Consumer Protection -- The Need for a Behavioral Perspective," February 22, 1971.

⁴FTC v. Standard Education Society, et. al., 302 U.S. 112 (1937).

⁵Remarks of Miles W. Kirkpatrick, Chairman, Federal Trade Commission, Before the Grocery Manufacturers of America, The Greenbrier, White Sulphur Springs, West Virginia, June 22, 1971. See also FTC Press Release, August 24, 1971, announcing the hearings.

⁶See in this connection article by Richard W. Pollay, Deceptive Advertising and Consumer Behavior: A Case for Legislative and Judicial Reform," Kansas Law Review (June 1969) pp. 625-637.

⁷One recent study in this area is Marvin Jolson, Consumer Attitudes Toward Direct-To-Home Marketing Systems, New York: Dunellen, 1970.

⁸This, no doubt, in large part accounts for the past direction of research in consumer behavior.

CONSUMERISM: A VIEW FROM THE HILL

Edward A. Merlis
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After your having listened to fellow academicians discuss the consumer movement for the past few days, and your hearing Commissioners and staffers from the executive branch of Government discuss their involvement with consumerism, you are now faced with the somewhat dubious opportunity to hear one Congressional staff member's attempt to interpret the Congress' sentiments about this phenomenon of the twentieth century.

I am particularly honored with this challenge.

Of all audiences, you are the one least interested in a rehashing of the history of consumerism. The old methods developed at a time when the buyer and seller were equals in the marketplace and the community are giving way to a new breed of consumer and marketer. And the public seems to be at the mercy of the sophisticated manufacturer or retailer. We are dazzled with new products, and we are the butt of a continuing barrage of commercial messages, incessantly hammering home the message of instant gratification through swallowing, tasting, touching, hearing and even smelling a variety of consumer products.

Exactly how does the Congress view consumerism or environmentalism or whatever "ism" you want to call this growing political and economic force? I am sure you will find a number of elected officials who would disagree with my analysis of consumer consciousness if they were confronted with these ideas and asked to comment on a "not for attribution" basis. Certainly the type of questioning of hearing witnesses which daily occurs indicates that there are still a significant number of Congressmen and Senators who would rather not recognize what consumerism is all about. Consumerism is, as I implied a moment ago, a twentieth century citizens revolt against the unresponsiveness of both public and private institutions to human needs. And Government and industry find that they must increasingly pay more attention to this growing force. For it is here to stay.

Some date the dawning of the modern consumer movement from President John F. Kennedy's special consumer message nine years ago. In that message, the President reminded Congress that consumers are the largest economic group in the country, accounting for two-thirds of all spending. He urged that the Federal Government be alert to consumer needs and advance the consumer's interest. To fulfill our obligations to the consumer, the President proclaimed four basic consumer rights.

- 1) The Right to Safety -- to be protected against the marketing of goods which are hazardous to health or life.
- 2) The Right to be Informed -- to be protected against fraudulent, deceitful, or grossly misleading information, advertising, labeling, or other practices, and to be given the facts needed to make an informed choice.
- 3) The Right to Choose -- to be assured, wherever possible, access to a variety of products and services at competitive prices, and in those industries in which competition is not workable and in which Government regulations are substituted, an assurance of satisfactory quality and service at fair prices.

4) The Right to be Heard -- to be assured that consumer interests will receive full and sympathetic consideration in the formulation of Governmental policy and fair expeditious treatment in its administrative tribunals.

The Congressional response, albeit slow, was an attempt to fulfill that bill of rights. And although that was 1962, it took the Congress until 1966 to produce the first bits of consumer legislation. That was the year of the auto safety law, the truth-in-packaging legislation, and the year of the emergence of Ralph Nader.

In the intervening period the Senate Commerce Committee alone has produced not only the automobile and tire safety legislation and the packaging law, but flammable fabrics legislation, hazardous substances, and the toy safety legislation, natural gas pipeline and electronic product radiation legislation, the Act banning broadcast cigarette advertising, laws authorizing the creation of the National Commission on Product Safety, and laws requiring the investigation of flaws in our system of automobile insurance.

In active process today is legislation to strengthen the Federal Trade Commission, to provide access to the courts for consumers through class actions, automobile insurance reforms, omnibus product safety legislation, fish inspection, environmental class actions, toxic chemical, including pesticide regulation reforms, technology assessment, and the creation of a National Consumer Protection Agency.

To what does American industry owe this out-pouring of apparently punitive legislation? Is it simply political opportunism and demagoguery as some businessmen have suggested; is it less a genuine response to demonstrated consumer needs and more an exploitation by politicians of irrational consumer fears and prejudices?

The set-upon businessman is free, of course, to take refuge in that comforting belief, but in my judgment the forces unleashed in the pursuit of these legislative goals over the past half decade represent a rather fundamental change in public consciousness, in attitudes towards the basic private and public institutions serving our society.

There has been an undeniable loss of faith in both the competence and the social responsiveness of American business. That faith has been repeatedly jarred by revelations that have progressively tarnished the golden image of American technology and enterprise cherished by our historians and myth makers.

Take the automobile and the cigarette as case studies. The automobile, which had come to symbolize the brilliance of American manufacturing genius, has progressively been revealed as a surface styled, poorly engineered, unsafe, primary polluter of the environment. As one after another massive recall campaign comes to light, even the Detroit miracle of automated mass production loses its glow. And cigarettes have been advertising's loss leaders in the last half decade. The marketing of cigarettes and other products such as over the counter drugs has led to the public's loss of confidence in advertising generally. You can thank cigarettes for the following regulatory innovations of the '60's, and these will come into full bloom in the 70's.

1. The flowering of the concept that affirmative disclosure may be essential to avoid deception by omission of a material fact.

2. The Federal Communications Commission Fairness Doctrine can be appropriately applied to commercial broadcast advertising, a regulation strategy which has been expanded by the courts as we all expected.

3. The Federal Trade Commission's tar and nicotine laboratory and semi-annual reports are probably the first and certainly the purest instance of government testing solely for the purpose of providing relevant consumer information bearing upon product differentiation.

4. The disclosure of tar and nicotine contents in all cigarette advertising, while technically a voluntary act is potentially a response to the regulatory and legislative effort to require advertising to disclose material product information unrelated to deception.

5. The Congressional bar on broadcast advertising of cigarettes established the principle that Congress may bar the advertising of an otherwise legal product where that product is deemed to subvert public health and welfare.

Over the counter drugs have not yet reaped their harvest of regulation. But the dossier of complaints against their marketing practices is filling at an accelerating pace.

Proprietary drugs stand accused of

1. False and misleading claims of strength and effectiveness.
2. Unverified claims based upon alleged medical and hospital research which have been challenged as unsound and distorted.
3. Spurious product differentiation which subverts price competition and
4. Both drugs and techniques of drug advertising stand accused of serving at least a contributing factor in the growing incidence of drug abuse.

There are other examples, too. General Electric produced thousands of color television sets which emitted potentially harmful radiation; automobile insurance companies pursue a course of cancelling for apparently arbitrary reasons policy holders who have dutifully paid premiums for decades. Cereal manufacturers, after promoting each Saturday morning the muscle-producing potential of breakfast cereals, sheepishly admit that the real source of nutrition in the average breakfast cereal is the milk added at the breakfast table.

The National Commission on Product Safety learned about gas heaters with surface temperatures that inflict countless burns on children annually. It was told by their manufacturers that no technology humanly available can make these heaters safer. Whereupon the Commission at a cost of \$800 received from a design engineer five alternative hazard reducing design changes which the gas appliance manufacturers acknowledge have real merit.

The change of consumer consciousness has also unleashed consumer intolerance. Consumers can no longer accept their inability to make rationale comparisons and judgments in the supermarket and elsewhere. They can't find out how fresh their milk is. They can't compare the per ounce cost or the per pound cost of detergents or instant coffees. They figure out which tire is best for particular purposes and offers the best value. They don't understand the difference in the warranty offered with the toaster or television set or display in the store.

And these fires of discontent have been fueled by skilled advocates. The imagination of the American people has been captured by the spectacle of great corporate Goliaths being toppled by solitary Davids. In many ways the appeal of the consumer revolt to Americans lies as much in its reassertion of the traditional American quality of cantankerous individualism as in the communal loss of faith in the responsiveness of corporate institutions.

In a sports minded nation whose heart is invariably with the underdog, who can deny the appeal of a contest between Ralph Nader and General Motors, or Union Carbide? And who in the general public would root for the polluters against the solitary heroes of the Sierra Club?

In the last year or two both environmental and consumer advocates have made gigantic strides toward institutionalizing their concerns and broadening their base of support and organizational structure. Traditional groups, such as the Sierra Clubs, and Consumers Union have become more aggressive, more

active, their appeal has become broader. There are now several public interest law firms and centers funded by foundations and citizen contributions. There is John Gardner's Common Cause, the Consumer Federation of America, a federation of new and old organizations sharing a common interest in consumer legislation. Each of these, while still relatively small and financially undernourished in comparison to industry, has begun to make their presence felt in Washington.

Increasingly, then, business is cast as the villains, the enemy to be harnessed, brought to justice, restrained from corporate greed. Unfair? Yes, it's unfair. For decades industry has done precisely what the country has asked it to do; Exploit in the fiercest and most efficient manner ever known to man, the abundant natural resources of this country. Create jobs; create the enormous benefits of technology. Yet, instead of being grateful, the American public seems hell-bent on making business a scapegoat for every evil, real or imagined, which plagues our country.

So the picture is one of anger, frustration, conflicting demands and a growing taste for confrontation in the courts.

And then there is the vague notion of corporate responsibility which is emerging.

Beyond laws and regulations, and often in conflict with the obligation to the stockholders, there is growing criticism of companies who fail to meet vague but persistent notions of corporate social responsibility.

Certain clear and powerful trends appear to be emerging:

First: Mindless product innovation and profitability will never again serve as the sole standards of corporate behavior.

Second: Corporate freedom will become increasingly circumscribed by governmental controls reflecting emerging concerns over the environment, over consumer rights, even over shifting social values.

Third: Citizen action through the courts by increasingly well organized and articulate public interest lobbies and through the politics of confrontation will snowball.

Government can prevent industry from doing things the way they have been done before but it does not have the capacity to develop socially acceptable, alternative methods.

Industry cannot stop the trends that I have described, but it does have the power to rationalize them. For example, there is a growing recognition both among industry and government scientists that we must soon develop the institutional framework for the process known as technology assessment. Much of the antagonism toward business in this country today stems from the sense that many of our ills are the direct result of a technology run wild without sufficient understanding of secondary and tertiary environmental and social effects.

Government, and by this clearly I mean the federal government -- and industry must develop together a system by which technology is evaluated in the light of conflicting or competing social goals so that, decisions can be made, based upon the total national fund of knowledge; coolly, deliberately, and rationally in furtherance of these goals.

This process clearly involves a surrender of a substantial degree of corporate sovereignty; but it does not mean a surrender of corporate sovereignty to irrational, ill-defined, emotional prejudices against technology and growth.

While today industry must submit annually to a fiscal audit; tomorrow it will undoubtedly be forced to submit, if it does not do so voluntarily, to a new kind of audit; a social audit.

Questions will be asked of industry; questions which five or ten years ago would have been considered a radical challenge to our economic system. Questions beyond the quantity of a firm's contributions to stockholders in the form of profits and augmented capital investment. There will be questioning of a firm's contribution to society, both qualitative and quantitative. Do your products contribute to significant human needs? What of your short and long-term impact on the environment? Are your products safe? What are their social consequences? Are you exploiting or conserving national resources?

Over the past several years, these questions have arisen in a number of areas. In its usual hit and run manner the Congress, seeking its own instant gratification, has invariably dealt with consumer problems on a small scale problem by problem basis. Thus we had a toy safety act and a Poison Prevention Act one year apart. We looked into cigarette advertising one year, advertising of nutritionally deficient foods another year, and the effects of over the country drug advertising a third. But as the merging consumer orientation or our population develops, we recognize the need for a systematic analysis of the problems, and a well defined and broad based approach to solving these very critical matters.

We have in active consideration today an omnibus product safety bill. We are looking at the deficiencies of the automobile liability insurance system with a broad view, not only to correct the problems of non-availability, unreasonable cancellation, high rates, and slow payment. We are designing legislation which will expand the benefits within the system, which will improve the efficiency of the system, and which will reduce the necessity for high costs and losses.

And of particular interest to you, we will begin hearings next month on the creation of a Government supported behavioral research institution concerned specifically with marketing. We will look towards creating a systematic basis to seek an accounting of the social cost of marketing, an area of commerce beset with profound and unsettling questions.

Consumerism is a politically viable vehicle for tackling basic problems and questions concerning society. And your empirical and applied research on consumer problems will be a worthwhile contribution to our legislative solution to these problems.

LOW-INCOME SHOPPERS IN SMALL TOWNS:
AN EXPLORATORY STUDY OF SUBCULTURAL
DIFFERENCES IN TWO SMALL TOWNS¹

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In the 1960's a number of studies of retailing in ghetto areas and the attitudes and behavior of low-income consumers were undertaken. In general, the research revealed the presence of a marketplace which differed significantly from the market system serving the dominant society. Ghetto retailing systems were found to be more fragmented, less efficient, faced with serious cost problems, and too often characterized by questionable or illegal merchandising practices. Consumers, in addition to being poor, were often minority group members, relatively immobile shoppers (for physical and/or psychological reasons), heavily dependent on credit, ill-informed about their legal rights, and vulnerable to merchandising practices. In sum, the ghetto marketplace was found to be a milieu in which its participants, both merchants and consumers, were often victimized by the interactive forces of economic deprivation and racism.³

In spite of the thoroughness of a number of these studies, several questions remained unanswered. First, because of their urban focus these researchers could only speculate about the practices and behavior of the poor residing outside of the nation's large cities. For example, David Caplovitz, in the preface to the 1967 edition of The Poor Pay More wrote that "From conversations with home economists in the Agricultural Extension Service in diverse parts of the country, I have learned that the poor in small towns and rural areas are also plagued by installment credit problems."⁴ Poverty in small rural towns is widespread and yet it has been largely overlooked in spite of its relationship to urban problems.⁵ There is a need, therefore, to develop a better understanding of the low-income resident of small towns in rural areas.

A second area of inquiry rekindled by these studies was the issue of subcultural influences on consumer behavior. To what extent were the consumer practices of the poor a function of their racial or ethnic backgrounds? In addition, what was the extent of regional influences in the sense that conditions and behavior differed from the East to the Midwest to the Pacific Northwest? While some of the earlier studies included more than one racial or ethnic subgroup, explicit comparative analysis of consumer behavior was not treated in detail and in most instances the subjects were residents of the same geographical area.

Research Issues and Design

An exploratory research project was initiated in the spring of 1968, therefore, which had as its objective the preliminary analysis of these questions. The research was designed to explore the following issues relative to low-income consumers in small rural towns:

1. What are the characteristics of market systems which serve these consumers?
2. What are the characteristics, attitudes, and practices of this group of consumers?
3. Does their consumer behavior differ significantly from the middle-income residents of those towns?⁶
4. Within the low-income group, are significant differences in

consumer behavior observable when they are analyzed comparatively on the basis of racial or ethnic background?

5. If consumer behavior differs significantly on the basis of subcultural classification, do these differences hold true in other small communities located in other geographical areas?

Two small rural towns were selected as sites for the study. The criteria used in selecting each community were (1) the town had to have a substantial number of low-income residents; (2) the total population of the town had to be between 5,000 and 10,000; (3) measurable numbers of Negroes, Mexican-Americans, and Anglo-whites had to be represented among the town's low-income population; (4) the town could not be located in the same state as the comparison community selected; and (5) the town was to be far enough away from any large metropolitan areas as to minimize the reliance of its residents on other than local shopping facilities.

The last three criteria severely limited the list of prospective towns. The need for Mexican-Americans in the sample, for instance, largely restricted the study to the Southwestern states plus Colorado and California. The towns selected from the 1960 census were Gonzales, Texas and Paso Robles, California. A brief profile of the towns may be useful in establishing the setting for the study.

Characteristics of the Two Towns

Gonzales, Texas is a quiet, aging town built around the traditional square. It is located 89 miles inland from the Gulf of Mexico some 136 miles west of Houston, 63 miles east of San Antonio, and 64 miles southeast of the state capital, Austin. Its 1960 population was 5,829 and was estimated to be 6,000 in 1966. The relatively stable population belies the fact that the county in which it is located, as well as eight contiguous counties, has experienced a steady population for over forty years. The town's economy is largely based on agriculture and poultry processing.

Paso Robles, California is also heavily dependent on agriculture although tourism has long contributed to the economy and in recent years a small manufacturing activity has expanded. The town is almost midway between San Francisco (205 miles to the north) and Los Angeles (220 miles south) on U.S. 101, some 17 miles inland from the Pacific. Along with most towns in California, Paso Robles has experienced a steady population increase. Between 1950 and 1960 the town grew from 4,835 to 6,677.

The data on the families included in the study, which were drawn by stratified random sampling techniques, reflect other characteristics of the two towns. In responding to a modified version of the data collection instrument used by Caplovitz in New York, the families provided extensive economic and social data. (Tables 1-8 have been selected from the data to provide an overview of the characteristics of the 195 families.)*

*Number of Families

<u>Low-Income Groups</u>	<u>Gonzales</u>	<u>Paso Robles</u>
Negro	33	20
Mexican-American	20	26
Anglo-white	22	29
Middle-income	20	25
Total	95	100

The characteristics of families sampled in the two towns indicate that both the middle-income and poor families in Paso Robles enjoyed a higher income level (Table 1). The mean annual income for the poor in Paso Robles was \$3,780 vs. \$2,740 in Gonzales. For the middle-income the figures were \$11,030 and \$9,470 respectively. The poor in the California town were much more dependent upon welfare than their counterparts in Gonzales (Table 2), with 40 percent receiving the bulk of the family income from welfare as opposed to 9 percent in the Texas community. In Gonzales the Blacks and Chicanos are younger and have larger families than the generally elderly, low-income Anglo respondents (Tables 3 and 4). Blacks and Chicanos in both towns tended to have larger families than the low-income Anglos. The poor in Gonzales generally were employed in less skilled jobs (Table 5), but enjoyed greater job stability (Table 6).

Place of birth and home ownership characteristics (Tables 7 and 8) represent what are perhaps the sharpest distinctions between the residents of the two towns. Very few of the adult members of the low or middle-income families in Paso Robles had been born in San Luis Obispo County. Indeed, over 90 percent of the blacks had been born in another state. By contrast, 84 percent of the wives and 87 percent of the husbands in black families in Gonzales had been born in that county. In addition, 85 percent of the middle-income and 52 percent of the low-income families in Gonzales were either home owners or buying homes. Comparable figures for Paso Robles were 64 percent and 33 percent respectively.

Having sketched the families in Gonzales and Paso Robles an effort will be made to relate some excerpts from the findings to certain of the questions posed at the outset of this paper.

Shopping Behavior in Gonzales

While the questionnaire covered a wide range of products and services, this paper will review briefly only the findings related to the consumption of clothing, television sets, washing machines, and credit practices. Both of the towns will be treated separately and then a brief comparative analysis will be presented.

Clothing the Family

Gonzales has a number of retail institutions offering family clothing. A large majority of the low-income residents utilize these local stores (Table 9). Among low-income consumers a small, older J.C. Penney store was clearly the most popular of these stores, drawing more than half of the black and Anglo-white shoppers and 30 percent of the Mexican-Americans. Only two other stores were named by a substantial number of low-income respondents, both of which were independents similar to Penney's in appearance and merchandise.

The single distinct difference noted among the low-income subgroups' clothing purchases was in their reliance upon credit (Table 10). A very small percentage of the black and Anglo families reported having one or more clothing charge accounts, but one-half of the Mexican-Americans had such accounts.⁷ In addition, it was clear that the low-income families having accounts make use of them, for over 75 percent of those families reported having current credit balances resulting from clothing purchases.

The middle-income families in Gonzales displayed clothing shopping habits somewhat different than many of the low-income consumers. First of all, 50 percent of the middle-income respondents stated that they made the majority of their clothing purchases outside the local area.⁸ Secondly, they expressed a greater concern for quality and selection than did the low-

income shoppers (Table 11). Finally, they made greater usage of credit than did either the Negro or Anglo shoppers--a trait they have in common with the Gonzales Mexican-Americans.⁹

There were no significant subgroup differences observed regarding other aspects of clothing shopping habits. All four groups sampled reported making some mail-order clothing purchases, with Anglos showing the least activity in this area and middle-income families the most (22 percent and 45 percent of families, respectively). Few of the respondent families reported receiving substantial amounts of clothing from friends and relatives, with only approximately 20 percent of the low-income and 10 percent of the middle-income families reporting any such gifts. Home-made clothing was also apparently not a significant source of family apparel, although 50 percent of the Anglo and middle-income, 25 percent of the Mexican-American, and 18 percent of the black respondents did report making at least some of their own family clothing.

Shopping for Major Durables

Caplovitz, in his 1961 study, found that the great majority of his New York City low-income respondents were consumers of major durables. Although these findings were undoubtedly surprising to many at the time of their publication, the results of the Gonzales interviews suggest that similar ownership patterns exist among small town, low-income consumers. The poor of Gonzales were, indeed, active consumers of major durables (Table 12).

Among the residents of Gonzales, including the poor, the television set ranks as an important possession. Of the 95 families interviewed in Gonzales, only nine did not own a television set. Furthermore, of those owning television sets, two-thirds of the low-income families and all of the middle-income families purchased their sets new (Table 13).

Over three-fourths of these television sets, both new and used, were purchased in the local community (Table 14). Among the poor families the local Goodyear store was clearly the most important source of television sets; and Wiley's, a local independent, the most mentioned store among middle-income buyers. One rather curious aspect of the popularity of the Goodyear store with the low-income shoppers was the fact that not one of the middle-income respondents reported purchasing his set there. However, a review of the credit usage patterns (Table 15), helps to explain this phenomenon; for approximately 80 percent of the low-income families used credit in their purchases, and Goodyear in Gonzales had a reputation for having a very liberal credit policy. In contrast, only one-third of the middle-income television set buyers used credit, and those that did apparently preferred to secure credit at stores other than Goodyear. All three low-income groups reported significantly greater utilization of credit than middle-income respondents in the purchase of television sets.¹⁰

Although washing machines were not as widely owned as television sets, approximately 60 percent of all families interviewed in Gonzales did own such an appliance; and, just as was the case with television set ownership, there were no significant differences in washing machine ownership based on economic factors (Table 13). In fact, the only statistically significant difference noted in ownership patterns was between two low-income groups; the Chicanos who had the highest ownership rate (80 percent) and blacks who had the lowest (48 percent).¹¹ The great majority of both income groups purchased their washing machines locally.

One-half or more of the families in each group used credit in their washing machine purchases (Table 15). While no statistically significant differences were found with regard to credit usage, it should be noted that, once again, the Mexican-Americans had the highest percentage of credit-assisted purchases, and this was despite the fact that Mexican-Americans

purchased the highest proportion of used, and presumably less expensive, washing machines.

Credit Practices

One way of providing an overview of these excerpts from the Gonzales findings is to summarize the credit practices and attitudes toward credit of the Texas respondents. Louise Richards, in her analysis of low-income consumer practices in the United States, concluded that more than half of the poor families in this country use consumer credit of some kind and, that in 1962, over 25 percent of the families below the poverty line had installment credit balances.¹² There was certainly no evidence uncovered in the analysis of purchasing habits in Gonzales to suggest that these estimates of credit usage were overstated, for the poor of Gonzales relied heavily on credit for many purchases (Table 16).

A review of the credit data reveals two fundamental findings: (1) relatively high usage of credit by Mexican-Americans among the low-income families and (2) generally greater reliance upon credit by the low-income families as compared with the middle-income families. In every consumer product category examined, except automobiles, Mexican-Americans had the highest percentage of families using credit. As the low-income group with the highest average income, the Chicanos either enjoyed greater access to credit or simply were willing to assume debt in order to enjoy more goods and services.

Comparing the total low-income sample with the middle-income respondents indicated that the poor of Gonzales generally found credit a more desirable, and undoubtedly more necessary, service in the marketplace. Only in the case of clothing purchases did the middle-income consumers use a higher percentage of credit; and, as previously noted, most of the middle-income clothing purchasers that used credit stated it was for convenience rather than economic necessity.

A review of current debt balances outstanding adds considerable support to the two findings identified above (Table 17). Significant differences in indebtedness parallel the credit data. Among the low-income groups, 65 percent of the Mexican-Americans had total current debts in excess of \$500, while only 22 percent of the Negro and 16 percent of the Anglo families had outstanding debts of that magnitude.¹³ In contrast, 75 percent of the middle-income respondents had no current debts, while only 23 percent of the low-income families were in a debt-free condition.¹⁴

Attitudes regarding the use of installment credit in product purchase tended to conform to credit-usage practices. Eighty percent of the Mexican-American shoppers had generally favorable attitudes toward credit-assisted purchasing, but less than one-third of the black, Anglo, and middle-income families shared the Chicanos' favorable attitudes.¹⁵ In fact, well over one-half of all non-Mexican-American respondents expressed the viewpoint that credit purchasing is an undesirable practice (Table 18).

One factor directly affecting the potential economic necessity for credit in the marketplace is, of course, the amount of family savings available. Not surprisingly, the more affluent middle-income families reported significantly greater savings than did the low-income families, for while some 65 percent of the middle-income families had savings in excess of \$500, over 80 percent of the low-income respondents reported family savings of less than \$100¹⁶ (Table 19). Clearly, the typical low-income family in Gonzales enjoys very little of the financial flexibility that comes with even a small cash reserve.

Purchasing Practices in Paso Robles

Having highlighted the shopping practices of the low- and middle-income

respondents in Gonzales the same topics will be treated for Paso Robles.

Clothing Purchases

The Paso Robles retail community provided the clothing shopper with a relatively limited source of supply. Two moderately small department stores, Penney's and Mercantile, offered clothing lines for the entire family and Squires and Mode-O-Day offered specialty lines for men and women, respectively. In addition, family clothing could be ordered from either the Sears or Montgomery Ward catalog stores.

Approximately 80 percent of the low-income respondents utilized these local stores for making their clothing purchases. However, only 56 percent of the Paso Robles middle-income shoppers reported buying the majority of their clothing locally (Table 20). Thus, almost half of the more affluent shoppers in Paso Robles chose to go outside the local community to make their purchases, but less than 20 percent of the low-income respondents indicated that they followed similar shopping patterns. While this finding parallels the results in Gonzales, it should be noted that within the low-income families there were differences. Whereas, in Gonzales, a statistically significant difference was found between middle-income and Negroes and Anglos; in Paso Robles, only the Mexican-American group's practices were significantly different from those of the middle-income.¹⁷

As was the case in Gonzales, a majority of middle-income families reported having charge accounts at clothing stores. In fact, the rate was nearly twice that of low-income families, 56 versus 29 percent (Table 21).¹⁸

Shopping for Major Durables

A survey of ownership of items such as television sets, washing machines, and automobiles reveals that these products are generally rather widely owned by both the poor and middle-income in Paso Robles.

Again, television proved to be the most commonly owned product in this category with both low- and middle-income groups reporting 90 percent ownership. However, despite this seemingly high incidence of ownership among low-income families, there was a significantly greater percentage of middle-income families who owned sets; and most of this difference was due to the fact that almost one-quarter of the low-income Anglo respondents owned no television set (Table 22).¹⁹

Perhaps of more importance in identifying differences between the groups is the fact that 40 percent of the low-income families bought or received as gifts used sets, as compared with only one middle-income family that purchased a used set.²⁰ This variation in purchase patterns probably accounts for a substantial part of the differences in locale of purchase, since many of the used sets were undoubtedly obtained from private parties (Table 23).²¹

Among Paso Robles television set purchasers, the black families were clearly the most reliant upon credit, for nearly 90 percent of them utilized credit, whereas only 50 percent of the Chicano, 36 percent of the Anglo, and 52 percent of the middle-income families stated that their sets were obtained on credit.²² Thus, it is clear that the typical Paso Robles Negro television set buyer relies upon credit, regardless of whether or not the set he is purchasing is new or used (Table 24).

Just as with television sets, the black families in Paso Robles appear to be the low-income group most insistent upon owning a washing machine. Ninety percent of the Negro respondents reported having a washing machine, while only 69 percent of the Mexican-Americans and 62 percent of the Anglos

were owners. Among middle-income families, only one family did not own a washing machine, creating a percentage of ownership significantly greater than that for either the Anglo or Mexican-American low-income families.²³

Once again, following a pattern similar to that noted for television set purchases, over one-third of the low-income families bought or received as gifts used washing machines. In contrast, 23 of the ²⁴ middle-income families that owned a washing machine purchased it new.²⁴ However, there were no significant differences among the groups either in locale of purchases or use of credit (Tables 23 and 24).

Credit Practices

A review of the complete credit data from Paso Robles clearly indicates a relatively greater reliance upon credit by the low-income Negro shopper (Table 25). In every product category except clothing, the black consumers made the greatest use of credit in their purchases, while there was no significant difference in credit usage among the other two low-income groups and the middle-income families. Thus, particularly in the case of groceries, television sets and automobiles, the Negro families displayed a greater reliance upon credit than did any of the other groups.

This pattern of credit usage by blacks is further reinforced by the family debt information obtained (Table 26). Over two-thirds of the Negro families reported outstanding current debt in excess of \$500, as compared with 37 percent of the Mexican-American, 35 percent of the Anglo, and 58 percent of the middle-income families.²⁵ Thus, in Paso Robles the typical Negro family was more like the typical middle-income family in its apparent willingness to utilize large amounts of installment credit in order to participate more actively in the marketplace.

Attitudes regarding the advisability of utilizing installment credit might, of course, be expected to parallel closely the patterns regarding actual purchase practices; but, the relatively low credit-using Paso Robles Mexican-Americans displayed the most favorable attitudes toward credit (Table 27). It should also be noted that while some 67 percent of the Negro families and 58 percent of the middle-income had current installment debts in excess of \$500, only 65 percent and 40 percent of the families in those respective groups had favorable attitudes toward debt-purchasing. Therefore, it would appear that many black and middle-income families which have used debt in their purchases were "uncomfortable" with their indebtedness.

As was the case in Gonzales, current family savings offered few surprises, for the middle-income families were clearly in a relatively more secure financial position. Eighty percent of the middle-income families had savings in excess of \$500, as compared with 15 percent of the black, 11 percent of the Chicano, and 3 percent of the Anglo families (Table 28).²⁶ Based on this information and the credit usage patterns previously discussed, one must wonder about the plight of the low-income Anglos in the Paso Robles marketplace, for they have less savings and use less credit than any other test group. Clearly, they are the least able to participate actively in the marketplace--as reflected by the fact that they showed the lowest rate of ownership for such products as television sets, washing machines and automobiles.

Subculture Comparisons Between Towns

On the basis of the findings in the two towns, an attempt was made to determine the extent to which there were consistencies in behavior within subgroups between the two towns. In short, did the blacks in Gonzales behave very much like their counterparts in Paso Robles or were there significant

differences in their consumption practices and attitudes? Each of the ethnic or racial groups was analyzed for degree of uniformity on the following factors: television ownership, use of credit in television purchase, washing machine ownership, use of credit in washing machine purchase, use of credit in clothing purchase, attitudes toward the use of credit, degree of family indebtedness, and amount of current family savings (Table 29).

Blacks in the Small Town Marketplace

There was only a limited amount of uniform behavior by blacks in Gonzales and Paso Robles. There were no significant differences with respect to television ownership, the use of credit in buying those T.V. sets, and the use of credit in purchasing washing machines. The importance of the consistency in television ownership can be largely discounted since the same pattern appeared among all groups and apparently is simply a confirmation of the pervasiveness of the "tube" in American society. Blacks in both towns were heavy users of credit in the purchase of television sets and washing machines. As noted earlier, the Negro families in Paso Robles relied greatly on credit in most of their purchases. It is possible that the Gonzales blacks used credit for these two product categories because of the liberal credit policy of the local Goodyear store where most of them purchased their appliances. In the other five of the eight categories analyzed, there were significant differences in the marketplace behavior of the two black groups.

Mexican-Americans in the Marketplace

In contrast with the blacks, there were no significant differences for the Chicanos in six of the eight categories. Only with respect to the use of credit in purchasing television sets and the amount of current family indebtedness were there significant differences. In both cases it was the heavy credit using Gonzales Mexican-Americans that were on the high side with respect to credit and debt. In spite of these differences, it is notable that the Chicanos of Paso Robles shared the favorable attitudes of their counterparts in Gonzales toward credit. The uniformity of the two groups may reflect a more deeply rooted common cultural heritage. However, it should be noted that these two groups of Mexican-Americans were more similar with respect to mean annual income, age composition of families, and educational background than either of the other low-income groups.

Anglo-whites in the Marketplace

The group which revealed the greatest uniformity was the Anglo-white families, who, in spite of considerable differences in age, income, and other demographic variables, were statistically different in only one of the eight categories. That category was in the use of credit when purchasing a television set. Again, the explanation for this variation may be traced to the credit policies of the Goodyear store in Gonzales as the Anglo families in the Texas town were significantly greater users of credit in such purchases. Given the rather dramatic differences in the characteristics of the two Anglo-white low-income groups (see Tables 1-8), the similarity of their practice in the marketplace is remarkable.

Middle-Income Shoppers

The middle-income groups, both of which consisted solely of Anglo-whites

were also quite similar in their marketplace conduct, except with respect to washing machine ownership and current indebtedness. The significant difference in washing machine ownership may be explained by the abundance of inexpensive domestics in Gonzales who "take in" washing and ironing. The difference in indebtedness is accounted for by the very low debt status of the generally older middle-income respondents in Gonzales.

Conclusions

These research findings suggest that to a great extent low-income and middle-income residents in small, rural towns participate in the same marketplace. To the extent that this is true the small town poor enjoy an "umbrella" effect largely unknown to the city poor whose shopping is largely restricted to a separate market system. While it is impossible to say that the small town poor are not the victims of discriminatory merchandising practices, it can be said that they are less likely to happen in the same stores where the town's middle-income residents shop---especially in this time of stores with "marked" or "ticketed" prices.

The findings also indicate that there are a number of significant differences in marketplace behavior and attitudes between the middle and low-income shoppers. For example, middle-income respondents were significantly greater users of credit in the purchase of clothing and yet their overall attitude toward the use of credit is significantly less favorable than the low-income respondents.²⁷

In both of the towns there were also significant differences in the behavior of the low-income groups. In Gonzales the Mexican-American families, for example, used credit extensively, had a significantly higher rate of washing machine ownership than blacks, and so forth. Other contrasts appeared in Paso Robles where the blacks were the heavy users of credit, but the Chicanos were significantly more favorably disposed toward credit usage.

A more important issue, however, was the extent to which the uniqueness of these groups would also be found in their numbers some 1500 miles away. The findings suggest that within the categories analyzed behavior was least consistent among blacks with very little uniformity between the Gonzales and Paso Robles groups. Chicanos were different at a level of statistical significance in only two of the eight categories and Anglo-whites in only one of the eight. The middle-income groups, which, it should be noted again, were comprised entirely of Anglo-whites, behaved as homogeneously as the Mexican-Americans. Thus, with the exception of the Negro families there was considerable similarity in marketplace behavior within the racial-ethnic subgroups.

However, the findings of an exploratory study would be a shaky foundation on which to build any sweeping generalizations. There were important differences in the economic and social conditions of the two towns used in this study. Also, local business practices and customs introduced other variations which doubtless restrict the application of these findings. For example, "burial money" life insurance is aggressively sold in the rural south and southwest with salesmen stopping by monthly to collect 50 cent premiums. Thus, all three low-income groups in Gonzales reported significantly higher proportions of life insurance coverage than their counterparts in Paso Robles.²⁸ An effective analysis of the influence of such factors would probably require a comparative ethnographic study of the two towns.

Nonetheless, the study has added the issue of the low-income consumer in small towns to the expanding inquiry of the effectiveness of our market system in serving the poor. In addition, it is hoped that the comparative analysis of

cultural subgroups within and between two towns has added a new dimension to research in consumer behavior. The data generated in this study has created the basis for new hypotheses which will be tested in future studies.

Footnotes

1. The following people contributed significantly to various phases of this long-range research project: A. Benton Cocanougher, Assistant Professor of Marketing, University of Southern California; Waylon D. Griffin, Doctoral Candidate in Marketing, The University of Texas; Leland W. Robinson, Doctoral Fellow in Sociology, Northwestern University; John Williams, Instructor, Texas Southern University; and Richard M. Reese, Doctoral Candidate in Marketing, The University of Texas. Funds for the field research were made available by the College of Business Administration at the University of Texas at Austin. Supplemental support by the Division of Research at the Harvard Graduate School of Business Administration facilitated its completion.
2. Frederick D. Sturdivant is an Associate Professor of Business Administration at the Graduate School of Business Administration, Harvard University.
3. See, for example, David Caplovitz, The Poor Pay More (New York: The Free Press, 1967), Frederick D. Sturdivant (ed.), The Ghetto Marketplace (New York: The Free Press, 1969), and Federal Trade Commission, Economic Report on Installment Credit and Retail Sales Practices of District of Columbia Retailers (Washington, D.C.: Superintendent of Documents, 1968).
4. Caplovitz, p. xix.
5. The President's National Advisory Commission on Rural Poverty, The People Left Behind (Washington, D.C.: U.S. Government Printing Office, 1967).
6. The Fisher exact statistical test (two-tailed) was used in analyzing all the data.
7. Use of credit in clothing purchases:
Mexican-American vs. Negro, $p = .006$
Mexican-American vs. Anglo-white, $p = .008$
8. Locale of clothing purchaser (Non-local vs. Gonzales):
Middle-income vs. low-income, $p = .016$
Middle-income vs. Negro, $p = .028$
Middle-income vs. Anglo-white, $p = .022$
9. Percentage of families having clothing store charge accounts:
Middle-income vs. Negro, $p = .001$
Middle-income vs. Anglo-white, $p = .002$
10. Utilization of credit in purchase of television sets:
Negro vs. middle-income, $p = .004$
Mexican-American vs. middle-income, $p = .001$
Anglo-white vs. middle-income, $p = .028$

11. Ownership of washing machines:
Mexican-American vs. Negro, $p = .036$
12. Louise G. Richards, "Consumer Practices of the Poor," in Lola M. Ireland (ed.), Low-Income Life Styles (Washington, D.C.: U.S. Department of Health, Education, and Welfare, Publication No. 14), pp. 67-86.
13. Family indebtedness (excess of \$500):
Mexican-American vs. Negro, $p = .006$
Mexican-American vs. Anglo-white, $p = .004$
14. Family indebtedness (no debt):
Middle-income vs. low-income, $p = .050$
15. Favorable attitude toward installment credit:
Mexican-American vs. Negro, $p = .001$
Mexican-American vs. Anglo-white, $p = .001$
Mexican-American vs. middle-income, $p = .004$
16. Number of families with savings in excess of \$500:
Middle-income vs. low-income, $p = .002$
17. Locale of clothing purchases (Non-local vs. Paso Robles):
Middle-income vs. low-income, $p = .02$
Middle-income vs. Mexican-American, $p = .018$
18. Percentage of families having clothing store charge accounts:
Middle-income vs. low-income, $p = .024$
Middle-income vs. Anglo-white, $p = .006$
19. Ownership of television set:
Middle-income vs. low-income, $p = .096$
Middle-income vs. Anglo-white, $p = .018$
20. Purchase of television set (new vs. used):
Middle-income vs. low-income, $p = .010$
Middle-income vs. Negro, $p = .050$
Middle-income vs. Mexican-American, $p = .001$
Middle-income vs. Anglo-white, $p = .010$
21. Locale of television purchase (non-local vs. Paso Robles):
Middle-income vs. low-income, $p = .002$
Middle-income vs. Mexican-American, $p = .012$
Middle-income vs. Anglo-white, $p = .002$
22. Use of credit in purchase of television set:
Negro vs. Mexican-American, $p = .012$
Negro vs. Anglo-white, $p = .002$
Negro vs. middle-income, $p = .016$
23. Ownership of washing machine:
Negro vs. Anglo-white, $p = .05$
Middle-income vs. low-income, $p = .014$
Middle-income vs. Mexican-American, $p = .026$
Middle-income vs. Anglo-white, $p = .006$

24. Purchase of washing machine (new vs. used):
 - Middle-income vs. low-income, $p = .002$
 - Middle-income vs. Negro, $p = .005$
 - Middle-income vs. Mexican-American, $p = .001$
 - Middle-income vs. Anglo-white, $p = .001$
25. Family indebtedness (excess of \$500):
 - Negro vs. Mexican-American, $p = .068$
 - Negro vs. Anglo-white, $p = .038$
 - Middle-income vs. Anglo-white, $p = .10$
26. Family savings (excess of \$500):
 - Middle-income vs. low-income, $p = .001$
 - Middle-income vs. Negro, $p = .001$
 - Middle-income vs. Mexican-American, $p = .001$
 - Middle-income vs. Anglo-white, $p = .001$
27. Differences in middle and low-income consumers (Gonzales and Paso Robles combined):
 - Washing machine ownership, $p = .080$
 - Use of credit in washing machine purchase, $p = .094$
 - Use of credit in clothing purchases, $p = .001$
 - Attitudes toward the use of credit, $p = .056$
28. Life insurance coverage (Gonzales vs. Paso Robles):
 - Negro vs. Negro, $p = .038$
 - Mexican-American vs. Mexican-American, $p = .002$
 - Anglo-white vs. Anglo-white, $p = .038$
 - (No significant difference among middle-income groups).

TABLE 1

INCOME CHARACTERISTICS OF THE FAMILIES*

		NUMBER OF FAMILIES IN SAMPLES	MEAN ANNUAL INCOME	MEDIAN ANNUAL INCOME	ANNUAL INCOME PER FAMILY MEMBER
<u>LOW-INCOME GROUPS</u>					
Negro	Paso Robles	20	\$ 4,660	\$ 3,640	\$ 1,010
	Gonzales	33	2,530	2,400	640
Mexican-	Paso Robles	26	3,710	3,690	920
American	Gonzales	20	3,650	3,020	770
Anglo	Paso Robles	29	3,230	3,160	890
	Gonzales	22	2,030	1,420	490
Totals for Paso Robles		75	3,780	3,370	940
Totals for Gonzales		75	2,740	2,220	630
Totals for Both Towns		150	\$ 3,260	\$ 2,800	\$ 790
<u>MIDDLE-INCOME GROUPS</u>					
	Paso Robles	25	11,030	8,800	3,210
	Gonzales	20	9,470	8,450	3,490
Totals for Both Towns		45	\$10,250	\$ 8,630	\$ 3,350

*Figures rounded to nearest \$10.

TABLE 2

PRINCIPAL SOURCE OF FAMILY INCOME*
(IN PERCENT)

		NUMBER OF FAMILIES IN SAMPLES	EARN- INGS	WEL- FARE	SOCIAL SECURITY	OTHER
<u>LOW-INCOME GROUPS</u>						
Negro	Paso Robles	20	50%	45%	5%	0%
	Gonzales	33	67	6	24	3
Mexican- American	Paso Robles	26	50	31	12	7
	Gonzales	20	85	5	5	5
Anglo	Paso Robles	29	41	45	3	11
	Gonzales	22	27	18	50	5
Totals for Paso Robles		75	47%	40%	7%	6%
Totals for Gonzales		75	60	9	27	4
Totals for Both Towns		150	53%	25%	17%	5%
<u>MIDDLE-INCOME GROUPS</u>						
Paso Robles		25	80%	0%	0%	20%
Gonzales		20	75	0	5	20
Totals for Both Towns		45	78%	0%	2%	20%

*Percentages are rounded and total horizontally in all tables. The number of families in each category for this and all subsequent tables can be calculated by converting the percents to decimals and multiplying by the sample sizes.

TABLE 3

AGE DISTRIBUTION OF THE SAMPLES
(IN PERCENT)

	NUMBER OF FAMILIES IN SAMPLES	AGE OF HEAD OF HOUSEHOLD						
		Under 20	20-29	30-39	40-49	50-59	60-69	70 and over
<u>LOW-INCOME GROUPS</u>								
Negro	20	5%	0%	25%	35%	10%	5%	20%
Paso Robles	33	3	12	12	18	18	18	19
Gonzales								
Mexican-American	26	0	15	27	23	4	19	12
Paso Robles	20	0	25	20	25	10	10	10
Gonzales								
Anglo	29	0	31	14	14	10	21	10
Paso Robles	22	0	9	4	4	14	5	64
Gonzales								
Totals for Paso Robles	75	1%	17%	21%	23%	8%	16%	14%
Totals for Gonzales	75	1	15	12	16	15	12	30
Totals for Both Towns	150	1%	16%	17%	19%	11%	14%	22%
<u>MIDDLE-INCOME GROUPS</u>								
Paso Robles	25	0%	8%	32%	24%	12%	8%	16%
Gonzales	20	0	10	15	10	20	25	20
Totals for Both Towns	45	0%	9%	24%	18%	15%	16%	18%

TABLE 4

FAMILY SIZE
(IN PERCENT)

NUMBER OF FAMILIES IN SAMPLES	FAMILY SIZE (IN PERCENT)						
	1 PERSON	2 PERSONS	3 PERSONS	4 PERSONS	5 PERSONS	6,7 PERSONS	8 OR MORE PERSONS
<u>LOW-INCOME GROUPS</u>							
Negro	10%	20%	15%	5%	20%	15%	15%
Paso Robles	22	24	9	15	6	21	3
Gonzales							
Mexican-	19	19	15	4	12	20	11
Paso Robles	0	15	30	15	10	20	10
Gonzales							
Anglo	17	21	7	21	17	14	3
Paso Robles	45	23	14	5	4	0	9
Gonzales							
Totals for Paso Robles	16%	20%	12%	11%	16%	16%	9%
Totals for Gonzales	23	21	16	12	7	15	7
Totals for Both Towns	19%	21%	14%	11%	12%	15%	8%
<u>MIDDLE-INCOME GROUPS</u>							
Paso Robles	12%	28%	12%	20%	24%	0%	4%
Gonzales	10	55	15	10	10	0	0
Totals for Both Towns	11%	40%	13%	16%	18%	0%	2%

TABLE 5

CLASSIFICATION OF OCCUPATIONS¹
(IN PERCENT)

NUMBER OF FAMILIES IN SAMPLES		UNSKILLED AND SEMI-SKILLED	SKILLED	WHITE COLLAR	MANAGERIAL	PROFESSIONAL	SELF-EMPLOYED	NOT EMPLOYED	RETIRED OR DISABLED
<u>LOW-INCOME GROUPS</u>									
Negro	20	30%	5%	5%	0%	5% ²	10%	20%	25%
Gonzales	33	73	0	0	0	0	0	9	18
Mexican-American	26	42	4	8	0	0	4	38	4
Gonzales	20	90	0	0	0	0	0	10	0
Anglo	29	28	10	0	0	0	7	21	34
Gonzales	22	37	0	0	0	0	0	18	45
Totals for Paso Robles	75	33%	7%	4%	0%	1%	7%	15%	33%
Totals for Gonzales	75	67	0	0	0	0	0	12	21
Totals for Both Towns	150	50%	3%	2%	0%	1%	3%	14%	27%
<u>MIDDLE-INCOME GROUPS</u>									
Paso Robles	25	4%	24%	12%	20%	8%	12%	4%	16%
Gonzales	20	10	20	25	15	15	0	0	15
Totals for Both Towns	45	7%	22%	18%	17%	11%	7%	2%	16%

¹Classifications based on criteria outlined in Handbook of Job Facts (Chicago: Science Research Associates, Inc., 1959).

²Member of the clergy.

TABLE 6

STABILITY OF EMPLOYMENT
OF CHIEF WAGE EARNER
(IN PERCENT)

			NUMBER OF FAMILIES IN SAMPLES	STEADY	SEASONAL	PART-TIME	NOT WORKING
<u>LOW-INCOME GROUPS</u>							
Negro	Paso Robles	20	30%	15%	15%	40%	
	Gonzales	33	61	0	12	17	
Mexican-	Paso Robles	26	38	12	4	46	
American	Gonzales	20	75	0	15	10	
Anglo	Paso Robles	29	31	14	0	55	
	Gonzales	<u>22</u>	<u>35</u>	<u>0</u>	<u>0</u>	<u>65</u>	
Totals for Paso Robles		75	33%	14%	5%	48%	
Totals for Gonzales		<u>75</u>	<u>57</u>	<u>0</u>	<u>9</u>	<u>34</u>	
Totals for Both Towns		150	45%	7%	7%	41%	
<u>MIDDLE-INCOME GROUPS</u>							
	Paso Robles	25	72%	4%	4%	20%	
	Gonzales	<u>20</u>	<u>70</u>	<u>10</u>	<u>5</u>	<u>15</u>	
Totals for Both Towns		45	71%	7%	5%	17%	

TABLE 7

PLACE OF BIRTH
(IN PERCENT)

			WITHIN COUNTY	WITHIN STATE BUT OUTSIDE COUNTY	OUT OF STATE	OUT OF COUNTRY
		SPOUSE ¹				
<u>LOW-INCOME GROUPS</u>						
Negro	Paso Robles	W	0%	5%	95%	0%
		H	0	10	90	0
	Gonzales	W	84	16	0	0
		H	87	13	0	0
Mexican- American	Paso Robles	W	16	28	24	32
		H	19	6	19	56
	Gonzales	W	68	21	0	11
		H	62	7	0	31
Anglo	Paso Robles	W	12	27	58	3
		H	5	16	74	5
	Gonzales	W	48	52	0	0
		H	56	22	22	0
Totals for Paso Robles		W	10%	21%	56%	13%
		H	9	11	58	22
Totals for Gonzales		W	69	28	0	3
		H	70	14	5	11
<u>MIDDLE-INCOME GROUPS</u>						
	Paso Robles	W	8%	34%	54%	4%
		H	0	24	71	5
	Gonzales	W	40	40	20	0
		H	50	22	28	0

¹W = Wife, H = Husband - Percentages are not based on sample sizes but on actual number of husbands or wives since many families were incomplete.

TABLE 8

HOME OWNERSHIP
(IN PERCENT)

		NUMBER OF FAMILIES IN SAMPLES	OWNS HOME	BUYING A HOME	RENTING OR OTHER
<u>LOW-INCOME GROUPS</u>					
Negro	Paso Robles	20	15%	25%	60%
	Gonzales	33	46	12	42
Mexican- American	Paso Robles	26	15	4	81
	Gonzales	20	35	10	55
Anglo	Paso Robles	29	7	7	86
	Gonzales	<u>22</u>	<u>50</u>	<u>0</u>	<u>50</u>
Totals for Paso Robles		75	12%	11%	77%
Totals for Gonzales		<u>75</u>	<u>44</u>	<u>8</u>	<u>48</u>
Totals for Both Towns		150	28%	11%	77%
<u>MIDDLE-INCOME GROUPS</u>					
Paso Robles		25	20%	44%	36%
Gonzales		<u>20</u>	<u>70</u>	<u>15</u>	<u>15</u>
Totals for Both Towns		45	42%	31%	27%

TABLE 9

LOCALE OF MAJORITY OF CLOTHING PURCHASES
(GONZALES, TEXAS)

	STORES IN GONZALES	ALL OTHER*
<u>LOW INCOME GROUPS</u>		
Negro	81.8% (27)	18.2% (6)
Mexican-American	70.0 (14)	30.0 (6)
Anglo-white	86.4 (19)	13.6 (3)
Total Low-Income	80.0% (60)	20.0% (15)
<u>MIDDLE INCOME</u>	50.0% (10)	50.0% (10)

*Includes non-local stores, purchases from individuals, and gifts

TABLE 10
 USE OF CREDIT IN CLOTHING PURCHASES
 (GONZALES, TEXAS)

	HAVE A CHARGE ACCOUNT AT ONE OR MORE STORES		HAVE NO CHARGE ACCOUNTS	
<u>LOW INCOME</u>				
Negro	12.1%	(4)	87.9%	(29)
Mexican-American	50.0	(10)	50.0	(10)
Anglo-white	9.1	(2)	90.9*	(20)
Total Low Income	21.3	(16)	78.7	(59)
 <u>MIDDLE INCOME</u>	 60.0	 (12)	 40.0	 (8)

*Includes three respondents who were not sure whether or not the family had any charge accounts at stores where clothing was purchased.

TABLE 11
 PRINCIPAL REASON FOR CLOTHING STORE PATRONAGE*
 (GONZALES, TEXAS)

	PRICE	QUALITY	CREDIT	SERVICE	SELECTION	CONVENIENCE	FAMILIARITY	OTHER
<u>LOW INCOME</u>								
Negro	57.6% (19)	36.4% (12)	15.2% (5)	12.1% (4)	6.1% (2)	-% (0)	12.1% (4)	3.0% (1)
Mexican-American	45.0 (9)	15.0 (3)	30.0 (6)	0.0 (0)	15.0 (3)	- (0)	- (0)	25.0 (5)
Anglo-white	22.7 (5)	18.2 (4)	4.6 (1)	4.6 (1)	18.2 (4)	4.6 (1)	9.1 (2)	36.4 (8)
Total Low Income	44.0 (33)	25.3 (19)	16.0 (12)	6.7 (5)	12.0 (9)	1.3 (1)	8.0 (6)	18.7 (14)
<u>MIDDLE INCOME</u>	30.0 (6)	70.0 (14)	5.0 (1)	10.0 (2)	65.0 (13)	0.0 (0)	5.0 (1)	15.0 (3)

*Totals more than 100 percent because some respondents gave more than one reason.

TABLE 12
 DURABLES OWNERSHIP
 (GONZALES, TEXAS)

	Own A Television	Own a Washing Machine	Own an Automobile
<u>Low-Income</u>			
Negro	87.9% (29)	48.5% (16)	51.5% (17)
Mexican-American	100.0 (20)	80.0 (16)	60.0 (12)
Anglo-white	86.4 (19)	68.2 (15)	59.1 (13)
Total Low-Income	90.7 (68)	62.7 (47)	56.0 (42)
<u>Middle-Income</u>	90.0 (18)	60.0 (12)	100.0 (20)

TABLE 13

OWNERSHIP OF NEW AND USED APPLIANCES
(GONZALES, TEXAS)

	OWN A TELEVISION SET				OWN A WASHING MACHINE											
	NO		YES		NO		YES									
			PURCHASED NEW	PURCHASED USED	TOTAL OWNERS			PURCHASED NEW	PURCHASED USED	TOTAL OWNERS						
<u>LOW INCOME</u>																
Negro	12.1%	(4)	51.5%	(17)	36.4%	(12)	87.9%	(29)	51.5%	(17)	42.4%	(14)	6.1%	(2)	48.5%	(16)
Mexican-American	0	(0)	75.0%	(15)	25.0%	(5)	100.0%	(20)	20.0%	(4)	45.0%	(9)	35.0%	(7)	80.0%	(16)
Anglo-white	13.6	(3)	63.7	(14)	22.7	(5)	86.4	(19)	31.8	(7)	45.5	(10)	22.7	(5)	68.2	(15)
Total Low Income	9.3	(7)	61.4	(46)	29.3	(22)	90.7	(68)	37.3	(28)	44.0	(33)	18.7	(14)	62.7	(47)
<u>MIDDLE INCOME</u>	10.0	(2)	90.0	(18)	0	(0)	90.0	(18)	40.0	(8)	60.0	(12)	0	(0)	60.0	(12)

TABLE 14

LOCALE OF APPLIANCE PURCHASES

(GONZALES, TEXAS)

	TELEVISION SET			WASHING MACHINE		
	STORE IN GONZALES	ALL OTHER*	TOTAL OWNERS	STORE IN GONZALES	ALL OTHER*	TOTAL OWNERS
<u>LOW INCOME</u>						
Negro	82.8% (24)	17.2% (5)	100.0% (29)	81.3% (13)	18.7% (3)	100.0% (16)
Mexican-American	80.0 (16)	20.0 (4)	100.0 (20)	62.5 (10)	37.5 (6)	100.0 (16)
Anglo-white	79.0 (15)	21.0 (4)	100.0 (19)	66.7 (10)	33.3 (5)	100.0 (15)
Total Low Income	80.9 (55)	19.1 (13)	100.0 (68)	70.2 (33)	29.8 (14)	100.0 (47)
<u>MIDDLE INCOME</u>	77.8 (14)	22.2 (4)	100.0 (18)	75.0 (9)	25.0 (3)	100.0 (12)

*Includes purchases at non-local stores and purchases from individuals and gifts.

TABLE 15

USE OF CREDIT FOR APPLIANCE PURCHASES

(GONZALES, TEXAS)

	TELEVISION SET			WASHING MACHINE		
	USED CREDIT	DID NOT USE CREDIT*	TOTAL OWNERS	USED CREDIT	DID NOT USE CREDIT*	TOTAL OWNERS
<u>LOW INCOME</u>						
Negro	79.3% (23)	20.7% (6)	100.0% (29)	75.0% (12)	25.0% (4)	100.0% (16)
Mexican American	90.0 (18)	10.0 (2)	100.0 (20)	81.3 (13)	18.7 (3)	100.0 (16)
Anglo-white	73.7 (14)	26.3 (5)	100.0 (19)	60.0 (9)	40.0 (6)	100.0 (15)
Total Low Income	80.9 (55)	19.1 (13)	100.0 (68)	72.3 (34)	27.7 (13)	100.0 (47)
<u>MIDDLE INCOME</u>	33.3 (6)	66.7 (12)	100.0 (18)	50.0 (6)	50.0 (6)	100.0 (12)

*Includes appliances received as gifts.

TABLE 16

SUMMARY OF CREDIT USAGE IN THE PURCHASE OF VARIOUS PRODUCTS
(GONZALES, TEXAS)

	FAMILIES USING CREDIT FOR AT LEAST SOME PURCHASES*						
	GROCERIES	CLOTHING	TELEVISION SET	WASHING MACHINE	FURNITURE**	AUTOMOBILE	
<u>LOW INCOME</u>							
Negro	21.2% (7)	12.1% (4)	79.3% (23)	75.0% (12)	23.1% (3)	82.4% (14)	
Mexican-American	70.0 (14)	50.0 (10)	90.0 (18)	81.3 (13)	70.0 (7)	75.0 (9)	
Anglo-white	31.8 (7)	9.1 (2)	73.7 (14)	60.0 (9)	12.5 (1)	46.2 (6)	
Total Low Income	37.3 (28)	21.3 (16)	80.9 (55)	72.3 (34)	35.5 (11)	69.0 (29)	
<u>MIDDLE INCOME</u>	15.0 (3)	60.0 (12)	33.3 (6)	50.0 (6)	20.0 (2)	45.0 (9)	

*All percentages based on the total number of respondents reporting purchases of each product.

**Includes only those families currently making payments on furniture purchases.

TABLE 17

TOTAL AMOUNT OF CURRENT DEBT
(GONZALES, TEXAS)

	NO CURRENT DEBT	\$1-\$499	\$500-\$999	\$1,000 and over*	TOTAL FAMILIES RESPONDING**
<u>LOW INCOME</u>					
Negro	19.3% (6)	58.1% (18)	12.9% (4)	9.7% (3)	100.0% (31)
Mexican-American	5.0 (1)	30.0 (6)	30.0 (6)	35.0 (7)	100.0 (20)
Anglo-white	47.4 (9)	36.8 (7)	0 (0)	15.8 (3)	100.0 (19)
Total Low Income	22.8 (16)	44.3 (31)	14.3 (10)	18.6 (13)	100.0 (70)
<u>MIDDLE INCOME</u>	75.0 (15)	5.0 (1)	20.0 (4)	0 (0)	100.0 (20)

*No respondents reported debt in excess of \$1,000.

**Five respondents were not able or were unwilling to provide this information.

TABLE 18
 ATTITUDES TOWARD USING INSTALLMENT CREDIT
 (GONZALES, TEXAS)

	GENERALLY FAVORABLE ATTITUDES			GENERALLY UNFAVORABLE ATTITUDES				NO OPINION	TOTAL RESPONSES
	A GOOD IDEA	O.K., IF NOT OVERDONE	TOTAL FAVORABLE ATTITUDES	NEVER A GOOD IDEA	A NECESSARY EVIL	TOTAL UNFAVORABLE ATTITUDES			
<u>LOW INCOME</u>									
Negro	15.2% (5)	3.0% (1)	18.2% (6)	48.5% (16)	24.2% (8)	72.7% (24)	9.1% (3)	100.0% (33)	
Mexican-American	80.0 (16)	- (0)	80.0 (16)	10.0 (2)	5.0 (1)	15.0 (3)	5.0 (1)	100.0 (20)	
Anglo-white	13.6 (3)	13.6 (3)	27.2 (6)	36.4 (8)	31.8 (7)	68.2 (15)	4.6 (1)	100.0 (22)	
Total Low Income	32.0 (24)	5.3 (4)	37.3 (28)	34.8 (26)	21.3 (16)	56.1 (42)	6.6 (5)	100.0 (75)	
<u>MIDDLE INCOME</u>	20.0 (4)	10.0 (2)	30.0 (6)	40.0 (8)	20.0 (4)	60.0 (12)	10.0 (2)	100.0 (20)	

TABLE 19
 CURRENT FAMILY SAVINGS
 (GONZALES, TEXAS)

	\$500 or More	\$100-\$499	\$99 or Less	Other*
<u>LOW INCOME</u>				
Negro	6.1% (2)	9.1% (3)	84.8% (28)	- (0)
Mexican American	5.0 (1)	5.0 (1)	85.0 (17)	5.0% (1)
Anglo-white	18.2 (4)	4.5 (1)	77.3 (17)	- (0)
Total Low Income	9.3 (7)	6.7 (5)	82.7 (62)	1.3 (1)
<u>MIDDLE INCOME</u>	65.0 (13)	15.0 (3)	15.0 (3)	5.0 (1)

*Includes respondents who refused to answer or stated they did not know.

TABLE 20
 LOCALE OF MAJORITY OF CLOTHING PURCHASES
 (PASO ROBLES, CALIFORNIA)

	STORES IN PASO ROBLES	ALL OTHER*
<u>LOW INCOME</u>		
Negro	80.0% (16)	20.0% (4)
Mexican-American	88.5 (23)	11.5 (3)
Anglo-white	75.9 (22)	24.1 (7)
Total Low Income	81.3 (61)	18.7 (14)
<u>MIDDLE INCOME</u>	56.0 (14)	44.0 (11)

*Includes non-local stores, purchases from individuals and gifts.

TABLE 21
 USE OF CREDIT IN CLOTHING PURCHASES
 (PASO ROBLES, CALIFORNIA)

	HAVE A CHARGE ACCOUNT AT ONE OR MORE STORES	HAVE NO CHARGE ACCOUNTS
<u>LOW INCOME</u>		
Negro	35.0% (7)	65.0% (13)
Mexican-American	38.5 (10)	61.5 (16)
Anglo-white	17.2 (5)	82.8 (24)
Total Low Income	29.3 (22)	70.7 (53)
<u>MIDDLE INCOME</u>	56.0 (14)	44.0 (11)

TABLE 22
 DURABLES OWNERSHIP
 (PASO ROBLES, CALIFORNIA)

	Own a Television	Own a Washing Machine	Own An Automobile
<u>Low-Income</u>			
Negro	95.0% (19)	90.0% (18)	70.0% (14)
Mexican-American	92.3 (24)	69.2 (18)	65.4 (17)
Anglo-white	75.8 (22)	62.0 (18)	58.6 (17)
Total Low-Income	86.7 (65)	72.0 (54)	64.0 (48)
<u>Middle-Income</u>	100.0 (25)	96.0 (24)	100.0 (25)

TABLE 23

LOCALE OF APPLIANCE PURCHASES
(PASO ROBLES, CALIFORNIA)

	<u>TELEVISION SET</u>		<u>WASHING MACHINE</u>	
	STORE IN PASO ROBLES	ALL OTHER* TOTAL SET OWNERS	STORE IN PASO ROBLES	ALL OTHER* TOTAL OWNERS
<u>LOW INCOME</u>				
Negro	63.2% (12)	36.8% (7) 100.0% (19)	77.8% (14)	22.2% (4) 100.0% (18)
Mexican-American	41.6 (10)	58.4 (14) 100.0 (24)	50.0 (9)	50.0 (9) 100.0 (18)
Anglo-white	<u>27.3 (6)</u>	<u>72.7 (16)</u> 100.0 (22)	<u>50.0 (9)</u>	<u>50.0 (9)</u> 100.0 (18)
Total Low-Income	43.1 (28)	56.9 (37) 100.0 (65)	59.3 (32)	40.7 (22) 100.0 (54)
<u>MIDDLE INCOME</u>				
	80.0% (20)	20.0% (5) 100.0% (25)	70.9% (17)	29.1 (7) 100.0% (24)

*Includes purchases at non-local stores and purchases from individuals and gifts.

TABLE 24

USE OF CREDIT FOR APPLIANCE PURCHASES

(PASO ROBLES, CALIFORNIA)

	TELEVISION SET			WASHING MACHINES		
	USED CREDIT	DID NOT* USE CREDIT	OWNERS	USED CREDIT	DID NOT* USE CREDIT	OWNERS
<u>LOW INCOME</u>						
Negro	89.5% (17)	10.5% (2)	100.0% (19)	61.1% (11)	38.9% (7)	100.0% (18)
Mexican-American	50.0 (12)	50.0 (12)	100.0 (24)	55.6 (10)	44.4 (8)	100.0 (18)
Anglo-white	<u>36.4 (8)</u>	<u>63.6 (14)</u>	<u>100.0 (22)</u>	<u>50.0 (9)</u>	<u>50.0 (9)</u>	<u>100.0 (18)</u>
Total Low Income	56.9 (37)	43.1 (28)	100.0 (65)	55.6 (30)	44.4 (24)	100.0 (54)
<u>MIDDLE INCOME</u>	52.0 (13)	48.0 (12)	100.0 (25)	45.8 (11)	54.2 (13)	100.0 (24)

*Includes appliances received as gifts.

TABLE 25

SUMMARY OF CREDIT USAGE IN THE PURCHASE OF VARIOUS PRODUCTS

(PASO ROBLES, CALIFORNIA)

	FAMILIES USING CREDIT FOR AT LEAST SOME PURCHASES*					
	GROCERIES	CLOTHING	TELEVISION SET	WASHING MACHINE	** FURNITURE	AUTOMOBILE
<u>LOW-INCOME GROUPS</u>						
Negro	26.3%(5)	35.0%(7)	89.5%(17)	61.1%(11)	33.3%(4)	92.9%(13)
Mexican-American	3.8 (1)	38.5 (10)	50.0 (12)	55.6 (10)	10.0 (1)	70.6 (12)
Anglo-white	<u>10.3 (3)</u>	<u>17.2 (5)</u>	<u>36.4 (8)</u>	<u>50.0 (9)</u>	<u>30.8 (4)</u>	<u>52.9 (9)</u>
Total Low-Income	12.2%(9)	29.3%(22)	56.9%(37)	55.6%(30)	25.7%(9)	70.8%(34)
<u>MIDDLE-INCOME</u>	12.0%(3)	56.0%(14)	52.0%(13)	45.8%(11)	6.3%(1)	60.0%(15)

*All percentages based on total number of respondents reporting purchases of each product.

**Includes only those respondents who reported making current payments.

TABLE 26

TOTAL AMOUNT OF CURRENT DEBT
(PASO ROBLES, CALIFORNIA)

	NO CURRENT DEBT	\$1-\$499	\$500-\$999	\$1,000 and Over*	TOTAL FAMILIES** RESPONDING
<u>LOW-INCOME GROUPS</u>					
Negro	21.1% (4)	10.5% (2)	15.8% (3)	52.6% (10)	100.0% (19)
Mexican-American	29.2 (7)	33.3 (8)	25.0 (6)	12.5 (3)	100.0 (24)
Anglo-white	<u>31.0 (9)</u>	<u>34.5 (10)</u>	<u>6.9 (2)</u>	<u>27.6 (8)</u>	<u>100.0 (29)</u>
Total Low-Income	27.8% (20)	27.8% (20)	15.3% (11)	29.1% (21)	100.0% (72)
<u>MIDDLE-INCOME</u>	41.7% (10)	---	8.3% (2)	50.0% (12)	100.0% (24)

*No respondents reported debts in excess of \$10,000.

**Three respondents were not willing or were unable to supply this information.

TABLE 27

ATTITUDES TOWARD USING INSTALLMENT CREDIT
(PASO ROBLES, CALIFORNIA)

	GENERALLY FAVORABLE ATTITUDES		GENERALLY UNFAVORABLE ATTITUDES			NO OPINION RESPOND	TOTAL RESPOND
	INSTALLMENT CREDIT A GOOD IDEA	OKEY, IF NOT OVER- DONE	TOTAL FAVORABLE ATTITUDES	NEVER A GOOD IDEA	A NECESSARY EVIL			TOTAL UNFAVORABLE ATTITUDES
<u>LOW-INCOME GROUPS</u>							
Negro	55.0%(11)	10.0%(2)	65.0%(13)	20.0%(4)	15.0%(3)	35.0%(7)	----(0) 100.0%(20)
Mexican-American	73.1 (19)	--- (0)	73.1 (19)	19.2 (5)	7.7 (2)	26.9 (7)	----(0) 100.9 (26)
Anglo-white	<u>34.5 (10)</u>	<u>3.5 (1)</u>	<u>38.0 (11)</u>	<u>44.8 (13)</u>	<u>17.2 (5)</u>	<u>62.0 (18)</u>	<u>----(0) 100.0 (29)</u>
Total Low-Income	53.3%(40)	4.0%(3)	57.3%(43)	29.4%(22)	13.3%(10)	42.7%(32)	----(0) 100.0%(75)
<u>MIDDLE INCOME</u>	32.0%(8)	8.0%(2)	40.0%(10)	48.0%(12)	8.0%(2)	56.0%(14)	4.0%(1) 100.0%(25)

TABLE 28

CURRENT FAMILY SAVINGS
(PASO ROBLES, CALIFORNIA)

	\$500 or More	\$100-\$499	\$99 or Less	TOTAL
<u>LOW-INCOME GROUPS</u>				
Negro	15.0%(3)	30.0%(6)	55.0%(11)	100% (20)
Mexican-American	11.5 (3)	15.4 (4)	73.1 (19)	100% (26)
Anglo-white	<u>3.4 (1)</u>	<u>20.7 (6)</u>	<u>75.9 (22)</u>	<u>100% (29)</u>
Total Low-Income	9.3%(7)	21.3%(16)	69.4%(52)	100% (75)
<u>MIDDLE-INCOME</u>	80.0%(20)	8.0%(2)	12.0%(3)	100% (25)

TABLE 29

COMPARATIVE PURCHASING PRACTICES AND ATTITUDES IN GONZALES,
TEXAS AND PASO ROBLES, CALIFORNIA BY SUBCULTURAL CLASSIFICATION

	Television Ownership	Use of Credit in Television Purchase	Washing Machine Ownership	Use of Credit in Washing Machine Purchase	Use of Credit in Clothing Purchases	Attitudes Toward the Use of Credit	Total Current Debt (\$500 or More vs. \$499 or Less)	Total Savings (\$101 or More vs. \$100 or Less)
<u>Low-Income Groups</u>								
Negro	p = .57	p = .43	p = .01*	p = .40	p = .08**	p = .01*	p = .01*	p = .04*
Mexican-American	p = .99	p = .01*	p = .39	p = .17	p = .35	p = .40	p = .10**	p = .25
Anglo-white	p = .46	p = .03*	p = .42	p = .47	p = .55	p = .15	p = .20	p = .52
<u>Middle-Income Groups</u>								
Middle-Income	p = .38	p = .24	p = .01*	p = .54	p = .46	p = .44	p = .02*	p = .50
<u>Total Middle-Income vs. Total Low- Income</u>	p = .28	p = .02*	p = .08**	p = .09**	p = .01*	p = .06**	p = .27	p = .01*

* Significant at alpha level of $p \leq .05$
** Significant at alpha level of $p \leq .10$

COMPARISON OF CONSUMER AND STORE MANAGER ATTITUDES:
THE CASE OF RACIAL EFFECTS IN INNER CITY RETAILING¹

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This paper studies whether consumers must cope with inner city retail store managers whose attitudes about the effect of racial factors upon market performance differ from those of the consumers. The fundamental issue is whether racial attitudes create market imperfections which cause all participants, consumers and retailers alike, to be worse off than if differential perceptions of racial effects did not exist. It is almost impossible to provide a definitive answer to this question. However, the present study attempts to provide some insights into this issue.

A second issue is whether effects due to place of residence of consumers dominate effects due to race. A classic statement of this issue is given by Greenberg and Dervin (1970, p. 225):

"The...hypothesis...(is) to expect considerable similarity between low-income blacks and low-income whites. Considerable research suggests that the poor live in a subculture that makes them much alike no matter what their race or ethnic origin."

Methodology

Andreasen undertook a study in Buffalo, New York, of the nature of businesses in the inner-city and of their operators in 1968 (Andreasen, 1968). Among other things, he asked five attitudinal questions designed to measure the views of store operators toward their customers. A subsequent study in 1969 of inner-city and central city consumers in Rochester, New York, administered the same attitudinal questions to consumers. The intent was to allow a comparison of the Buffalo study data and the Rochester study data.

The methodology of applying the same attitudinal questions in different cities is obviously strange. However, there is no evidence that attitudes on racial matters differ among metropolitan areas in upstate New York.³ Further, previous research (Haines, Simon, Alexis, 1971) has shown that the structure of retail enterprise types existing in the inner city in Rochester is not significantly different from that identified in the Andreasen study of Buffalo. Finally, there are great similarities in the general characteristics of the population in the inner-city portions of both cities in terms of percent non-white, percentage, population change over the four to six year period from 1960, and in 1960 census median reported income. Therefore, the possibility of testing for racial attitude marketplace effects proved too intriguing to pass up.

The five attitudinal questions used in the Rochester study which were common to both studies are displayed in Exhibit I. The wording used in the Rochester study was slightly different from that used in the Buffalo study. The substance of each attitudinal question remained the same.⁴

A sixth attitudinal question was added in Rochester: "Black consumers prefer to shop in stores that hire Black people. How do you feel about this?" This question is not directly comparable to anything in the Buffalo study, but does yield some interesting findings in and of itself.

Study Areas

The inner city area selected for the Buffalo study is comprised of Buffalo's Model Neighborhood Area plus an area to the northeast towards which the black community is moving. The total area is approximately twenty-five blocks wide and thirty-five blocks long.

The Rochester study collected consumer survey data in two inner city neighborhoods and two other central city neighborhoods chosen for purposes of comparison. All are within the City limits of Rochester. Brief descriptions of the areas are:

FIGURE I

Attitudinal Questions Used in Rochester Study

1. Merchants charge Blacks higher interest rates than whites and are less likely to give credit to Blacks than Whites. How do you feel about this?

- 1. Agree strongly
- 2. Tend to agree
- 3. Tend to disagree
- 4. Disagree strongly
- 5. Don't know

2. Blacks have more appreciation for quality goods than Whites, so that a store which carries quality goods in a mixed neighborhood will have more Black customers than White customers. How do you feel about this statement?

- 1. Agree strongly
- 2. Tend to agree
- 3. Tend to disagree
- 4. Disagree strongly
- 5. Don't know

3. Store owners are more likely to worry about sometimes overcharging Whites or selling them a used piece of merchandise than Blacks.

- 1. Agree strongly
- 2. Tend to agree
- 3. Tend to disagree
- 4. Disagree strongly
- 5. Don't know

4. Blacks are more likely to be involved in shoplifting and vandalism than Whites. How do you feel about this?

- 1. Agree strongly
- 2. Tend to agree
- 3. Tend to disagree
- 4. Disagree strongly
- 5. Don't know

5. Black customers don't care much about good manners, so there is no special need to make an effort to treat Black customers as politely as White customers. How do you feel about this?

- 1. Agree strongly
- 2. Tend to agree
- 3. Tend to disagree
- 4. Disagree strongly
- 5. Don't know

Maplewood	Almost completely white; many single, young persons and old, retired persons; few families with children; single and two family housing predominates; lower middle class outlook.
19th Ward	Black homeownership families penetrating one border; almost all families, many with grown children; economically solid middle class. Single and two family houses.
Third Ward	About 60% black and definitely in transition; mostly families but some singles; primarily one, two, and three story housing; economically, lower middle and upper lower class; definitely a slight step up from the worst ghettos in the cities.
West Half of Model Cities	Named for urban renewal project; heaviest concentration of blacks in city; traditional ghetto for all types of backgrounds; deteriorated housing; economically, contains many of the very poor and those on relief; many multi-unit dwelling units and some high rises; mixture of families and single persons.

Analysis Model

A recurring question in the analysis of attitude data has been that of what measurement properties should be attributed to the data (Coleman, 1964). The present study assumes only that responses can be classified into one of six groups: the five groups shown in Exhibit I, and a sixth group, into which all respondents who refused to answer the attitudinal question are classified. The model used is a multinomial distribution with five parameters.⁵ The analytical method employed in processing the data to yield statistics which bear on the questions outlined above is a test for a significant difference between or among multinomial distributions. Each of the response categories is considered as one outcome on a multinomial distribution, and comparisons are then made across neighborhoods, store types, race, and consumers and store operators. The test procedure gives an empirical χ^2 value, along with the degrees of freedom associated with the empirical χ^2 . This statistic is then used to test the null hypothesis of no significant differences between the observed multinomial distributions.⁶

Results

Each of the attitudinal questions from Exhibit I will be referred to by a single adjective (in order to simplify the discussion) as follows: (1) "Interest", (2) "Quality", (3) "Over-Charged", (4) Shoplifting", and (5) "Manners".

The first set of tests performed was for homogeneity of operators attitudes by store type on the Andreasen data. The null hypothesis of homogeneity could not be rejected except on the Quality and Overcharged attitudinal questions at an 0.05 level of Type I error. The Andreasen store types were then further split into those that were primarily retail units (categories 5 to 18) and those that were primarily service units (categories 19 to 26). The null hypothesis of no difference then was not rejected on any of the attitudinal questions. It may therefore be speculated that something in the character of a service store operation leads to differential operator response on those attitudes which focus on quality and over-charging. These results are presented in Table 1.

The second set of tests performed was upon the attitudes of consumers in the Rochester study across the four areas of the central and inner city in which respondents had been questioned. Table 2 presents these results. The null hypothesis of homogeneity was not rejected on any of the attitudes except that pertaining to Quality. Figure 1 presents the empirical data for this attitude question. It is perfectly clear from this Figure that Maplewood responses are different. Therefore, the Maplewood group was separated out and a test for homogeneity performed on attitudes toward quality using only the remaining three areas. The null hypothesis of no difference could not be rejected.⁷ Maplewood is an almost exclusively white lower middle-class neighborhood; in fact, the sample of Maplewood respondents is entirely white. The difference on the Quality attitude on the part of the Maplewood residents is particularly interesting since the Quality attitude was one of the two which had to be examined differentially by type of store.

The responses of all the different owners and operators of all types of stores were then pooled based on the fact that the null hypothesis of homogeneity of attitudes could not generally be rejected. Similarly, the responses of the respondents in the Rochester study in all four areas were also pooled again taking advantage of the fact that there was generally homogeneity of responses. When the two groups are compared, the null hypothesis of no difference is rejected on all the attitudinal questions, if as in the case of the Quality attitude, the Maplewood consumers are excluded on the findings mentioned above. If the Maplewood area only is used to represent consumer views on Quality, then the null hypothesis on that question is not rejected. These results are presented in Table 3. Again, a differential result due to the effects contributed by the Maplewood residents is identified. There are apparently different attitudes held by consumers and store operators. This disparity in viewpoint may be a substantial contributing factor to the general hostility that is sometimes reported occurring between consumers and store operators in the inner-city.

Table 1
Homogeneity Test on Responses by Store Type
Andreasan Data

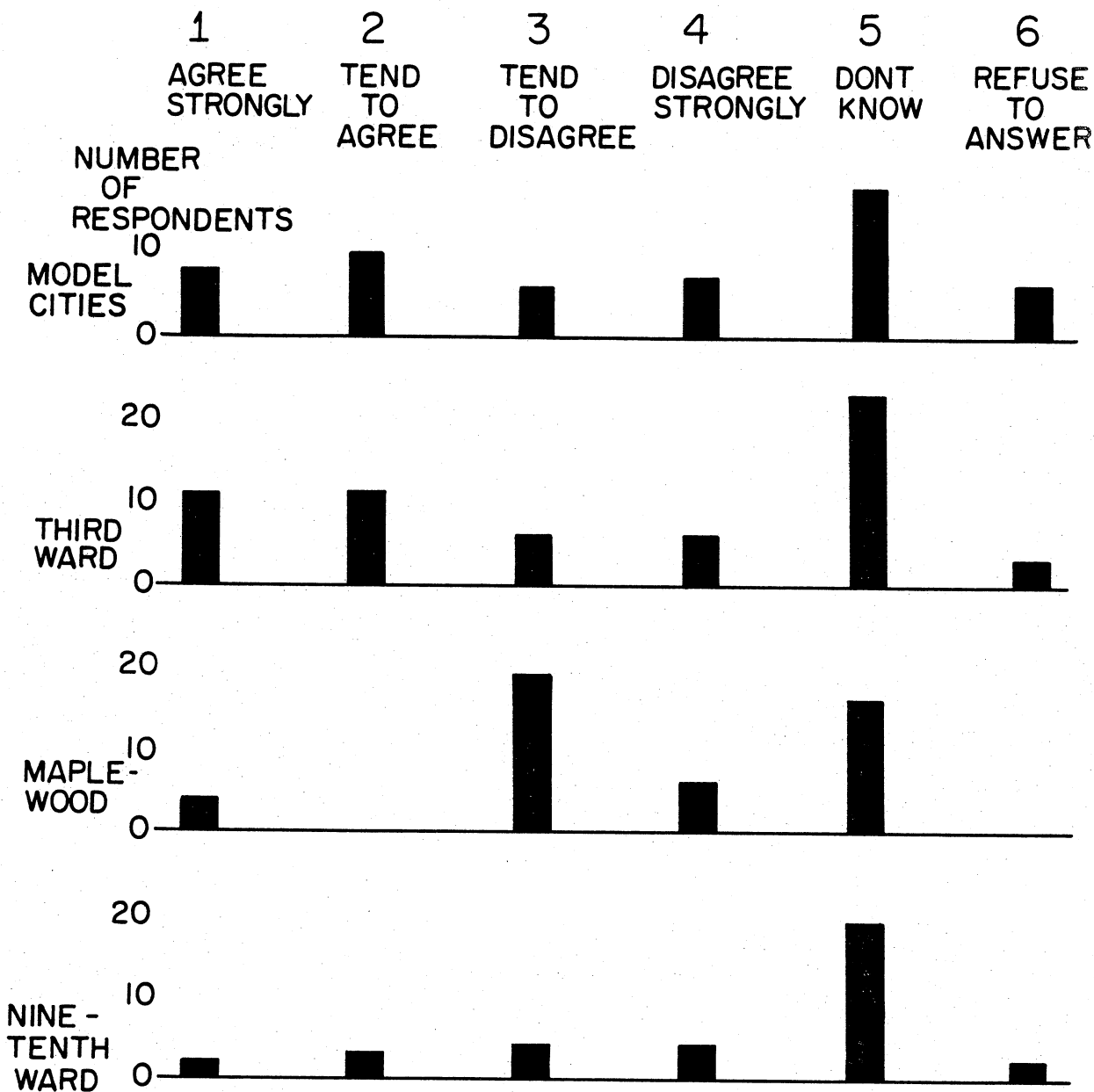
Question	Store Types	d.f.	χ^2	χ^2 .05 @d.f.	Statement
1. "Interest"	5-26	33.25	44.47	47.67	Do not reject
	" 5-18	16.08	15.51	26.30 @ 16	Do not reject
	" 19-26	25.09	26.56	37.65	Do not reject
2. "Quality"	5-26	33.20	119	55.75 @ 40	Reject
	" 5-18	15.77	16.95	25.00 @ 15	Do not reject
	" 19-26	24.40	31.52	36.4 @ 24	Do not reject
3. "Overcharged"	5-26	32.06	63.41	55.75 @ 40	Reject
	" 5-18	15.87	13.98	26.29 @ 16	Do not reject
	" 19-26	22.86	26.88	35.17	Do not reject
4. "Shoplifting"	5-26	27.60	29.89	41.30	Do not reject
	" 5-18	13.69	10.76	23.7	Do not reject
	" 19-26	16.43	15.97	26.30 @ 16	Do not reject
5. "Manners"	5-26	23.66	26.60	36.4	Do not reject
	" 5-18	15.77	16.95	25.0	Do not reject
	" 19-26	16.46	22.22	26.3 @ 16	Do not reject

Table 2

Homogeneity of A.H.S. Consumer Response across Areas

Ques.	d.f.	χ^2	$\chi^2_{.05}$ @ d.f.	Statement
Manners	14.68	18.12	23.7 @ 14	Do not reject
Shoplifting	15.75	25.41	25.95 @ 15.75	Do not reject
Quality (all)	16.66	33.37	26.3 @ 16	Reject
Quality (Q1-4) only	10.17	25.93	19.7 @ 11	Reject
Quality (Maplewood) excluded	12.41	5.37	21.0 @ 12	Do not reject
Interest Rates	16.50	17.51	26.3 @ 16	Do not reject
Overcharged	16.75	25.76	26.3 @ 16	Do not reject

FIGURE I
RESPONSES TO QUALITY ATTITUDE QUESTION
BY ROCHESTER RESIDENTIAL AREA



The data for operators of stores in the inner-city in Buffalo then was divided to control for race and ownership versus management status. When black operators were compared, no significant differences in attitudes among female owners, male owners, and managers could be found. Similarly, the null hypothesis cannot be rejected when making the same test on the white operator group. All the black respondents store operators were then pooled and contrasted to all the white operators pooled. Again a test for homogeneity was conducted. In this particular instance, the null hypothesis of no difference was rejected in every case except on the attitudinal question having to do with Manners. Again, apparently there is a substantive difference in viewpoints between the black store operators and white store operators with the exception of attitudes having to do with Manners. These results are reported in Table 4.⁸

The Rochester data were then divided to control for race. A test for similarity of attitudes was then made across the respondents in the four different areas of the city in which samples had been taken. The sixth attitudinal question, which appeared only in the Rochester data and which is referred to as "Blacks Hired", is included in this analysis. Table 5 presents the results. The null hypothesis of no difference could not be rejected on any of the six attitudinal scales for data from all the black consumers only and for data from all white consumers only. The black consumers were then pooled and compared to the pooled white consumers. The null hypothesis of no difference is rejected in every case but Manners⁹. The similarity of this finding to that of store operators in the Buffalo study when race is controlled is striking.

These results clearly suggest one final set of tests which compare consumer's attitudes against those of store operators controlling for race. The following separate analyses are made: 1. black consumers compared to black merchants, 2. black consumers against white merchants, 3. white consumers versus black merchants, and 4. white consumers contrasted to white operators. The results of this analysis are presented in Table 6. The null hypothesis of no difference in attitudes is rejected on all attitudes except Shoplifting in the first two cases.¹⁰

It should be recalled that the pooled black consumers, pooled black store operators, or pooled white store operators had no significant differences in attitude on this particular question.

The nature of the difference in attitudes on the other questions is exemplified in Figure II, which shows the overwhelmingly less favorable response of white store owners compared to black consumers on the quality attitude question. For the third group, white consumers compared to black store operators, the null hypothesis of no difference was rejected in every case. However, only in the case of manners was the null hypothesis rejected when the don't know and no response categories were removed from the analysis; in this case, apparently much if not all of the observed difference apparently from responses to these two categories. The same pattern is seen in the fourth group of tests which compare white consumers to white retailers; in fact the only difference in results between this group and the preceding group is the similarity of responses on the Quality question; the null hypothesis of homogeneity cannot be rejected for this question in either of the question set tests. This again may be the effect of the Maplewood consumers.

Table 3

Homogeneity Between A.H.S. Consumers-Pooled and
Andreasan's Retailers-Pooled

Question	d.f.	χ^2	$\chi^2_{.05}$ @ d.f.	Statement
"Interest"	6.39	39.06	12.59 @ 6	Reject
"Manners"	6.34	246.88	12.59 @ 6	Reject
"Quality" (Maplewood ex- cluded)	5.86	17.70	12.59 @ 6	Reject
(Maplewood only)	5.02	1.74	11.07 @ 5	Do not reject
"Overcharged"	6.41	39.54	12.59 @ 6	Reject
"Shoplifting"	6.22	38.28	12.59 @ 6	Reject

Table 4

Homotest Andreasan Data Across Retail Store Types
Controlling for Race

I. Black Respondents Only

Female Owners, Male Owners, Managers

	d.f.	χ^2	d.f. - $\chi^2_{\alpha}.05$	Statement
1. "Interest Rates "	7.63	1.51	8 - 15.51	Do not reject
2. "Quality"	7.25	4.08	7 - 14.07	Do not reject
3. "Overcharging"	8.45	3.62	8 - 15.51	Do not reject
4. "Shoplifting"	7.21	4.70	7 - 14.07	Do not reject
5. "Manners"	6.74	1.69	7 - 14.07	Do not reject

II. White Respondent

Female Owners, Male Owners, Managers

	d.f.	χ^2	d.f. - $\chi^2_{\alpha}.05$	Statement
1. "Interest Rates"	6.22	1.41	6 - 12.59	Do not reject
2. "Quality"	6.20	3.15	6 - 12.59	Do not reject
3. "Overcharging"	6.31	1.95	6 - 12.59	Do not reject
4. "Shoplifting"	5.43	0.41	5 - 11.07	Do not reject
5. "Manners"	4.40	0.83	4 - 9.49	Do not reject

Table 4 (Continued)

III. Black Respondents Pooled Vs. White Respondents Pooled

	d.f.	χ^2	d.f. - $\chi^2_{\alpha}.05$	Statement
1. "Interest Rate"	9.78	26.07	10 - 18.3	Reject
2. "Quality"	9.77	41.97	10 - 18.3	Reject
3. "Overcharging"	9.79	38.72	10 - 18.3	Reject
4. "Shoplifting"	9.01	19.26	9 - 16.92	Reject
5. "Manners"	8.50	1.59	8 - 15.51	Do not reject

IV. Black Respondents Pooled vs. White Respondents Pooled - Responses 1-4 only

	d.f.	χ^2	d.f. - $\chi^2_{\alpha}.05$	Statement
1. "Interest Rate"	6.01	21.93	6 - 12.6	Reject
2. "Quality"	6.01	37.30	6 - 12.6	Reject
3. "Overcharging"	6.02	36.95	6 - 12.6	Reject
4. "Shoplifting"	5.55	18.63	6 - 12.6	Reject
5. "Manners"	5.67	0.0	6 - 12.6	Do not reject

Table 5

Homogeneity Test: Rochester Data Across Areas Controlling
for Race

I. Black Respondents Only

Model Cities, 3rd. Ward, 19th Ward

	d.f.	χ^2	$\chi^2_{\alpha} = .05 @ d.f.$	Statement
1. "Manners"	7.67	2.62	14.06 @ 7	Do not reject
2. "Shoplifting"	7.84	4.18	14.06 @ 7	Do not reject
3. "Quality"	8.90	1.53	16.92 @ 9	Do not reject
4. "Interest Rates"	7.12	1.50	14.06 @ 7	Do not reject
5. "Blacks Hired"	9.16	2.58	16.92 @ 9	Do not reject
6. "Overcharged"	8.57	2.00	16.92 @ 9	Do not reject

II. White Respondents Only

Model Cities, 3rd. Ward, Maplewood, 19th Ward

1. "Manners"	4.54	3.77	9.49 @ 4	Do not reject
2. "Shoplifting"	5.02	5.90	11.07 @ 5	Do not reject
3. "Quality"	5.23	5.13	11.07 @ 5	Do not reject
4. "Interest Rates"	6.24	2.56	12.59 @ 6	Do not reject
5. "Blacks Hired"	5.48	4.74	12.59 @ 6	Do not reject
6. "Blacks Over-Charged"	5.58	5.78	12.59 @ 6	Do not reject

Table 5 (cont'd)

III. Black Respondents Pooled Vs. White Respondents Pooled

	d.f.	χ^2	$\chi^2_{.05}$ @ d.f.	Statement
1. "Manners" (Q1-6) (Q1-4 only)	8.58	11.70	16.91 @ 9	Do not reject
	4.94	5.91	12.6 @ 6	Do not reject
2. "Shoplifting" (Q1-6) (Q1-4 only)	8.92	20.72	16.91 @ 9	Reject
	5.08	8.82	11.1 @ 5	Do not reject
3. "Quality" (Q1-6) (Q 1-4 only)	9.35	30.44	16.91 @ 9	Reject
	6.01	30.49	12.6 @ 6	Reject
4. "Interest Rates"(Q1-6) (Q 1-4 only)	9.39	40.13	16.91 @ 9	Reject
	5.31	28.01	12.6 @ 6	Reject
5. "Black Hired" (Q 1-4 only)	9.27	34.44	16.91 @ 9	Reject
	4.75	11.33	11.1 @ 5	Reject
6. "Overcharged" (Q1-6) (Q 1-4 only)	9.28	34.44	16.91 @ 9	Reject
	5.72	20.22	12.6 @ 6	Reject

Table 6

Homogeneity Tests - Rochester Consumers Vs. Buffalo Retailers by Race.

A. Rochester Black Consumers Versus Buffalo Black Retailers

Question	d.f.	χ^2	$\chi^2.05$ @ d.f.	Statement
Manners (Q1-6) (Q1-4 only)	6.28	122.38	12.59 @ 6	Reject
	3.73	110.38	9.49 @ 4	Reject
Shoplifting (Q1-6) (Q1-4 only)	5.94	11.99	12.59 @ 6	Do not reject
	3.40	2.96	7.81 @ 3	Do not reject
Quality (Q1-6) (Q 1-4 only)	6.45	18.68	12.59 @ 6	Reject
	3.46	1.23	7.81 @ 3	Do not reject
Interest (Q1-6) (Q1-4 only)	6.41	20.76	12.59 @ 6	Reject
	3.59	7.58	7.81 @ 3	Do not reject
Overcharging (Q1-6) (Q1-4 only)	6.41	35.83	12.59 @ 6	Reject
	3.54	20.55	7.81 @ 3	Reject

B. Rochester Black Consumers Versus Buffalo White Retailers

Question	d.f.	χ^2	$\chi^2.05$ @ d.f.	Statement
Manners (Q1-6) (Q1-4 only)	6.19	129.69	12.59 @ 6	Reject
	3.67	110.99	9.49 @ 4	Reject
Shoplifting (Q1-4 only)	6.04	11.97	12.59 @ 6	Do not reject
	3.51	6.78	7.81 @ 3	Do not reject
Quality (Q1-6) (Q1-4 only)	6.40	24.45	12.59 @ 6	Reject
	3.45	13.80	9.49 @ 4	Reject
Interest (Q1-6) (Q1-4 only)	6.38	26.88	12.59 @ 6	Reject
	3.59	19.67	7.81 @ 3	Reject
Overcharging (Q1-6) (Q1-4 only)	6.41	14.84	12.59 @ 6	Reject
	3.55	3.46	7.81 @ 3	Do not reject

Table 6 cont'd

C. Rochester White Consumers Versus Buffalo Black Retailers

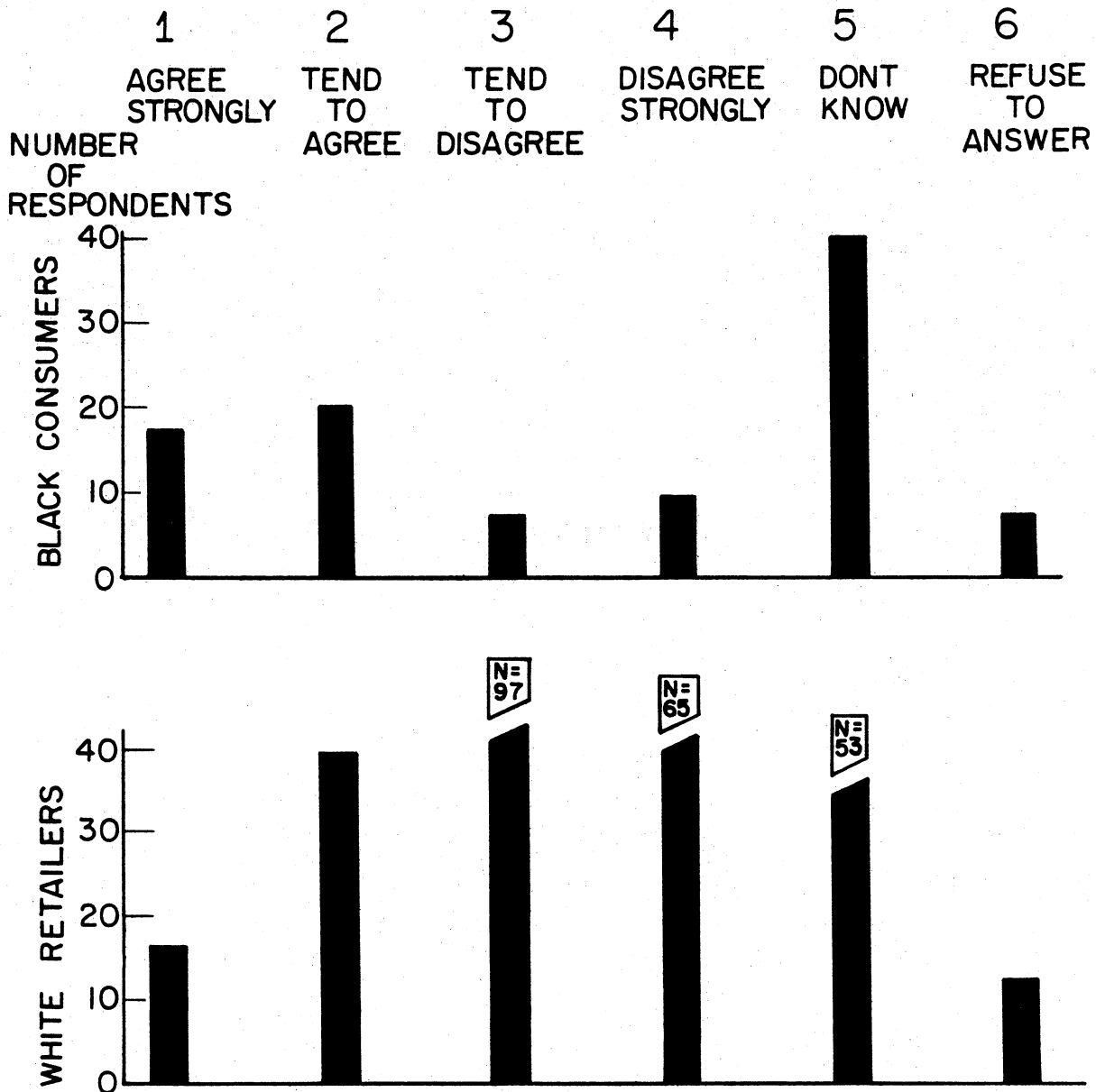
Question	d.f.	χ^2	$\chi^2_{.05}$ @ d.f.	Statement
Manners (Q1-6)	5.93	103.06	12.59 @ 6	Reject
(Q1-4 only)	3.44	74.91	9.49 @ 4	Reject
Shoplifting (Q1-6)	5.60	32.70	12.59 @ 6	Reject
(Q1-4 only)	3.12	3.78	7.81 @ 3	Do not reject
Quality (Q1-6)	5.78	15.73	12.59 @ 6	Reject
(Q1-4 only)	3.37	6.15	7.81 @ 3	Do not reject
Interest (Q1-6)	5.88	28.64	12.59 @ 6	Reject
(Q1-4 only)	3.31	35.12	7.81 @ 3	Reject
Overcharging (1-6)	5.98	23.06	12.59 @ 6	Reject
(Q1-4 only)	3.31	1.96	7.81 @ 3	Do not reject

D. Rochester White Consumers Versus Buffalo White Retailers

Question	d.f.	χ^2	$\chi^2_{.05}$ @ d.f.	Statement
Manners (Q1-6)	5.88	111.61	12.59 @ 6	Reject
(Q1-4 only)	3.40	76.13	9.49 @ 4	Reject
Shoplifting (Q1-6)	5.68	26.03	12.59 @ 6	Reject
(Q1-4 only)	3.13	0.01	7.81 @ 3	Do not reject
Quality (Q1-6)	5.99	8.89	12.59 @ 6	Do not reject
(Q1-4 only)	3.34	0.91	7.81 @ 3	Do not reject
Interest (Q1-6)	6.03	25.95	12.59 @ 6	Reject
(1-4 only)	3.27	0.25	7.81 @ 3	Do not reject
Overcharging (Q1-6)	6.07	23.44	12.59 @ 6	Reject
(Q1-4 only)	3.33	2.41	7.81 @ 3	Do not reject

FIGURE II

RESPONSES TO QUALITY ATTITUDE QUESTION
BLACK CONSUMERS VS WHITE RETAILERS



Conclusions

1. Attitudes about the effects of race which might affect retail market operation are largely similar in inner city store operators across diverse retail store types.
2. This similarity also is found within race: consumers of similar race have similar attitudes, regardless of residence place and retailers of similar race have similar attitudes, regardless of sex and whether they are an owner or a manager of the retailer business.
3. Attitudes about the effects of race are different when retailers and consumers are compared.
4. Attitudes about the effects of race are different when black and white retailers and consumers are compared.
5. Attitudes are different when retailers and consumers are compared controlling for race.

Discussion

All consumers seem to see retailers as "the enemy". There is no mitigating effect of race. Very few consumers seem to adopt the attitude of store operators, and vice versa. Being a consumer puts one on a different side of the marketplace, sufficiently so that even though a store operator may be of the same race, the consumers attitudes are not likely to be like those of the store operator.

An often stated hypothesis is that one reason living and working in inner city neighborhoods is intolerable is that the people living and working in these neighborhoods have such different perceptions of each other that they cannot communicate to one another. This lack of communication prohibits any effective group action to better environmental conditions for everyone. The results of this study could not be held to reject such a view, although it is still possible that the results reflect differences between the urban areas where the data were collected.

The results are quite clear, on the other hand, that on the consumer data effects due to race dominate effects due to place of residence. This is the exact opposite of the hypothesis stated by Greenburg and Dervin. There can be no comfort in these results for those who would claim blacks and whites have similar attitudes, and that observed differences in attitudes can be explained away by place of residence.

Footnotes

1. The research reported in this paper was supported by a grant from the Consumer Research Institute, Inc. and by the Systems Analysis Program, The University of Rochester, under Bureau of Navy Personnel Contract No. N00022-70-C-0076. However, the conclusions, opinions, and other statements in this paper are those of the authors and not necessarily those of the Consumer Research Institute, Inc. or the Systems Analysis Program. The authors are indebted to Charles Miersch, Ronald Homer, John Mosely, and Marilyn Dapses for assistance in data collection and to Jose da Costa for assistance in data processing.
2. Associate Professor, School of Business Administration; Professor, Department of Economics; Associate Professor, Graduate School of Management; Vice President, Marketing, and Associate Professor, Graduate School of Management respectively.
3. The original research design of the Rochester study included collection of information about racial attitudes held by retail businessmen in Rochester. Such data would have allowed exploration of whether differences in attitudes exist between metropolitan areas. This stage of the design was never carried out because funds for the necessary data collection were not available.
4. The exact wording used in the Buffalo study may be found in (Andreasen, 1970, p. 328-329).
5. An elementary discussion of the multinomial distribution and its properties is given in 11.
6. A full description of the test derivation and use may be found in (Pothoff and Whittinghill, 1966). A BASIC program to perform the computations is available from the authors on request.
7. A possible alternative explanation would be that the difference arises from differences in the non-response and don't know categories. Therefore, the homogeneity test on Quality was re-run using only responses in categories 1-4. Once again the null hypothesis of homogeneity is rejected at $\alpha=.05$, which indicates the data do not support this alternative explanation.
8. Once again it can be seen that there is no change in the qualitative nature of the results if categories 5 and 6 (don't know and non-response) are excluded (see Table 4, part IV).
9. The result is essentially the same if the analysis is performed excluding "don't know" and no response". The only change is in shoplifting where in this analysis the null hypothesis of homogeneity cannot be rejected.
10. The analysis based only on response categories 1 to 4 includes some additional cases where the null hypothesis cannot be rejected but the impression of substantial differences in attitude remains.

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COMPARISON OF CONSUMER BEHAVIOR CONFORMITY AND
INDEPENDENCE BETWEEN BLACKS AND WHITES:
AN EXPLORATORY STUDY¹

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Several replications of the Conformity Studies of Asch (Asch, 1951) and the Social Judgement experiments of Sherif (Myers, 1966) have been made with similar results (Bourne, 1957; Brehm, 1965; Festinger, 1954; Howard, 1963; Venkatesan, 1966; Venkatesan, 1968). This study, with certain variations, follows the basic procedure of these earlier reports in an examination of possible conformity similarities and differences between blacks and whites. In an environment where conformity is a major force in consumer decision making an analysis of the degree of conformity between different ethnic groups should lend further insight. For example, if it could be established that one ethnic group is more susceptible to group influence than the other, and the nature of this influence is determinable, the information obtained should prove valuable in market segmentation analysis and the establishment of promotional strategy.

Objective

The objective of this study, therefore, was to gain further insight into the degree of susceptibility a particular consumer has to group pressure. More specifically, answers were sought to the following questions: (1) In general, does conformity vary significantly between blacks and whites; and (2) does conformity vary significantly within each ethnic group in terms of the degree of group pressure applied? The basic hypotheses were as follows:

1. In a consumer decision-making situation where no objective standards are present, individuals who are exposed to an emphatic group norm will tend to conform to that norm.
2. In a consumer decision-making situation where no objective standards are present, individuals who are exposed to an unemphatic group norm will show a tendency toward independence.
3. Blacks will tend to conform to a significantly greater extent than whites.

Methodology

A controlled laboratory experiment was conducted to test the above hypotheses. A laboratory situation was devised in which the consumer decision-making process approximated an actual purchase situation. The purchase situation reflected as nearly as possible each of the ethnic groups' familiarity in terms of the product selected for evaluation.

Two hundred seventy college juniors and seniors, evenly divided between blacks and whites, were the subjects for the experiment. These students were drawn randomly from among students in advanced business courses at the University of South Carolina and Benedict College. The study was run during the 1970-71 Fall and Spring semesters.

The subjects were required to compare four identical suits labeled A,B,C,D and to rank order them in terms of best to worst quality. The style, color, and size of the suits were the same and all means of identification were removed. A

Latin Square design was used to vary the position of the suits so that each suit could be displayed in each position with equal frequency. The suits were displayed on a metal clothing rack, and were hung side by side.

The subjects were told that each suit was from a different manufacturer; that the quality of each suit was different; that earlier studies had shown that retail clothing buyers had been able to select the highest quality suits in most cases; and that the present study was being conducted to determine if consumers could also distinguish between the quality of the suits.

Three experimental conditions were used in the experiment. The first condition was a Control Condition. In the second condition group pressure was applied emphatically. In the third condition group pressure was applied unemphatically. Conditions II and III were labeled Conformity Condition and Independence Condition respectively.

The subjects, under each condition, were allowed two minutes to physically examine the suits to assist them in arriving at a decision. The suits were placed in such a manner that the subjects were seated with their backs to them. This was done in order that no one could have access to the suits until they were asked to get up from their seat and examine them for the allotted two minutes.

In the Control Condition, four subjects were seated and read aloud the instructions by the experimenter. After examining the suits, each subject returned to his seat and was told to indicate his rankings on a form provided for this purpose. Thus, the four suits were evaluated individually in the Control Condition without any group influence.

Conditions II and III involved face-to-face evaluations by a group consisting of four individuals--three confederates of the experimenter, and one subject. The confederates were asked to rank suit B as the best followed by suits D,A,C, in that order. Seating arrangements were prearranged so that, when asked to do so, the confederates were always the first to respond followed by the naive subject. The instructions asked each participant to examine the suits, return to his seat and remain silent, and wait for further instructions. After all subjects had returned to their seats the experimenter asked each person to relate his decision.

In the Conformity Condition each confederate ranked suit B as best in an authoritative manner along with a positive reason for his decision. The ranking of the other three suits was made with less conviction. This forced the subject to confront a majority opinion on all suits with particular emphasis on suit B.

In the Independence Condition the procedure was the same as in the Conformity Condition. However, the response pattern of the confederates was changed to an unemphatic position. Whereas in the Conformity Condition the confederates had ranked suit B first with definite reasons for its superior quality, the confederates in the Independence Condition gave very weak and undecided reasons for their rankings. As in the Conformity Condition group pressure was aimed at influencing individual choice.

The measure of yielding in the experiment was defined as the proportion of first rankings for suit B. Non-yielding was defined as the proportion of first rankings for the other three suits. Responses were not recorded during the public announcements of rankings to avoid any possible conditioning effect.

Finally, post-experimental interviews and debriefings were delayed until after the entire experiment was completed. This procedure was necessary because of the large number of subjects involved and the time that elapsed between the beginning and end of the study.

Research Design

The design of the study was completely randomized using a randomized block design. Race and manipulation of group pressure were the blocked variables. The selection of suit B was the dependent variable.

Table 1

Experimental Design

	Whites	Blacks
Control	X	X
Conformity	X	X
Independence	X	X

Forty-five subjects were in each of the six cells. Confederates came from among students who were not otherwise involved in the experiment to insure confidentiality. They were rotated in a regular manner to offset any potential conditioning effects on the subjects through boredom and other factors. A pre-test of the model under actual experimental conditions was conducted on students not associated in any way with the actual subjects.

Analysis of Results

The distribution of ranks obtained for the three conditions are shown in Tables 2,3, and 4. In order to meet the assumptions of analysis of variance certain manipulations of the ranked data were necessary. Since the distributions of most ranks depart from the normal distribution required by the analysis of variance the Fisher and Yates transformation for ranked data was

Table 2

Frequency Distribution of White and Black
Rankings: Control Condition

Choice	Whites				Blacks			
	1	2	3	4	1	2	3	4
A	9	10	13	13	14	10	11	10
B	11	12	10	12	11	12	11	10
C	12	8	13	12	13	9	10	13
D	13	15	9	8	7	14	13	12

Table 3

Frequency Distribution of White and Black
Rankings: Conformity Condition

Choice	Whites				Blacks			
	1	2	3	4	1	2	3	4
A	12	12	13	8	5	15	14	11
B	16	10	9	10	23	8	7	7
C	11	15	10	9	10	12	13	10
D	6	8	13	18	7	10	11	17

Table 4

Frequency Distribution of White and Black
Rankings: Independence Condition

Choice	Whites				Blacks			
	1	2	3	4	1	2	3	4
A	13	7	9	16	4	14	13	14
B	12	13	12	8	20	9	9	7
C	10	15	12	8	9	6	11	19
D	10	10	12	13	12	16	12	5

performed (Fisher and Yates, 1948). This transformation normalizes the distribution of ranked data and assigns each rank a score which can be used in the analysis of variance. By rescaling the rank ratings of 1,2,3,4 as 1.03, 0.30, -0.30, and -1.03, respectively, a data series normally distributed about its mean was obtained. These normalized preferences for the various treatment effects, as they relate to the selection of suit B, are summarized in Table 5.

Table 5

Frequency Distribution of White and Black
Rankings by Treatments

Condition	Whites				Blacks				Net Rankings
	1.03	.30	-.30	-1.03	1.03	.30	-.30	-1.30	
Control	11	12	10	12	11	12	11	10	2.36
Conformity	16	10	9	10	23	8	7	7	23.99
Independence	12	13	12	8	20	9	9	7	14.89

The variation of rank scores were divided into the components of choice between treatments and interaction of race. The results of analysis of variance indicated a significant variation in ranking between treatments at the .01 level of significance ($F=10.74$), and interaction of race at the .05 level of significance ($F=4.08$).

Thus, the null hypothesis for the conformity condition was rejected lending support to Hypothesis 1. It may be concluded that group pressure was effective and that a tendency existed to conform to the group norm.

Hypothesis 2 was not supported; however, a Tukey test revealed the difference in net rankings between the control and independence conditions to be significant at the .01 level. This can be explained by the fact that the black's selection of suit B as the first rank in the independence condition was not unlike their response in the conformity condition. Thus, the blacks continued to conform in the weak independence condition. The whites, however, did respond independently.

Hypothesis 3 was supported. As previously indicated, the results of analysis of variance showed a significant variation in terms of interaction of race at the .05 level of significance.

Implications

This study is exploratory in nature and can only be generalized in terms of the population comprising it. However, the information obtained supports previous studies on reference group conformity and the information on blacks seems particularly revealing. The tendency of the blacks to accept social influence in both emphatic and unemphatic reinforcement conditions implies a tendency to accept information from peers on the style and quality of clothing products. Studies dealing with other types of products would, of course, add to knowledge regarding their general tendency to conform. Where no objective standards are present the tendency among blacks to conform to the group norm under all conditions of influence should provide insight to advertisers in the promotion of their products.

Future studies may wish to consider influential variables other than race. For example, cultural influences on personality development and the quality of education between blacks and whites could be considered. Studies involving other ethnic groups may also be revealing.

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PERSONAL INFLUENCE, ORDINAL POSITION AND PURCHASING BEHAVIOR

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Though the opinion leader concept has occupied an important niche in the literature of consumer behavior for many years, it has remained largely non-operational and has been of greater significance to academicians than to practitioners. This condition may stem from a number of practical as well as conceptual difficulties which have been cited by Nicosia (1964), Arndt (1967) and recently by King and Sommers (1970).

The main thrust of this paper represents an attempt to examine some of the behavioral foundations of personal influence, and at least tentatively to suggest that they can be partially organized by psychological variables such as gregariousness, affiliation and dependence, factors which appear to be summarized by individual differences in order of birth.

The view of opinion leadership adopted here is based on the observation that this phenomenon is widely distributed in the population (King & Sommers, 1970). It is a view which focuses on the transactional nature of personal influence and explicitly recognizes the interaction of influencer and influencee noting that it is possible for these roles, however subtly, to be exchanged perhaps repeatedly in the course of a single conversation. Finally, it considers the possibility of modes of leadership and followership which occur within as well as among individuals.

MODES OF PERSONAL INFLUENCE BEHAVIOR

Rogers (1962) has suggested in connection with the adoption process the existence of active and passive adopters and rejecters, people who play strong or weak leader roles with respect to the acceptance or rejection of new ideas or practices. Kirchner (1969) applied this concept to behavior rather than to individuals and hypothesized two modes of leadership (active and passive), two parallel modes of followership and a final category, independence behavior.

Active leadership manifests itself in an outgoing, gregarious manner and is characterized by the volunteering of information or advice when it appears needed. Passive leadership is more taciturn and restrained. Information may be offered when requested, rarely volunteered. Similarly, active followership implies an overt search for information from personal sources. In contrast, the passive mode is of a more deferential nature and is not characterized by an active search of personal sources, but rather by a willingness to accept advice when offered. Finally, independence behavior suggests a preference for non-personal sources of information when contemplating purchase decisions.

Scales were developed to measure a propensity to perform these kinds of behavior.² Intercorrelation of scale scores suggests that the gregarious elements of personal influence behavior, active leadership and active followership, positively covary and that these are negatively associated with independence behavior. Of the passive modes, passive leadership is

positively associated with active leadership and active followership but not significantly associated with passive follower or independence behavior. Passive follower scores positively covaried with active follower scores, were negatively correlated with independence, and were not associated at all with any of the leader scales.

The inference tentatively drawn from these results was that individuals who are gregarious leader types are also likely to be adroit followers, seeking out and susceptible to personal influence as well as offering it to others. This finding is consistent with earlier leadership studies which suggest that those viewed by their colleagues as desirable leaders were also preferred followers (Hollander, 1964). As expected, the gregarious leader-follower pattern is not always compatible with independence behavior.

AFFILIATION, DEPENDENCE AND ORDINAL POSITION

Consistently the personal influence literature suggests that those in leader positions tend toward gregariousness. Studies of affiliation indicate that under conditions of ambiguity or anxiety, some individuals tend to seek out and are more susceptible to information from personal rather than impersonal sources.

Schachter (1959) suggested that the tendency to define reality via personal referents is an important determinant of gregariousness. He also discovered that those who seemed to display the greatest inclination to personal referents and who were most susceptible to them were those who were first born or only children. Presumably, earlier borns are raised in an environment significantly different from that of their later born siblings. It has been suggested that with earlier borns, parents are less certain as to their child raising abilities, are more solicitous, spend more time with these children, and respond to more cues more quickly. Hence, they provide a more personalized kind of anxiety reduction for earlier born children not enjoyed by later borns. As subsequent children appear, parents are more experienced, have greater demands placed upon their limited time, and perhaps become more blasé about the child rearing task with the result that the earlier borns typically receive ministrations different in number and kind than their later born siblings.

Other factors have been proposed as accounting for ordinal position differences in addition to the relative inexperience of the parents. These include a period of concentrated exposure to adults without the influence of competing siblings and the greater achievement expectations of parents for their first born.

Selected Ordinal Position Findings

In recent years, the ordinal position literature has grown substantially. The results of seemingly similar studies are not always in agreement, a state that can be partially explained by sampling variation, differences in working definitions, research designs and environmental dissimilarities. The ordinal position tradition extends back more than forty years and encompasses a variety of dependent variables. Findings pertaining to affiliation, dependence, conformity and leadership tend to be more consistent than those of other variables. A sampling from the literature will illustrate this point.

Dependence, Affiliation and Conformity

A variety of field and laboratory studies indicate that in an anxiety arousal condition, earlier borns choose the company of others or indicate a preference for the presence of others more so than later borns (Gerard & Rabie, 1961; Zimbardo & Formica, 1963; Miller & Zimbardo, 1966; Suedfeld, 1969; McDonald, 1969a, 1970). Eisenman (1966) found that first borns in group therapy were more likely to speak and ask questions than later borns, which was interpreted as an indication of seeking others for assurance or cognitive clarification. Earlier borns anticipated greater psychological distress prior to an eight-hour sensory deprivation experiment (Zuckerman & Link, 1968), showed less anticipated stress when given personal assurances (Helmreich, et al. 1968), and actually experienced more stress as a result of this type of experiment (Dohrenwend & Dohrenwend, 1966).

Similar results were found under low anxiety conditions but were not always quite so clear cut. They include reports of mothers and teachers as to the dependence of earlier borns (Sears, 1950, 1957); evidence that they belong to more social groups (Schachter, 1959; Smart, 1965), that they are more likely to volunteer for group rather than individual experiments (Dohrenwend, et al., 1967) and are more inclined to discuss areas of disagreement with others (Radloff, 1961).

Psychometric evidence as to dependence, affiliation and conformity is available from a number of sources. Connors (1963) reported stronger affiliative needs among earlier borns, Dember (1963) and Rosenfeld (1966) reported similar ordinal position results as did Allman and White (1968). Sampson and Hancock (1967) used the Edwards Personality Preference Schedule and found statistically significant differences regarding conformity, achievement and autonomy but not for affiliation although for the most part the results were in the predicted direction.

Susceptibility to Social Influence

A variety of evidence suggests that earlier borns are more socially sensitive than later borns. Wrightsman (1960) found greater anxiety reduction among earlier borns who waited with others for an experiment to continue than earlier borns waiting alone. In an autokinetic study (Staples & Walters, 1961), in Asch-type experimental environments (Becker & Carroll, 1962; Becker, Lerner & Carroll, 1964, 1966), in a field study comparing slum dwellers with persons from middle class households (Dohrenwend & Dohrenwend, 1966), earlier borns appeared to be more susceptible to social stimulation. Dittes (1961) demonstrated that earlier borns were highly responsive to peer rejection while later borns "were virtually invulnerable". Stotland and Walsh (1963) indicate that first borns are more likely to use others as a guide in evaluating themselves. Earlier borns tended to reject deviates and bring their own opinions more rapidly back into line with the group than later borns (Arrowood & Amoroso, 1965). Rhine (1968) demonstrated that first born girls were more conforming while McDonald (1969b), showed earlier borns to be more normative with respect to religious behavior.

Ordinal Position and Leadership

A host of evidence, however disparate, suggests that the first born are frequently overrepresented in the population of those formally or informally defined as "eminent". From Galton's (1874) English Men of Science through Stewart's (1970) review of the U. S. Presidency the evidence appears to be

accumulating in support of this view. Excellent summaries are provided in Kammeier (1967) and Altus (1966).

A sample of the evidence is reviewed here. It consistently indicates that earlier borns are overrepresented among superior high school students, in college populations and especially in graduate and professional schools (Altus, 1965; Bradley, 1969). A variety of studies of scientists (Cattell, 1947), attorneys (Very & Prell, 1970), Rhodes Scholars (Apperly, 1939) and National Merit Competition finalists (Altus, 1966) indicate an overrepresentation of earlier borns. Earlier borns have been shown to have higher I.Q. scores (Burton, 1968), are more articulate and have higher verbal and quantitative skills than later borns (Lunneborg, 1968). Evidence that first borns are overrepresented in formal leader positions is available in Smith and Goodchilds (1963) and Stewart (1970). Earlier borns have been found to be among the sociometrically chosen (Alexander, 1966) and indicate preferences to work with ideas and direct others based on Kuder Preference data (Oberlandin, et al., 1970).

The potential connection of these findings to personal influence is direct. If opinion leaders, especially the active variety, and active followers tend to be gregarious, and if earlier borns also tend toward gregariousness and occur in unexpectedly large numbers in various leader positions, it then seems reasonable to suggest the possibility of an overrepresentation of the earlier born among those who display a tendency toward more socially oriented modes of personal influence behavior. Likewise, they might be underrepresented among the less gregarious elements of the model.

HYPOTHESES

- H₁: Earlier borns are overrepresented in the opinion leader group.
- H₂: Earlier borns are overrepresented among those classified as active leaders.
- H₃: No significant birth order differences exist among passive leaders.
- H₄: Earlier borns are overrepresented among those classified as active followers.
- H₅: No significant birth order differences exist in the passive follower group.
- H₆: Earlier borns are underrepresented among those classified as independents.

METHOD

The Personal Influence Scales along with the leadership scale reported by Rogers (1962) were administered to two samples of undergraduate subjects at San Fernando Valley State College. Hypotheses were tested based on the number of first born and only children who ranked above and below the mean value of the distribution of scores for each scale. The results were controlled for sex and family size. Both samples excluded Ss who were raised in homes in which parents were divorced or deceased, who were adopted or who were twins. This procedure resulted in the elimination of 13 Ss from the original sample and 21 Ss from the second sample for a total of 12.3%.

RESULTS AND DISCUSSION

To provide a basis for comparison with the results of the Rogers' scale the active and passive leader scales were scored as a combined instrument. The data are in Table 1.A and appear to support the general hypothesis that first borns are overrepresented among those classified as leaders. Table 1.B separates out the earlier born into first born and only children. The data indicate that only children contributed heavily to this outcome in both samples.

The results for the Rogers' scales (Tables 2.A and 2.B) indicate no significant differences exist in either sample but here as in the previous case only children appear to be overrepresented among leaders.

Hypothesis II receives substantial support from Tables 3.A and 3.B. Earlier borns are overrepresented among active leaders. The predominance of only children is again evident.

Hypothesis III suggests that since passive leadership does not presuppose the same degree of gregariousness, there is no basis for expecting an ordinal position effect. This hypothesis is confirmed in Tables 4.A and 4.B, but as before the only children appear to show up more heavily among passive leaders but not at a statistically significant level. It is noteworthy that the passive leader results parallel those obtained with the Rogers' scale.

Because of the overrepresentation of only children in these results, a re-examination of the literature was undertaken to determine if a plausible explanation was available. Published studies only infrequently distinguish between specific ordinal positions and in particular between first born and only children. A few, however, were helpful.

Sears (1957) describes the world of the only child as one which is fundamentally adult oriented, the most readily available model being the parents. If earlier borns receive an abundance of adult attention because parents lack confidence and have more time, then in the absence of later children which serve to redirect parental energies, only children should be the object of solicitous and anxious parents for a far longer period. Schachter (1959) reported a study by Haeberle (1954) which indicated that only children were more dependent than first born. Connors (1963) indicated that only children possess greater affiliative needs than first and later born. Sampson and Hancock (1967) suggest that only children are more conforming and are lowest of the birth ranks studied with respect to autonomy. Though the evidence is sketchy, it tends to support the speculation of a hierarchical relationship as to dependence, affiliation and conformity. What one might expect for the first born on these dimensions, one might expect even more so from only children.

The fourth hypothesis suggests an overrepresentation of earlier borns in the active follower distribution. The evidence in Tables 5.A and 5.B does not provide support for this hypothesis. The only children in the first sample appear to behave according to expectations though not at a statistically significant level, but the results of the second sample show a shift in direction.

Several explanations are possible. First, a number of previous works suggest that ordinal position differences are most apparent under anxiety arousal

Table 1

Birth Order and Opinion Leadership (Combined)

		Initial Sample (n = 122)		Second Sample (n = 154)	
		Earlier Born	Later Born	Earlier Born	Later Born
A. Early v. Later Born					
Leader		42	23	40	40
Non-Leader		24	33	25	49
		$\chi^2 = 6.13, p < .02, d.f. = 1$		$\chi^2 = 4.10, p < .05, d.f. = 1$	
		Combined $\chi^2 = 10.23, p < .01, d.f. = 2$			
		Initial Sample (n = 122)		Second Sample (n = 154)	
		First Born	Only Children	First Born	Only Children
		Later Born	Later Born	Later Born	Later Born
B. First Born v. Only Children v. Later Born					
Leader		30	12	28	12
Non-Leader		21	3	21	4
		$\chi^2 = 8.22, p < .02, d.f. = 2$		$\chi^2 = 5.67, p < .06, d.f. = 2$	
		Combined $\chi^2 = 13.89, p < .01, d.f. = 4$			

Table 2
Birth Order and Opinion Leadership (RC)

		Initial Sample (n = 122)		Second Sample (n = 154)	
		Earlier Born	Later Born	Earlier Born	Later Born
A. Early v. Later Born					
Leader		44	36	44	57
Non-Leader		22	20	21	32
		p = n.s.		p = n.s.	
B. First Born v. Only Children v. Later Born					
		Initial Sample (n = 122)		Second Sample (n = 154)	
		First Born	Only Children	First Born	Only Children
Leader		31	13	31	13
Non-Leader		20	2	18	3
		x ² = 3.55 d.f. = 2		x ² = 3.39 d.f. = 2	
		p < .2		p < .2	
		Combined x ² = 6.89 d.f. = 4		p < .2	

Table 3
 Birth Order and Opinion Leadership (Active)

		Initial Sample (n = 122)		Second Sample (n = 154)	
		Earlier Born	Later Born	Earlier Born	Later Born
A. Early v. Later Born					
Leader		41	29	42	44
Non-Leader		25	27	23	45
		$X^2 = 1.30, p < .3, d.f. = 1$		$X^2 = 3.63, p < .06, d.f. = 1$	
		Combined $X^2 = 4.93, p < .09, d.f. = 2$			
B. First Born v. Only Children v. Later Born					
		Initial Sample (n = 122)		Second Sample (n = 154)	
		First Born	Only Children	First Born	Only Children
Leader		29	12	29	13
Non-Leader		22	3	20	3
		$X^2 = 3.86, p < .20, d.f. = 2$		$X^2 = 6.03, p < .05, d.f. = 2$	
		Combined $X^2 = 9.89, p < .05, d.f. = 4$			

Table 4

Birth Order and Opinion Leadership (Passive)

		Initial Sample (n = 122)		Second Sample (n = 154)	
		Earlier Born	Later Born	Earlier Born	Later Born
A. Early v. Later Born					
Leader		43	29	42	54
Non-Leader		23	27	23	35
		$\chi^2 = 2.28, p < .20, d.f. = 1$		$\chi^2 = .255, p = n.s., d.f. = 1$	
		Combined $\chi^2 = 2.54, p = n.s.$			
B. First Born v. Only Children v. Later Born					
		Initial Sample (n = 122)		Second Sample (n = 154)	
		First Born	Only Children	First Born	Only Children
Leader		30	13	32	10
Non-Leader		21	2	17	6
		$\chi^2 = 5.89, p < .06, d.f. = 2$		$\chi^2 = .306, p = n.s., d.f. = 2$	
		Combined $\chi^2 = 6.20, p < .20, d.f. = 4$			

Table 5

Follower (Active) and Birth Order

		Initial Sample (n= 122)		Second Sample (n = 154)			
		Earlier Born	Later Born	Earlier Born	Later Born		
A. Early v. Later Born							
Follower		36	30	38	50		
Non-Follower		30	26	27	39		
		p = n.s.		p = n.s.			
B. First Born v. Only Children v. Later Born							
		First Born	Only Children	Later Born	First Born	Only Children	Later Born
Follower		25	11	30	32	6	50
Non-Follower		26	4	26	17	10	39
		p = n.s.			p = n.s.		

conditions. In this instance, the testing environment may have been insufficient to stimulate these differences. The non-significant results and in particular the reversal may also be at least in part due to a deficiency in this particular scale. Of the five scales developed, only the active followership scale showed a multiple pattern of factor loadings which was difficult to clearly interpret.

The results for the passive follower category are as expected. No significant differences exist. The data in Table 6 are consistent in both samples. With respect to independence behavior, the results are not quite so clear. The hypothesis suggests that earlier borns will be underrepresented among independents. The data in Tables 7.A and 7.B indicate an overrepresentation of first born, an underrepresentation of later born with no clear relationship for only children.

Interpretation of this finding is speculative at best. The work reviewed earlier by Sampson and Hancock (1967) offers some insight. In addition to the conformity findings, Sampson and Hancock report EPPS results which indicate an ordinal position ranking on n autonomy. Higher scores were reported for first borns followed in order by later borns and only children. This result suggests that first borns possess a stronger inclination to resist coercion or domination. The authors note that "it is almost as though n autonomy reflects a rebellion against one's siblings relationships."

The work of Becker, Lerner and Carroll (1964, 1966) may also be instructive. First born subjects appear to be more susceptible to personal influences which were "normative" rather than informative. Later borns were more sensitive to personal sources which were informative. Normative influences are socially supportive and pertain to the need to meet the expectations of others whereas informative influences provide worthwhile information regarding one's environment. The questions on the independence scale may have been interpreted by respondents as being mainly informative.

Each of the scale results were controlled for sex and family size. The analysis by family size indicated nothing of significance, however, the number of individuals in family sizes with 4 or more children was too small to provide a meaningful examination. No significant departures from the results previously reported were observed when the male-female dimension was examined except in the case of the independence scale. The analysis indicates nothing significantly different from that indicated earlier for first and later borns. Male only children are overrepresented and females are underrepresented. The female results are consistent with the high dependence, low n autonomy explanation. The male results are difficult to interpret.

In sum, the results appear to support the leadership hypotheses particularly in the case of only children. The follower and independence findings presented some difficulties which require methodological as well as conceptual refinement.

The results reported here provide an alternative approach potentially useful in organizing the personal influence process. The value of this study does not reside in the immediate field relevance of the findings but rather in the explicit recognition of some of the complexities of the personal influence process. It points to the necessity for further theorizing as to the behavioral factors underlying leader, follower and independence behavior and underscores the admonition that future research proceed from a more sophisticated theoretical model than is now available.

Table 6

Follower (Passive) and Birth Order

	Initial Sample (n = 122)		Second Sample (n = 154)	
	Earlier Born	Later Born	Earlier Born	Later Born
A. Early v. Later Born				
Follower	34	32	31	42
Non-Follower	32	24	34	47
	p = n.s.		p = n.s.	
B. First Born v. Only Children v. Later Born				
Follower	25	9	24	7
Non-Follower	26	6	25	9
	p = n.s.		p = n.s.	

Table 7
Independence and Birth Order

		Initial Sample (n = 122)		Second Sample (n = 154)			
		Earlier Born	Later Born	Earlier Born	Later Born		
A. Early v. Later Born							
Independent		40	19	37	42		
Non-Independent		26	37	28	47		
		$\chi^2 = 8.67, p < .005, d.f. = 1$		$\chi^2 = 1.26, p < .30, d.f. = 1$			
		Combined $\chi^2 = 9.93, p < .05, d.f. = 2$					
B. First Born v. Only Children v. Later Born							
		First Born	Only Children	Later Born	First Born	Only Children	Later Born
Independent		34	6	19	27	10	42
Non-Independent		17	9	37	22	6	47
		$\chi^2 = 11.93, p < .005, d.f. = 2$			$\chi^2 = 1.83, p < .60, d.f. = 2$		
		Combined $\chi^2 = 13.76, p < .01, d.f. = 4$					

Footnotes

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²Five separate scales totaling 39 six-point items comprise the Personal Influence Scales. The results suggest that the constructs are scalable. A variety of reliability and validity evidence is available in Kirchner (1969). Sample scale items are reported in the Appendix.

Appendix

PERSONAL INFLUENCE SCALES

The following are examples of the questions that appear on the five sub-scales:

To answer the questions on this page, choose one of the following options and write the number in the space provided.

- | | |
|----------------------|-------------------------|
| 1) Agree strongly. | 4) Disagree slightly. |
| 2) Agree moderately. | 5) Disagree moderately. |
| 3) Agree slightly. | 6) Disagree strongly. |

Leader (Active):

I am often influential in sending my friends to stores where they can obtain "good buys".

Leader (Passive):

I am often asked for advice by friends who are not satisfied with some product purchase that they have made.

Follower (Active):

For many of the products that I purchase, I find that asking others about them is usually a good way to get information and gain insight.

Follower (Passive):

For most purchase decisions, merely observing how others behave is usually of greater value than published sources of information.

Independence:

When considering a purchase decision where the choice is not clear, I am inclined first to seek out published sources of information.

Scoring was based on a seven point system with non-responses being assigned a score of four.

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A MULTI-LEVEL APPROACH TO FAMILY ROLE STRUCTURE RESEARCH

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Since researchers in several disciplines have become interested in family role structure, reviews of the topic have revealed no shortage of empirical findings. Synthesis of these findings is impaired, however, by the variety of conceptual approaches and methods chosen by researchers, the lack of standardization of independent variables and the scarcity of methodological studies intended to assess the impact of research setting and method. Efforts at theorizing about the determinants of variations in family role structure have been further hampered by the variety of dependent variables used by researchers and by the tendency to stop at "two-variable propositions" instead of considering relationships between dependent variables. All of these points are persuasively illustrated by Davis (1970). The objectives here are to identify four major issues raised by an attempt to synthesize role structure research, and to offer a simple conceptual model that appears to be helpful in organizing the generalizations and hypotheses reported in published studies. As the title of the paper implies, an important feature of the model is its recognition of more than one concept of family roles in decision making; its levels, in fact, represent three linked dependent variables that must be considered.

Four Issues in Family Research

- (1) Individual vs. group orientation. The current popularity of individual decision models in the marketing literature on consumer behavior is reflected in the orientation that focuses on the individual viewing other family members only as potential influences. The model of Engel, Kollat and Blackwell (1968) typifies this approach. In contrast is the orientation (most common in family sociology) that views the family as a group, as a set of interacting roles. The proposed model treats the "individual vs. group" issue as a research question rather than one of researcher preference or training. It assumes that the degree of joint involvement in family decision making is measurable, and that every family can be expected to exhibit a distribution of decisions in terms of individual vs. joint decision making.
- (2) Structural vs. process dependent variables. Family member roles are often summarized in terms of single measures of influence or role performance. Other research views family decision making as ongoing interaction. The choice is more than a methodological issue, but it may also be resolved empirically. The validity of simple summary measures of role structure is here assumed to be directly related to the degree of preference agreement that either exists prior to the initiation of the decision process or that occurs as the process unfolds. When agreement exists, the usual model of the decision process should provide an adequate framework, together with summary measures of "who did what" in implementing the process. More complex "interaction process" measures are called for only when disagreement exists or is revealed. The process evoked in the presence of disagreement is appropriately called conflict resolution, and modes or strategies for achieving an acceptable outcome should be identified empirically.
- (3) Survey vs. observation; real vs. hypothetical task. Wide methodological variation occurs in the literature; retrospective, cross-sectional surveys and longitudinal surveys comparing family member predictions with actual decisions contrast sharply with actual observations of decisions or tasks in home or behavioral laboratory settings. Observation studies, further, have involved both "real" and hypothetical decisions and tasks. Methodological research, comparing results when the same issue is studied in two or more settings (sometimes using the same subjects) is clearly required.

(4) Generalizability over decisions, families and time. Researchers have varied a great deal in their willingness to generalize across decision areas. Most have reported variations among families related to socio-economic characteristics, education, wife's employment, etc. (without agreeing upon the effects of these determinants); little has been attempted empirically in terms of trends over time, although many speculate about such changes. The model includes consideration of the impact of decision type, family characteristics, and stage in family life cycle on each of the three dependent variables.

Since the same independent variables appear at each level, it is clear that their impact on role structure is expected to be complex and not easily summarized in simple two-variable propositions. Thus, some of the apparently conflicting results of previous research on the impact, say, of life cycle result from attempts to synthesize projects tapping different "levels" of the model and projects using dependent variables that are ambiguous as to the level involved.

Figure 1 summarizes the proposed model in flow chart form. The rationale for each level, comments on methodology at each level and suggested hypotheses dealing with the proposed determinants follow.

Level 1. Individual vs. Joint Decision Making

Much of the existing theoretical discussion of family role structure is most applicable at this level, although research has tended to use measures tapping more general concepts of involvement and role performance than the one intended here. The relevant concept proposed here is willingness to commit family resources without conferring; individuals presumably sometimes act unilaterally as individuals, making decisions without concern for the preference structures of other family members. The commonly used categories of overall role structure such as joint, husband dominant, wife dominant and autonomic (Wolfe, 1959) may be useful in identifying patterns at this level, but the empirical basis for categorizing families must be selected with care. The underlying variable has two components: Specific decisions may be jointly or individually made, and individually made decisions may be made by either husband or wife. An autonomic pattern thus reflects two dimensions: a high proportion of individually made decisions, and roughly equal division of these between husband and wife. The difficulty of categorizing families on the basis of responses to a small set of simple questions about past decisions (where a one-dimension response set is provided) should be obvious, although this categorization is commonly attempted.

If retrospective questions are to be used at this level, several requirements seem called for:

(1) Questions should be clearly limited to the measurement of the involvement of one or more than one preference structure in each past decision asked about.

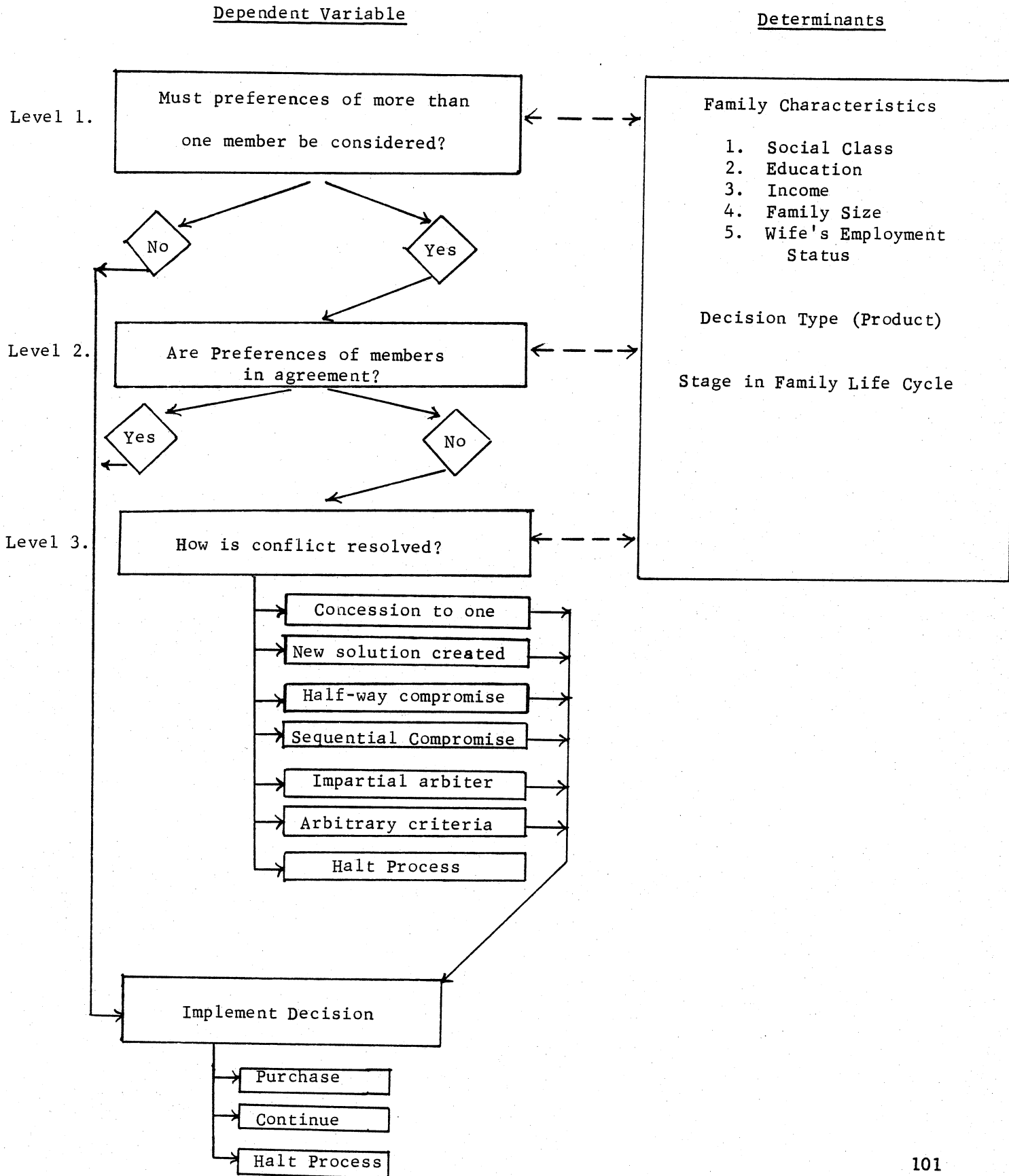
(2) Two-step response categories should be provided, so that joint vs. individual involvement is clearly separated from the question of whose involvement occurred in the individual decisions.

(3) Extensive pretesting of independent responses of husbands and wives should take place before assuming that a single spouse accurately reports for the family. There is evidence that this is not the case when more inclusive questions are asked about the relative importance of husband and wife in past decisions. (Granbois & Willett, 1970).

(4) Either a large and varied group of decisions should be covered or rather general summary questions about the usual pattern in each decision area should be used. Neither alternative is a totally satisfactory solution to the problem of selecting a truly representative sample of decisions on which to base a general classification scheme.

(5) Questions tapping various phases of the decision process should be included, since involvement may vary within decisions. For example, problem recognition (beginning to consider a generic product purchase), strategies for identifying alternatives, deciding on evaluative criteria, evaluating alternatives and implementing selection should all be represented.

Figure 1
 A Multi-Level Model of Family Decision Role Structure



Observational and experimental methods seem to offer promise at this level, although existing research of this type seems more applicable at the other two levels. Couples in a behavioral laboratory (or conceivably an in-home situation) could be given a series of hypothetical (but realistic) decision tasks to work through independently, with the option of conferring or reaching agreement wherever it was felt necessary. Perhaps time limits or rewards for number of decisions completed would be necessary to insure some reasonable proportion of independent decisions. In any case, subjects should be asked to behave "normally"--to confer in situations where they usually would in real decisions, and to act independently when this alternative seemed realistic. Retrospective questions could, of course, be asked of subject couples so that comparisons of the two methods could be easily made.

Hypotheses at this level must clearly distinguish between the two dimensions of involvement; the proportion of joint decision making and the allocation of independent decisions may each show somewhat different patterns of relationship with such determinants as social class and life cycle.

Space does not allow documentation or elaborate discussion, but the classification in Table 1 reflects illustrative hypotheses relevant at Level 1. Most of

Table 1

Summary of Major Determinants of Joint vs. Individual Involvement in Family Decision-Making Role Structure

	Joint	Individual		
		Husband Dominant	Wife Dominant	Autonomic
Family Characteristics	Middle class	Upper class	Lower class	
	Husb. educ. = wife educ.	Husb. educ. > wife educ.	Wife educ. > husb. educ.	
	Middle income	High income	Lower income	
	Small family size	Large Family size		
	Wife not employed			Wife employed
Decision Type	High unit price			Husband: male use, technical
	High social visibility			Wife: female use; aesthetic; product form
	Joint use			not visible in use
Life Cycle	Newlywed; empty nest	Small children		Older children at home

the relationships implied in Table 1 have received some empirical support, although it is clear that most of the relevant determinants are complexly interrelated and adequate multi-variate research taking these interactions into account has not been undertaken. In addition, the dependent variables in studies suggesting these relationships have been more inclusive than the one proposed here.

The effects of life cycle at this level have perhaps the most persuasive rationale: A shift away from joint participation over the course of the marriage may be expected for several reasons. Joint participation is costly in terms of time and may be specifically avoided to the extent that the often unpleasant process of conflict resolution is seen as a likely result. Intense needs for "togetherness" may dictate early joint participation in nearly every activity. Product use structures may become more separate, as increased income allows multiple automobiles, houses with more rooms, etc. The effects of life cycle, ironically, may be the most difficult to assess, particularly in cross-sectional research where it is usually impossible to separate generational differences between older and younger couples from true life cycle differences.

Level 2. Preference Agreement

A key branch in the proposed model is agreement in preference structures, which is thought to determine the type of decision process evoked when both husband's and wife's preferences must be considered. The flow chart visualization dichotomizes agreement for ease of presentation, but it is likely that gradations may need to be considered. Experts in preference analysis may well argue that appropriate concepts and methodology are difficult enough to produce for the individual without the complication of developing agreement measures between spouses, but the need for such measures seems clear.

Both objective (researcher-scored) and subjective (perceived) measures of agreement need exploration, and patterns of relationships between objective and subjective agreement may be worth investigating. Objective measures can be obtained by administering identical instruments to husbands and wives and comparing responses; for example, a dissertation underway at Indiana University will explore correlations between spouses' responses to a multi-dimensional scaling instrument. Subjective measures include direct questions on perceived agreement and subjects' predictions of their spouses' responses to instruments administered to both husbands and wives. Such studies might well replicate the methodology used in a study of married couples' political attitudes, which found, as predicted, that perceived similarities between spouses were greater than actual. (Byrne & Blaylock, 1963). This tendency for respondents to overstate similarities, while consistent with the social psychological theory that predicts a tendency toward cognitive symmetry in interpersonal relationships, may lead the researcher toward an overstatement of the agreement between spouses. A second potential measurement problem grows out of a likely tendency for married people, even when asked their own preferences, to be influenced by those expected of their spouses, since preferences may be conceived only in the context of a future "real" choice situation where spouse's preferences would be relevant.

Both questionnaire and behavioral laboratory choice techniques may be useful in gathering preference data, and there seems to be little basis at this time for advocating one over the other. Methodological research appears to be called for at this level. In every case, agreement measures must be sought only for decision areas where preferences of both husband and wife are seen as relevant.

Despite the apparent applicability of a variety of theoretical approaches predicting similarity in values, attitudes and beliefs among members of reference groups of all types, there is a somewhat surprising lack of empirical evidence on the degree of preference similarity between husband and wife. Perhaps the most important prediction relates degree of preference similarity to length of marriage; over the life cycle, preferences would be expected to grow more similar as the number of shared experiences and influences grows. Several complicating variables (or competing explanations) need to be accounted for in assessing evidence relating to this hypothesis, however.

- (1) Cross-sectional research may reveal greater similarity between long-married spouses simply because these people

represent earlier generations where agreement was more highly valued, and these spouses consciously try to reflect each others' preferences.

- (2) Couples who violently disagree divorce, leaving only more compatible older couples to be studied.
- (3) Length of marriage may be closely but not perfectly related to the number of times a particular product has been purchased; the latter may, in fact, be the true determinant of preference similarity.
- (4) Longer-married respondents may tend more to reflect their spouses' expected preferences even when asked to report their own preferences because of the possibility (mentioned earlier) that preferences can't be articulated in the abstract but, rather, reflect expected future choice situations.

It is interesting to note that one consequence of the discussion above is that joint purchasing behavior (as distinguished from decision making) may be expected to decrease over the life cycle for two reasons: Fewer occasions arise where both husband's and wife's preferences must be satisfied, and where preferences of both are relevant but similar, purchasing can easily be delegated to one family member.

Empirical evidence at least indirectly supports the conclusion that preferences will grow more similar over time; other hypotheses must be based on sheer speculation. For example, variations in degree of preference similarity may occur across product groups because of variations in use patterns; husbands and wives may use the family car in different ways and as a consequence develop divergent preferences, whereas joint (and often simultaneous) television viewing may enhance similar preference patterns for television sets. The reader can supply many other hypotheses that merit empirical test.

Level 3. Process of Conflict Resolution

Discussion of family role structure often revolves around the concept of power, and it can be argued that power is relevant only when husband and wife differ over desired outcomes. This level of the model is in many respects the most interesting (and methodologically challenging), yet practically no empirical research in consumer behavior has dealt specifically with conflict resolution. While predictions at both Level 1 and Level 2 imply a decline in the need for conflict resolution over the life cycle, it seems safe to predict at least occasional conflict in every family, although the process of resolution may vary considerably among families.

In addition to its importance in understanding family role structure, the process of conflict resolution should be studied as a potential determinant of the outcome of decision processes. Intentions fulfillment research in two quite different settings consistently reveals important proportions of purchase plans not fulfilled. That decisions not to buy ("Halt" outcome) may result from inability to resolve conflicts is indirectly suggested both in super drug store research (Granbois, 1968) and investigation of the automobile buying process (Brown, 1961). Intentions research indicates husbands and wives do not always agree on their level of intentions to purchase goods, nor on brands or stores to be selected. Thus, it is not surprising that intentions (typically reported by one family member) often result in decisions not to buy at all.

The role of empirical research here is to establish categories for classifi-

A behavioral laboratory study at Indiana University of married couples' decision making demonstrates the empirical study of the process of conflict resolution. For each of four hypothetical decisions--new automobile, color television set, a \$600 windfall and intentions for major purchases for the next year--husbands and wives individually completed highly structured decision forms before interacting, thus committing themselves to solutions (and incidentally enabling later comparison of individual and joint responses). As expected, numerous conflicts were revealed as joint solutions were sought. Discussion was tape recorded, and has been analyzed in terms of two variables: length of speaking time for each partner and a coding scheme of conflict resolution modes suggested by Blood (1962). The outcome at each decision point was coded as consensus (immediate agreement), wife concession, husband concession, sequential compromise, halfway compromise, creative compromise (new solution created), or arbitrary criterion (such as flipping a coin). Despite the limitations of small sample size and the disproportionate number of highly educated, upper middle income subjects, two patterns emerged in the analysis of modes of conflict resolution. Tables 2 and 3 show these results (Longman, 1970).

Table 2

The Distribution of Resolution Responses for Four Consumption Decisions

Resolutions Code	Decision				Total Responses
	\$100 (%)	T.V. (%)	\$600 (%)	Auto (%)	
Simple Consensus	393(51)	250(44)	169(53)	873(62)	1685
Hus. Concession	129(17)	105(19)	75(23)	172(12)	481
Wife Concession	174(23)	166(29)	48(15)	299(21)	687
All Other	69(9)	45(8)	28(9)	58(4)	200
Total Responses	765	566	320	1402	3053

Chi square = 97.99 with 9 d.f. significant beyond the .001 level of probability

Table 3

The Distribution of Resolution Responses by Socioeconomic Level for the T.V. Decision

Resolution Code	Socioeconomic Level			Total Responses
	Low %	Med. %	High %	
Simple Consensus	99(52)	101(42)	50(38)	250
Husband Concession	33(17)	48(20)	24(18)	105
Wife Concession	39(20)	77(31)	50(38)	166
All Other	21(11)	17(7)	7(6)	45
Total Responses	192	243	131	566

Chi square = 17.02 with 6 d.f. is significant beyond the .01 level of probability

Future research of this kind may well be structured around the provocative model of family decision making offered by Pollay (1968), which seems relevant at the conflict resolution level. Briefly, Pollay hypothesizes determinants of the long-run division of utilities that will be maintained between spouses and advances the hypothesis that decision outcomes will tend to reflect this division. Individual decisions may deviate from this long-run division to the extent that the partners are willing to absorb "utility debt." Laboratory studies involving long sequences of decisions might investigate the tendency for outcomes to approximate the (independently established) division of utilities, the magnitude of utility debt spouses seem willing to absorb and the process of bargaining and negotiating Pollay predicts will occur as spouses attempt to seek acceptable outcomes in conflict situations.

Hypotheses about the distribution of conflict resolution modes across decision types, family types and stages in the family life cycle cannot at this point be documented with empirical evidence, but all three sets of determinants seem logical to explore. For example, partners with expertise in certain areas might be expected to win concession more often in those areas when conflict arises (perhaps illustrating French and Raven's concept of "expert power" (1959). The relative importance of husband and wife concessions may vary with their relative "coercive power" (French & Raven, 1959), which in turn may be a function of the comparative resources (education, income, etc.) each contributes to the marriage (Blood & Wolfe, 1960), and there may be a pattern related to social class, with wives in the lower classes and husbands in the upper classes winning concessions most frequently (Komarovsky, 1961). Over the life cycle, couples may develop a tendency to avoid outright attempts to win concession through coercion and to rely more heavily on the less damaging modes of compromise. Although it is difficult to document objectively, listening to married couples work out joint decisions leaves one with the distinct conclusion that young husbands tend much more than older husbands to achieve concession through coercion and that young wives display overt concern for maintaining a "friendly" relationship even at the expense of giving in. Older married couples seem to have learned to handle conflict much more smoothly. Future research needs to explore all three kinds of determinants of modes of conflict resolution as well as to develop better coding schemes for analyzing the process.

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DETERMINING THE DURABLE PRODUCT NEEDS OF HOUSEHOLDS

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The primary purchasing unit of society is the household. Purchases of durable goods, as well as many nondurables, are made principally for household consumption. Even when an actual purchase is made by one family member, the household's influence is likely to be substantial, particularly for durables. For example, the purchase of a stereo console with mahogany sliding doors, priced at \$445, and featuring a Garrard record changer, may represent the combined preferences of several different household members. In fact, the stereo itself may have been purchased as a compromise between a color television set and a radio-TV-stereo combination desired by two different influential household members.

Despite such rather obvious influences, buyer behavior research generally concentrates on individuals and not on the households of which they are a part. There are some very pragmatic reasons for this approach, including the difficulty of measuring interaction between household members and the cost of obtaining suitable data.

This researcher maintains, however, that durable product needs of households can be determined via longitudinal analysis. Thus, the focus in this study is on a method for identifying the durable product needs of households and relating them to subsequent purchasing and product-related behavior.²

In this study, a central role is assigned to attitudes toward product class characteristics. It is not implied that other variables are insignificant factors in decision-making, but rather that strong positive relationships can be found between these attitudes and behavior for individual households and that such relationships are valuable indicators of future behavior. Therefore, potential buyers' attitudes toward certain attributes of durable goods are measured to obtain an index of the likelihood of purchase.

It is contended that the image or concept of a product as viewed by the household members is of extreme importance to purchasing behavior. Substantial support for this notion is found in comprehensive decision models formulated in recent years which consider the influence of product characteristics. For example, the Nicosia decision process model includes as variables the technical, functional, and social psychological attributes of a product or brand which may or may not lead to a purchase.³

An interesting, related view is that held by Walter A. Woods, who distinguished between two sets of variables in choice behavior--consumer and product variables. Consumer variables refer to individual differences in cognitive structures while the latter have to do with the character of the product itself. Woods maintains that certain classes of products generate demand for different reasons, for example, degree of ego-involvement generated, hedonistic qualities, and status.⁴ The importance of the Woods thesis to this study lies in the recognition that the characteristics of products themselves may have an influential role in behavior.

Several other studies of specific product and brand dimensions are noteworthy. For example, articles by Yankelovich,⁵ Kuehn and Day,⁶ and McClure and Ryans⁷ report on studies of product attributes. Recently, Lehman⁸ has utilized a preference model based on such attributes.

The Research Study

The research upon which this paper is based assumes a positive relationship

between attitudes of household members toward durable goods attributes and purchasing behavior. The ultimate goal of most attitude studies is, of course, prediction of behavior. Obviously, this behavior is seldom completely predictable. However, it is possible for the marketer to ascertain "tendencies" of potential consumers so that he may act either to reverse unfavorable ones or to capitalize on apparent opportunities. Thus, after determining which households exhibit need for a product or are "in the market" for one, he can plan appropriate action.

It is important to recognize that product needs are present in varying degrees. A household, in effect, will establish either formally or informally a hierarchy or priority system for the purchase of products.⁹ Underlying attitudes toward characteristics of the products are, at least, partially responsible for the hierarchy formation. Thus, it is logical to attempt to measure such attitudes in order to determine the hierarchical listing of durable goods priorities; i.e., the household "need structure."

The Household Durable Product Need Structure

It is postulated that the higher a product ranks in a household's product need structure, the more likely it will be purchased before a lower-ranked product. Similarly, "product-related-behavior" will tend to be undertaken to a greater degree for high priority products than for low priority ones. Thus, the research hypothesis is stated:

The household need structure of durable goods priorities, as established through the measurement of attitudes, is an effective indicator of subsequent purchasing and product-related behavior over time.

The bases used in the study for the development of the household product need structure are the expressed attitudes of potential consumers toward attributes of products. In developing the need structure, it is assumed that the consumer's overall attitude is composed of several elements. As determined in a pre-test, the general attributes of the products which are considered to be components of attitude are the product's necessity, affordability, efficiency, and attractiveness. (See Exhibit 1)

Exhibit 1

Definitions of Product Attributes

Affordability: The degree to which it can be readily purchased without putting strain on the family budget.

Attractiveness: The extent to which it is pleasing to the eye--in the respondent's view or the view of friends and neighbors.

Necessity: Its importance to the effective operation of the household.

Efficiency: The extent to which it faithfully does what it is supposed to do and is worth the price paid for it.

The consumer may be favorable toward some and unfavorable toward other product attributes. In addition, varying degrees of favorability or unfavorability may be present. Obviously, for a purchase to be made or for other product-related behavior to be undertaken, the sum of one's attitude components--

however he weights their relative significance--will be positive, resulting in an overall attitude which is favorable to some degree.

Product-Related Behavior

The research assumes the functional relationship:

$$PT = f(\text{Se, O, I, C, So, B, Own})$$

That is, the tendency of a household to purchase (PT) a durable good is a function of the incidence and level of product-related activity undertaken by members of the household. The activities include search (Se), observation (O), inquiry (I), consultation (C), social interchange (So), brand recognition (B), and product ownership (Own) by others (Exhibit 2). These elements are

Exhibit 2

Descriptions of the Elements of Behavior

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1. Search: Actual shopping for the specific product.
 2. Observation: Taking notice of the product while shopping for something else and stopping to evaluate, compare, etc.
 3. Inquiry: Initiating questions regarding products with "experts," including acquaintances, sales personnel, etc.
 4. Consultation: Referring to Consumer Reports, books, authoritative written sources for purposes of evaluating products and their characteristics.
 5. Social Interchange: Discussion of products and their characteristics informally with friends, relatives, etc.
 6. Brand Recognition: The ability to recall quickly brand names within product classes.
 7. Ownership by Others: The extent of ownership of specific products by acquaintances, relatives, friends, etc.
-

incorporated into behavior indices for comparison with valuations of products as per the need structure. Implicit in the procedure is the assumption that, because a purchase often culminates from such activity, it is considered to be desirable behavior from a marketer's standpoint.

Research Design

Members of a panel of fifteen households (generally classified as "young marrieds") were interviewed in five waves over a period of approximately six months. In three of the interviews (#1, #3, and #5), need structures of the household were determined by measuring attitudes toward durable product attributes (necessity, affordability, efficiency, attractiveness). In each case, husband and wife rated the attributes of specific durables independently as well as through a joint decision-making process. The list of durables subject to analysis and subsequently making up each household's need structure was composed of twenty or more products commonly purchased for household use.¹⁰

The attitude measurement technique of magnitude estimation¹¹ was utilized to first determine the relative importance to respondents of each product attribute in the purchase of various classes of durables. For this purpose, durables were placed in one of the following categories: household furnishings, kitchen appliances, cleaning products, and entertainment products.

Household members were then requested, via magnitude estimation, to provide a measure of the degree of necessity, affordability, efficiency, and

Exhibit 3

Basic List of Durable Goods

-
-
- | | |
|----------------------|---------------------------|
| 1. Desk | 11. Luggage |
| 2. Second Automobile | 12. Clothes Dryer |
| 3. Vacuum Cleaner | 13. Cookware Set |
| 4. Color TV | 14. Upholstered Chair |
| 5. Garbage Disposal | 15. Dishwasher |
| 6. Stereo | 16. Grille and Rotissiere |
| 7. Movie Camera | 17. Tape Recorder |
| 8. Food Blender | 18. Sofa |
| 9. Washing Machine | 19. Oil Painting |
| 10. Bed (King-Size) | 20. Black-and-white TV |
-

attractiveness which they ascribed to each durable in the listing. The estimates were weighted according to the relative importance of each attribute as determined earlier and the resultant values for each product summed. The summations were ranked in descending order to provide hierarchies of product preferences (need structure) for individuals and for the household (Exhibit 4).

In subsequent interviews, need structures were again determined. These were compared, in order to test the research hypothesis, with an index of behavior reflecting the product-related activities and ultimate product purchases by respondents.¹² The behavior was determined by direct questioning in interviews #2, #4, and #5.

Data Analysis

The hypothesis, suggesting a strong relationship between need structure ranking and product-related behavior, was verified by the data generated

Exhibit 4

Calculation of Product Need Structure

Step 1: Determination of Weights Ascribed to Product Attributes

Attribute Values and Calculated Weights

<u>Product Attributes</u>	<u>Entertain- ment</u>	<u>Cleaning</u>	<u>Household Furnishings</u>	<u>Appliances</u>
Necessity	75 (.12)	200 (.42)	150 (.26)	200 (.44)
Afford- ability	200 (.32)	75 (.16)	150 (.26)	100 (.22)
Efficiency	150 (.24)	150 (.32)	100 (.17)	100 (.22)
Attrac- tiveness	200 (.32)	50 (.10)	175 (.30)	50 (.11)

Note: Weights are in parentheses as a percentage of total value per product class.

Exhibit 4--continued

Step 2: Attribute Values Determined Through Measurement of Attitudes

<u>Products</u>	<u>Attributes</u>			
	<u>Necessity</u>	<u>Affordability</u>	<u>Efficiency</u>	<u>Attractiveness</u>
Stereo Player	25	150	50	300
Recliner	75	75	100	150
Electric Washer	80	50	170	75
Blender	50	50	50	125
Color TV	80	100	100	200

Note: The standard was 100 units--a black-and-white TV set. Values are assumed to have been jointly determined by husband and wife. In the research; independently-derived values were also utilized.

Step 3: Application of Weights to Attribute Values

<u>Products (Class)</u>	<u>Attributes</u>	
	<u>Necessity</u>	<u>Affordability</u>
Stereo (Entertainment)	(.12)25 = 3	(.32)150 = 48
Recliner (Furnishing)	(.26)75 = 19	(.26)75 = 19
Washer (Cleaning)	(.42)80 = 34	(.16)50 = 08
Blender (Appliance)	(.44)50 = 22	(.22)50 = 11
Color TV (Entertainment)	(.12)80 = 10	(.32)100 = 32

<u>Products (Class)</u>	<u>Attributes</u>	
	<u>Efficiency</u>	<u>Attractiveness</u>
Stereo (Entertainment)	(.24)50 = 12	(.32)300 = 96
Recliner (Furnishing)	(.17)100 = 17	(.30)150 = 45
Washer (Cleaning)	(.32)170 = 54	(.10)75 = 08
Blender (Appliance)	(.22)50 = 11	(.11)125 = 13
Color TV (Entertainment)	(.24)100 = 24	(.32)200 = 64

Step 4: Ranking of Products in the Need Structure

<u>Rank</u>	<u>Product</u>	<u>Value</u>
1	Stereo Player	159
2	Color Television	130
3	Electric Clothes Washer	104
4	Recliner	100
5	Food Blender	57

Note: The value is the sum of attribute values after application of weights.

in the study. The testing of the hypothesis was carried out in three ways:

1. By comparison of the levels of activity associated with products ranked in various segments of the need structure.
2. By calculation of correlation coefficients measuring the relationships between product values and behavior indices.
3. By determination of the relationship between product need structure position and actual product purchases.

It should be noted that although the household need structures include both owned and unowned products, products not presently owned by households are of greater concern because of their likelihood of purchase by young married couples. Owned products are of interest only where replacements are in order or where households wish to own more than one of a certain durable. Thus, for purposes of analysis, presently unowned products receive primary consideration.

Exhibit 5

Explanation of Behavior Index

Three different weighting methods were used to develop behavior indices, which were correlated with need structure rankings. No significant difference was found between the indices; therefore, only one index is used in the analysis and is explained below.

The following weights were assigned to the various activities, assuming that search and observation are more likely to result in a purchase than the other activities: search, .3; observation, .2; inquiry, .1; consultation, .1; social interchange, .1; brand recognition, .1; and ownership by others, .1.

The appropriate weights were applied to the total number of times each activity was undertaken in order to calculate the behavior index. In addition, if the husband and wife (acting jointly) had undertaken the specific activity two times, the base to which the weight was applied became 2.0 (3.0 if three times, etc.). If one person (either husband or wife) performed it three or more times, the base became 2.0, then 3.0, etc. After applying the weights to each activity, the products were summed to provide the measure of product-related behavior.

As an example of the calculation of this index, it can be assumed that the following behavior related to a product took place: search--husband and wife together two times, wife alone one time; observation--wife alone two times; consultation--husband alone one time. The calculation follows: search-- $2.0(.3)$ and $1.0(.3) = .9$; observation-- $2.0(.2) = .4$; consultation-- $1.0(.1) = .1$; total behavior = 14 (without decimals).

Product-Related Behavior and Need Structure Segments

For the first test of the hypothesis, the need structure ranking--as determined in the first interview with each family--was arbitrarily divided into four "quartiles." These segments were selected simply to provide a convenient way of showing declining levels of behavior associated with products with successively lower need structure rankings. Arithmetic means of the behavior indices were computed for presently unowned products in each quartile of the total need structure. In nearly every case, the means were lower for each lower segment beginning with the top quartile. (See Exhibit 6)

Exhibit 6

Mean Behavior Index for Unowned Products by
Need Structure Segments*

Need Structure Segment	Household Member		
	Husband	Wife	Joint
1st Quartile	12.2	11.2	13.7
2nd Quartile	7.8	11.2	7.0
3rd Quartile	6.2	4.9	4.5
4th Quartile	2.0	1.6	2.2

*For all households, utilizing interview #1 need structures.

A related test was to compare the number of products associated with behavior to the number with no behavior. Of 150 products classified as unowned, between 81% and 90% ranking in the highest quartile were associated with some activity, between 74% and 88% in the second quartile, between 42% and 48% in the third, and only between 18% and 20% in the fourth were related to behavior of any kind when husband, wife, and joint rankings were considered.

Correlations Between Need Structure and Behavior

Pearson product-moment correlation coefficients were computed to test the relationship between household product need structures and product-related behavior. The magnitude estimates provided by husband and wife jointly, as well as independently, were correlated with the measures of behavior associated with each product.

Adopting the conventional .05 level of significance (based on t-test), the correlations were found to be significant for nine of the fifteen households. In five cases, correlations were significant at the .01 level. Exhibit 7 shows the correlations based on joint household rankings.

The correlation levels varied over a fairly wide range. However, in only three of the fifteen households was the correlation coefficient lower than .50 for all three need structures (husband, wife, and joint). In five cases, correlations for at least one household member were higher than .70. Given the complexity of the components of the product values and the arbitrary weighting of behavior, the correlations were judged to be rather remarkable. An example is provided in Exhibit 8 of the data from one household, which was rather active regarding products. When judged in relation to levels of activity associated with the various products, the .7295 correlation coefficient is seen to be very good for a study of this nature.

Need Structure and Actual Purchases

Over the period of the study, the households acquired forty of the products which had been listed and ranked in their respective need structures. Analysis of the data showed that, with the exception of three acquisitions (two gifts and the other classified by the buyer as "unnecessary" and "on impulse"), each product had been ranked by at least one household member among the upper seven products in the household's (including both owned and unowned durables) need structure in the interview immediately prior to its

Exhibit 7

Correlation of Interview #1 Household Need Structures and
Total Product-Related Behavior With Levels of
Statistical Significance--Unowned Products

<u>Household</u>	<u>Joint Correlations</u>	<u>Level of Significance*</u>
1	.7925	.01
2	.3489	.2
3	.6200	.05
4	.7180	.01
5	.4178	.3
6	.5376	.05
7	.2541	.2
8	.7295	.01
9	.4158	.10
10	.6216	.15
11	.5925	.05
12	.8026	.01
13	.8578	.01
14	.4690	.2
15	.6938	.02

*t-test

Exhibit 8

Example of the Correlation Between Need Structure and
Product-Related Behavior--One Household*

<u>Unowned Product</u>	<u>Rank Among All Products</u>	<u>Total Value</u>	<u>Behavior Index</u>
Sofa	2	162	19
Stereo	4	119	27
Color TV	5	118	24
Chair	6	112	31
Lamp	7	102	32
Dryer	7	102	12
Washer	9	96	12
Electric Blanket	14	62	0
Painting	15	61	0
Card Table	17	47	0
Desk	18	44	0
Luggage	19	26	0
Blender	20	14	0
Tape Recorder	22	15	0
Movie Camera	23	14	0

*Pearson correlation coefficient: .7295

acquisition. In addition, of the thirty-seven products, only three were ranked as low as tenth in the need structure by the husband and wife evaluating products jointly.

When only unowned products were considered, no purchased products ranked lower than fifth among unowned products when ranked by husband and wife together. In addition, the following observations were made: (1) thirty-three products, when acquired, were ranked either first or second by either husband or wife or both; (2) seventeen products were ranked first by husband and wife acting together; (3) of the seven gifts, five had been ranked either first or second by at least one household member prior to acquisition by the household.

In a follow-up study six months after the original data were collected, it was found that fifteen more products listed had been purchased in the interim. As might be expected, given the longer intervening time period, need structure rankings for some purchases were not as high. However, thirteen were ranked in the upper 50% of both owned and unowned products in the last interview prior to purchase by husband and wife together. Of the fifteen purchases, 12 were previously unowned by the households, of which only three were ranked lower than fifth among unowned products. It may be speculated that strong favorable attitudes toward durables will ultimately result in purchases and that these attitudes are slow to change over time. Seemingly, the results support the McFall thesis that households desire a complete set of durables and will continue to rank each durable highly until purchase is made.

Research Findings

Summary

The general objective of the research--to explore the feasibility of using a measure of consumer household attitudes in order to indicate the extent of subsequent purchasing and other behavior related to durable goods--was clearly fulfilled. Results of tests of the hypothesis are summarized below.

The products in the need structure were related, in various ways, to subsequent purchases and levels of product-related behavior. A direct relationship was found between need structure ranking and extent of behavior. A considerably higher level of product-related activity was associated with higher-ranked products than with lower-ranked ones. Also, purchases tended to be related to need structure position. Products generally were not purchased unless consumer attitudes toward them were strongly positive, as reflected in high product valuations. Even gifts and "impulse" purchases tended to be correlated with the need structure. Therefore, the hypothesis was given strong support.

Applications

The research results lend themselves to the suggestion of methodological adaptations and research directions, some of which are listed below.

1. Incorporation of other product attributes such as durability and dependability into the analysis could have an interesting effect on the product valuations and, thus, upon the product preference listings.
2. The variable of the relative influence of husband and wife on purchasing decisions could be incorporated into the methodology.
3. The analysis could be extended to measuring attitudes toward specific brands within product classes.
4. Research efforts could be directed toward the determination of whether consumers actually consider products in "categories" such as

entertainment, cleaning, and household furnishings and, if so, how heavily they weight the attributes of products within each classification.

5. The question of which, if any, product attribute is the dominant determinant of purchase could be investigated further. Alpert¹³ has suggested some methodological considerations. This research has relied on the ability and willingness of respondents to estimate relative importance.

6. The study could be extended to established households in which a majority of purchases would be of a replacement nature.

7. If a strong, favorable attitude toward a product does indicate a "tendency" to undertake action directed at purchase, as this research indicates, it would be a natural outgrowth of this study to subject households to varying degrees of promotional effort relating to high and low-ranked products to test the strength of the inclination to purchase.

Footnotes

¹Assistant Professor of Marketing, University of South Carolina.

²Durables are chosen for study because the likelihood of measurable household influence is greater than for nondurables.

³Francesco M. Nicosia, Consumer Decision Processes: Marketing and Advertising Implications (Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1966), pp. 157-58.

⁴Walter A. Woods, "Psychological Dimensions of Consumer Decision," Journal of Marketing, Vol. 24 (January, 1960), p. 16.

⁵Daniel Yankelovich, "New Criteria for Market Segmentation," Harvard Business Review, Vol. 42 (March-April, 1964), pp. 83-90.

⁶Alfred A. Kuehn and Ralph L. Day, "Strategy of Product Quality," Harvard Business Review, Vol. 40 (November-December, 1962), pp. 100-110.

⁷Peter J. McClure and John K. Ryans, Jr., "Differences Between Retailers' and Consumers' Perceptions," Journal of Marketing Research, Vol. 5 (February, 1968), pp. 35-40.

⁸Donald R. Lehman, "Television Show Preference Application of a Choice Model," Journal of Marketing Research, Vol. 8 (February, 1971), pp. 47-55.

⁹John McFall, "Priority Patterns and Consumer Behavior," Journal of Marketing, Vol. 33 (October, 1969), pp. 50-55. McFall maintains that sets of durables are planned and ranked for purchase planning.

¹⁰The basic list of durable goods is shown in Exhibit 3. Certain other items were included for individual households based on interests and intentions expressed by household members.

¹¹Magnitude estimation is a subjective ratio measurement developed in psycho-physics, largely by Stanley S. Stevens. Experiments have shown that there exists a recognizable lawful relation between physical stimuli and the perception of them. The magnitude of a sensation increases as a power function of the magnitude of the stimulus as in the form $\Psi = \kappa \phi^\beta$ where Ψ is the perceived magnitude, κ is a constant, ϕ is the physical value, and β is

the exponent of the power function. Magnitude estimation has been applied in numerous experimental situations involving nonphysical stimuli. Stevens has commented: ". . . magnitude estimation. . . has been used to gauge the consensus concerning intensity or degree for such variables as strength of expressed attitudes, pleasantness of musical selections, seriousness of crimes, and other subjective dimensions for which the stimuli can be arrayed only on nonmetric or nominal scales" (in Stanley S. Stevens, "A Metric for the Social Consensus," Science, Vol. 151, 1966, p. 530). See also: Robert L. Hamblin and Carole R. Smith, "Values, Status, and Professors," Sociometry, Vol. 29, 1966, pp. 183-196; and Robert L. Hamblin, "Ratio Measurement and Sociological Theory: A Critical Analysis," (St. Louis, Missouri, Washington University, mimeograph), 1966, p. 17.

¹²Three indices of behavior were calculated using different weighting procedures. No significant difference was found between need-structure-behavior correlations using each of the three indices; therefore, only one index is used in the analysis and is explained in Exhibit 5.

¹³Mark I. Alpert, "Identification of Determinant Attributes: A Comparison of Methods," Journal of Marketing Research, Vol. 8 (May, 1971), pp. 184-191.

AN ACTIVITY-RESOURCE ANALYSIS OF HOMEMAKER COMMUNICATION¹

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One explanation of differences in choices made by consumers and home managers is that individuals have differing decisionmaking styles or ways of integrating information. For example, time orientation -- whether past, present, or future -- would logically determine which pieces of information were salient in the decisionmaker's reasoning. The individual who was highly future oriented might be expected to give careful consideration to future results of his choices, while the present-oriented person might consider only present satisfaction. A past-oriented decisionmaker might be expected to perpetuate the past or repeat past behavior. Similarly, the degree of control which the decisionmaker feels over his environment would influence his choices. The person who does not feel himself in control might logically seek or accept facts about the existing situation and choose on that basis, while one who does feel in control would be more likely to give salience to preferences and to consider ways of changing or redefining the situation.

In this paper, an approach to the study of decisionmaking style is described and applied to the analysis of data collected from a small sample of rural homemakers. Tentative conclusions about the style of these homemakers are presented.

Conceptual Framework

Communication has been described as one of the master processes in the action of a social system (Loomis, 1960). By extension, it is also a master process in the household as an ecosystem, directing and facilitating not only the interaction of family members, but also their interaction with their environment. A subset of communication, social exchange, has been given attention by several researchers as an explanation for interpersonal behavior. While most of the studies in this area have been of small groups or of mother-child dyads rather than of the family as a group, many of the concepts have relevance for the study of the household as a setting for decisionmaking behavior.

A category system developed by Longabaugh (1963) for the study of social exchange appears to be especially applicable to the family situation. His classification of social exchange takes into account two behavioral dimensions: the resource which is salient in the act, which he defines as that which is of value to the interactors; and the mode by which resources become salient and are transmitted. In his study of mother-child dyads, Longabaugh identified three categories of resources -- information, support, and control. His categories of modes correspond to steps in a given interaction sequence: Step 1 -- Person A seeks resource;

Step 2 -- Person B offers or deprives resource; Step 3 -- Person A accepts, rejects, or ignores the offer or deprivation of the resource. Longabaugh concluded, on the basis of a pilot study, that interaction could be coded satisfactorily using these categories.

The analysis reported in this paper was based on the premise that a modification of Longabaugh's categories might be fruitful as a basis for studying communication among family members in relation to decision processes. Resources being transmitted in the exchange were identified with components of the decision situation, specifically, with those inputs which enable a choice to be made and implemented. Modes of transmission place these resources in a processual framework.

As a result of a pilot study (Magrabi, 1968) in which observations and audio recordings were made of interaction of ten mother-preschool child dyads sharing some household activity in the home, the Longabaugh categories were modified to be more applicable to the study of family activities (Magrabi, Heifner and Eigsti, 1968; Magrabi, Paolucci and Heifner, 1967). The modified resource categories were (a) fact, (b) preference, and (c) command or direction of the speaker's own activity. A fourth category, motivation or encouragement, (e.g., "Good girl!") was found to include so few messages that it was dropped from this analysis and messages in this category were not tabulated. The modes were: (a) offers, (b) seeks, (c) accepts, and (d) rejects or does not accept. The two additional categories used by Longabaugh, deprives and ignores, were dropped because coding of these was not reliable without visual clues. The modified categories were designed to display aspects of decision-making behavior, i.e., transmission of facts about the decision situation and alternative courses of action, preferences concerning elements of alternative actions or outcomes, and commands concerning actions to be performed in implementing the decision. The categories were also appropriate for coding written transcripts of spoken communication. This latter adaptation made it feasible to gather communication data with an audio tape recorder in the home while the family performed normal activities. Later tapes could be transcribed and coded by persons other than the observer. By this means it was possible to collect and analyze large volumes of data using a research team approach. A video tape recorder, experimented with in the pilot study, did not prove to be satisfactory for recording normal activities in the home, partly because of the limited field which could be recorded, and partly because conditions of home recording resulted in very poor quality sound and picture.

Activities were defined within a framework depicting the household as an ecosystem (Magrabi, Elgidaily, and Braden, 1971). Household activities -- broadly categorized as (a) service or labor to other units in society, (b) acquisition of goods or services for use in the household, (c) production of goods or services within the household, (d) conservation of goods or services, and (e) disposal of waste or surplus -- were conceptualized as linking household members to the goods and services in the near environment which give them life support, and with other subsystems of society. The focus of decisions made within the household was thought of as the control and direction of activities. Although most activities occur routinely without being preceded by conscious or explicit decisions, those decisions which can be distinguished as such pertain to (for example)

acquisitions of goods and services, whether or not a given productive activity is to be carried on, or the performance or nonperformance of activities to conserve goods and services. Specific activity categories used in coding and analysis were:

- Production of goods or services --
 - preparation or construction
 - moving from storage
 - conditioning for use
 - service to self or others
 - control of persons or materials
- Conservation --
 - wrapping or applying a protective material
 - conditioning for storage
 - moving to storage
- Disposal of waste or surplus --
 - cleaning or waste removal

Other activities, e.g., recreation, shopping, etc., were not coded.

One limitation in the interpretation of communication data from the present study is that no attempt was made to focus the communication on decisions. Some of the messages did pertain to decisions, but in most instances messages in which a decision was under consideration were indistinguishable from those pertaining to routine activities or other topics.

It is plausible to assume that the communication which articulates a decision-in-process has the same content as flow of communication at other times. Communication at the time of decisionmaking would contain a high frequency of messages relating to the specific activities and elements under consideration in the decision, but the import of the set of messages would not differ from messages pertaining to the same activities and elements abstracted from the normal flow of communication. If this assumption is correct, analysis of unfocussed communication would lead to the same conclusions as analysis of communication focussed on a decision, provided that the analysis was based on a sufficiently large sample of messages in the unfocussed situation. This assumption is the basis for using data from the present study to draw tentative conclusions about decisionmaking style of these homemakers.

Data Collection and Sample

In the present study, casual undirected conversations between 30 homemakers and members of their families or other persons present were recorded mechanically during periods when the homemakers were performing normal daily activities in their own homes. Each family was observed for a total of about four hours, with observations scheduled at the homemaker's convenience, but including food preparation, laundry, and cleaning activities. The observers were graduate students in the Department of Family and Child Sciences, Michigan State University, and were trained to observe and record under home conditions (Elgidaily, 1971). A total of approximately

100 hours of recorded conversations (approximately 42,000 messages) were transcribed and coded. Additional data were collected concerning the family, including education, economic status, usual pattern of activity, and inventory of household items.

The families were selected nonrandomly from a four-county area adjacent to Lansing, Michigan. Each family included both a husband and wife and one or more children 10 to 18 years old living at home. All were rural nonfarm families and reported incomes considered to be within the poverty range five years previous to the data collection. Average income at the time of data collection was approximately \$8200. Average number of children under 18 was approximately 4.5. Four of the homemakers had only an eighth grade level of education, and only one had formal education beyond high school in a business or technical school.

Only the spoken communication of the wife-mother during time periods in which observations were being made is included in the analysis reported here. Persons spoken to included other family members or any other persons present.

Each message unit which could be transcribed from the tapes was coded with respect to speaker; person spoken to; household activity (if any) referred to; household material (if any) referred to; time orientation of the message (past, present, or future); resource transmitted -- i.e., whether the message was stated as fact, preference, or as a command or direction of self; and mode of transmitting the fact, preference or command -- i.e., whether the speaker was offering, seeking, accepting, or not accepting the resource.

Results

Each message spoken by the homemakers was classified according to tense (actual or intended), as an indication of the time orientation of these homemakers. Loomis (1960) speaks of decisionmaking as oriented toward the future. If relative frequency of future oriented messages can be taken as indicating disposition to decisionmaking, then the activities of conditioning materials for storage or use, cleaning, and service appear to have been considered more frequently from a decisionmaking stance than the activities of control (which might often pertain to and be concurrent with the implementation stage of decision), or of storage or removal from storage or preparation or construction of household materials (all of which activities may have been performed routinely and hence required less frequent decisions). The majority of messages -- about two-thirds -- were expressed in present tense. The chi square test for independence indicated that time orientation was related to activity referred to. (See Table 1.)

Each codable message was classified as fact (e.g., "Lunch is ready"), preference (e.g., "I hope lunch is ready"), or command or direction of others or self (e.g., "Please get lunch ready" or "I will get the lunch ready"). The chi square test indicated that resource content and time orientation of messages were related. Messages of fact were about evenly distributed between past and present, with only 10 percent in future tense, while messages pertaining to preference or command were predominately (over 80 percent) in present tense. Of the 1281 messages with future

Table 1

Time Orientation and Activity Reference of Messages*

Activity Reference	Time Orientation							
	Past		Present		Future		Total	
	N	%	N	%	N	%	N	%
Preparation or construction	314	26.8	714	60.8	146	12.4	1174	100
Removal from storage	41	14.2	212	73.4	36	12.4	289	100
Conditioning for use	239	21.4	719	64.5	157	14.1	1115	100
Service	376	21.5	1130	64.6	244	13.9	1750	100
Control	322	14.2	1723	75.9	225	9.9	2270	100
Applying protective material	228	19.8	770	66.9	153	13.3	1151	100
Conditioning for storage	104	21.4	304	62.7	77	15.9	485	100
Storage	154	16.7	656	71.1	112	12.2	922	100
Cleaning	214	22.5	591	62.1	147	15.4	952	100
Total	1992	19.7	6819	67.5	1297	12.8	10108	100

* $\chi^2 = 154.1$

d.f. = 16

P < .01

orientation, only four percent expressed preference and over half expressed commands. This distribution is logical. Facts are likely to refer to either past or present; individuals less frequently express expectations or speculations about the future as facts. Preference is likely to be present oriented, partly because future preferences, like facts, are not known with certainty, and partly because future preferences are likely to be thought of as projections of present preferences. A larger percentage of command messages than of either of the other two categories were future oriented, consistent with an interpretation of this category as being closely related to decisionmaking.

Table 2

Time Orientation and Resource Content of Messages*

Resource Content	Time Orientation							
	Past		Present		Future		Total	
	N	%	N	%	N	%	N	%
Fact	1835	40	2276	49.7	472	10.3	4583	100
Preference	60	6.3	842	88.7	47	5.0	949	100
Command	80	1.8	3582	81.0	762	17.2	4424	100
Total	1975	19.8	6700	67.3	1281	12.9	9956	100

* $X^2 = 2289.5$
d.f. = 4
 $p < .01$

While activity categories were intended to be applicable to any of the various materials, furnishings, and equipment in households, it does not necessarily follow that messages should be distributed among activities with equal frequency for each type of material. One reason is the interest or preoccupation of the homemaker, which might lead her to talk more frequently about some activities than others. Another possible reason for variation in message frequency is that the activity categories are not equally limited and specific. For example, service and control are inclusive categories which cover a broad range of activities frequently performed, and hence total frequency of homemaker messages in these two categories should be and was high. At the other extreme, the categories removal to storage or removal from storage are quite limited and specific and contain the smallest total frequencies of messages. Another possible factor is that materials are not used with equal frequency. Food is the object of homemaker activities at least three times a day; equipment, clothing, and household textiles are focal objects of activity less frequently and hence would be expected to evoke communication less frequently, as was in fact the case. A chi square test indicated that household material referred to (food, clothing or textiles, equipment or other material) was not independent of the activity being referred to (significant at the .05 level). Therefore, further analysis of messages was performed separately for each of the three categories of materials.

Table 3

Distribution of Communications of the Homemaker with Respect to Content and Activity

Activity	Food*			Equipment**			Clothing and Textiles***					
	Fact %	Preference %	Command %	Total N	Fact %	Preference %	Command %	Total N	Fact %	Preference %	Command %	Total N
Preparation or construction	60.1	11.4	28.5	431	64.0	8.0	28.0	25	60.0	13.8	26.2	65
Removal from storage	36.7	16.7	46.6	30	38.1	7.1	54.8	42	25.0	16.7	58.3	12
Conditioning for use	49.6	22.2	28.2	117	65.5	0	34.5	29	69.1	4.7	26.2	149
Service	53.4	8.9	37.7	440	62.9	8.6	28.6	35	34.0	6.9	59.1	203
Control	35.1	8.0	56.9	174	21.9	7.8	70.3	64	29.9	8.2	61.9	97
Applying protective material	35.9	31.6	32.5	114	41.6	8.4	50.0	12	52.5	9.8	37.7	61
Conditioning for storage	47.4	14.1	38.5	78	0	12.5	87.5	8	39.4	6.1	54.5	33
Storage	36.5	17.4	46.1	115	43.8	8.2	47.9	73	37.0	2.5	60.5	81
Cleaning	56.6	13.2	30.2	53	52.9	5.9	41.2	34	72.9	6.8	20.3	59
Total	49.9	13.3	36.8	1552	44.1	7.1	48.8	322	47.5	7.1	45.4	760

* $\chi^2 = 110.8$
d.f. = 16
p < .01

** $\chi^2 = 38.1$
d.f. = 16
p < .01

*** $\chi^2 = 98.8$
d.f. = 16
p < .01

In one sense the content categories may be conceived as being on a continuum from the expression of complete control over the activity (command or direction), to tentative or partial control (preference), to no expressed control (fact). Under this interpretation, differences were evidenced in expression of control over food, clothing and textiles, and equipment. Only 37 percent of the food messages took the form of command, compared with 49 percent of the equipment messages. On the other hand, aside from messages referring to the activity of control, the highest proportions of command messages pertaining to equipment had to do with storing or moving from storage, while the highest proportion of food messages pertained to preparation or service. (See Table 3.) Messages about preparation or construction activities appear intrinsically to express a higher level of control than storage activities. The kind of control expressed by homemakers over food (which they prepare) differs from control over equipment (which they merely store). For clothing and textiles messages, the largest proportion of command messages pertained to service activities. For each of the three categories of materials; the chi square test indicated that the activity referred to in the message was not independent of the resource content of the message -- fact, preference, or command.

Closely related to the idea of control as expressed by the fact, preference or command content of the message is the degree of active control expressed by mode. Each message was classified according to the mode of message transmission, whether offering, seeking, accepting, or not accepting. For example, "Lunch is ready" is in the offering mode; "Is lunch ready?" is seeking; "Yes" or "It is" (in response to the message, "Lunch is ready") is in the accepting mode; while "No, it is not" is in the not accepting mode. Two of these modes, offering and not accepting, actively control the import of messages exchanged in the sense that an idea of the speaker is injected into the exchange or an idea of the other person is rejected. These two modes were classified as active. The seeking or accepting modes were classified as passive, since they indicate that the ideas of another person are being sought or accepted. For two categories of materials, food and equipment, the chi square test indicated that active or passive mode is not independent of activity referred to, but the calculated chi square was not significant for messages pertaining to clothing and textiles. (See Table 4.)

The homemakers in the study used active mode predominantly, but there were differences in proportions for activity categories. For equipment, cleaning activity accounted for the highest proportion of messages in active mode (aside from the activity of control). For both food and clothing and textiles, service activities accounted for a large proportion of those messages which were in passive mode, which seems plausible since most service was to other persons and their cooperation or coordinated behavior had to be sought. Mode of preparation-construction activities was predominately active, but the proportion was lower for messages related to equipment. Homemakers, although actively involved in most preparation-construction activity in the home, may identify more strongly with food preparation than with comparable activities pertaining to equipment. Other activities relating to food -- cleaning, wrapping, storing, serving, etc. -- may be more frequently delegated than comparable activities with equipment, and this may be reflected in the homemakers' communication.

Table 4

Distribution by Activity Reference of Communications of the Homemaker with Respect to Mode (Active or Passive)

Activity Reference	Food *			Equipment **			Clothing and Textiles ***		
	Active %	Passive %	Total N	Active %	Passive %	Total N	Active %	Passive %	Total N
Preparation or construction	82.5	17.5	434	60.0	40.0	25	80.0	20.0	65
Removal from storage	73.3	26.7	30	81.0	19.0	42	83.3	16.7	12
Conditioning for use	73.5	26.5	117	69.0	31.0	29	85.2	14.8	149
Service	79.8	20.2	441	85.7	14.3	35	85.8	14.2	204
Control	90.2	9.8	174	90.8	9.2	65	89.7	10.3	97
Applying protective material	51.2	48.8	125	75.0	25.0	12	78.7	21.3	61
Conditioning for storage	80.8	19.2	78	75.0	25.0	8	75.8	24.2	33
Storage	70.4	29.6	115	80.8	19.2	73	79.3	20.7	82
Cleaning	70.4	29.6	54	88.2	11.8	34	76.3	23.7	59
Total	77.9	22.1	1568	81.1	18.9	323	83.2	16.8	762

* $\chi^2 = 80.8$
d.f. = 8
 $p < .01$

** $\chi^2 = 16.1$
d.f. = 8
 $p < .05$

*** $\chi^2 = 9.9$
d.f. = 8
 $p > .05$

Summary

The data on which findings were based included a large number of messages (over 10,000), but these were spoken by a small, nonrandom sample of homemakers. Because the communication occurred in the home setting, was undirected by the observer, and was incidental to the main focus of the occasions when it was recorded, it is probably representative of the communication pattern of these homemakers. The extent to which findings can be generalized to other homemakers is indeterminate; however, the conversations appear to the author to be typical of high school educated homemakers living in rural areas of the midwest.

Most messages about these household activities had present time orientation. Apparently this group of homemakers thought of activities in the household as predominately present and current. The homemakers' stance toward household activities was one of active participation and control, though this seemed to vary with the specific activity and materials involved. Ideas were most often expressed as fact even though content would indicate that preference entered in. Of those messages which were future oriented, the majority were commands; almost none expressed preference. Almost all messages concerning preference were present oriented.

The predominance of factual messages would not necessarily indicate that these homemakers made less use of preferences in reasoning through decisions. Since many of the messages stated as facts were obviously based on value judgments, the homemakers were undoubtedly more strongly influenced by preferences than their overtly factual orientation indicated. Presumably the homemakers expressed themselves in an active, directive mode in discussing household activities because these activities were usually performed by themselves or under their direction.

In simple task environments the decisionmaker is likely to utilize a simple style of expressing and integrating information (Schroeder, et. al, 1967). Studies of decisionmaking style have indicated that many family decisionmakers utilize a style which is factual and present time oriented (Magrabi and Paolucci, 1970). From the present study one might conclude that this basically simple orientation holds for most household activities, though in varying degrees.

If the assumption that unfocussed communication is similar to communication pertaining to decisions, it would appear that decisions of these homemakers would usually be made with reference to the present rather than the future or the past and with information presented as fact rather than preference. This orientation in the decisionmaking process might restrict the range of information considered and perhaps the relative influence of present versus future satisfactions. The varying degrees of personal involvement in and control over household activities and materials might also influence selection and consideration of information in making decisions, as well as decisionmaking power within the family.

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²Dr. Magrabi, now with the Consumer and Food Economics Research Division, Agricultural Research Service, USDA, was a Professor in the College of Human Ecology, Michigan State University when the study was conducted. Mrs. Williams, Miss Von Toebel, and Mrs. Wood were research graduate assistants in the Department of Family and Child Sciences, College of Human Ecology, Michigan State University.

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SOCIAL ARCHITECTURE FOR THE URBAN LOW-INCOME ELDERLY

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If asked about what kind of ideal housing might be provided for low-income elderly persons, a North American respondent might visualize a pleasant suburban or rural setting with several scores of small villas clustered around a central meeting hall enclosing recreational facilities and surrounded by neatly trimmed grass, shrubs and flowers. Another might disagree, arguing that for the urban elderly the rural cottage setting is less appropriate than miniature townhouses ordered about a private urban greensward. A third may favor more substantial-looking communal low-rise housing blocks for the elderly, dispersed within neighborhoods rich in growing children. Still others may advocate refurbishing existing obsolete or decrepit habitations.

Only a few persons may indicate high rise, high-density towers as appropriate for the elderly. Many regard such a form as an "urban ghetto in the sky" for the old, in which they are shut off from the ordinary street-level congress of urban life in an institutional holding bin until they die.

An aim of this paper is to suggest that high-rise, high-density housing can be ideal for elderly low income persons in an urban setting. The argument builds in personal and social characteristics of the elderly, coupled with consideration of the kinds of purposes which new housing for the elderly is intended to fulfill. Given these characteristics and purposes, a high-rise high-density large population aggregation structure appears appropriate in the urban setting.

Characteristics of Inhabitants

Design of housing for the low-income elderly properly is a function of the characteristics of inhabitants to be accommodated. These typically include:

Single Status

Most of the inhabitants will have lost their spouses and will be maintaining one-person households. They accordingly lack partners or roommates to share the burdens of household maintenance and to exchange socio-emotional support.

Elderly

The literature on geriatrics has expanded voluminosly and is not properly reviewed here. It can partly be summarized by generalities that elderly people.....lack the social energies of those younger; have reduced tolerance of ambiguity; have greater response latency; have reduced strength; have some memory loss; prefer the familiar; are worried by novelty or strangers; have some opinions that are out-of-date in terms of current modes of thought; have views, habits and values which do not readily accommodate the views, habits or values of most other old people; are slow in adapting full to new circumstances.

Low Income

All inhabitants in publicly-underwritten low-income housing are in relatively straitened circumstances, having only a few dollars a day for expenses other than housing. This reduces their physical and social mobility; they cannot well afford taxicabs or long-distance telephone calls, or substantial outlays to attend the entertainment resources of downtown districts.

Female Sex

Because there is a marked differential between the sexes in age-specific death rates after age 40, the median age at death for Canadian men is five years younger than for women. The median age at death of British Columbia women is 75 years (1966 figures). This means that half the women in B.C. live longer than 75 years, very likely having earlier lost their spouses at an age outside the feasible facilities and activities planned for housing residents should tend to emphasize interests and skills of old females rather than old males, who form a minority in the population of the elderly.

Infirmities

Morbidity from all causes rised sharply among those advancing beyond sixty years of age. These may be partly disabling, so that persons affected will have sharply reduced mobility, sometimes being restricted to wheelchairs. Even when not disabling, ills among the elderly will create a substantial demand for at least para-medical services to be provided in the immediate environs.

Lack of Kin and Friends

Being elderly, and surviving beyond the median age of death in the population, means that on a statistical basis perhaps half of one's friends and kin in the family of orientation will be dead. At the same time, factors suggested above as associated with the elderly (e.g., low social energies, low economic resources, lack of sympathy with new ideas of the young, disease with unfamiliar people.

Dispersal of Kin and Friends

Surviving friends and relations (e.g., off spring) characteristically move every half-dozen years or so, away from former urban neighborhoods to other sections of the city, to the suburbs, to different towns or even (in about 15% of moves) out of the province or state. Maintaining viva-voce contact with these entails substantial transportation and telephone costs; otherwise, out-of-sight will lead to out-of-mind, with further consequent attrition of kin and friendship ties. In addition, merely moving into new housing for the elderly necessitates one's removal from friends and acquaintances in her former neighbourhood.

Lack of Legitimate Role

The mobility of offspring and the impatience of the young with old-fashioned ideas of the elderly curtail opportunity of the elderly to fill the "grandparent role" traditional to an earlier, more rural and less marketing-oriented society. In Western Canada this role probably has diminished

(for most elderly) to a few ritualistic assemblies at yearly holidays, and exchanges by mail, and long-distance telephone calls; contact with grandchildren (the alter egos of grandparents) is reduced to largely one-way communications and flow of gifts on birthdays.

The characteristics sketched hereabove add up to what we already know about most old people: they tend to be worried, obstinate, easily confused, out of date, bothered by uncertainty, lonely, penurious, unused to social independence, and without an esteemed role in society. By considering these qualities, the designer can visualize forms and layouts for housing the elderly that are likely to be appropriate to their characteristics.

A MODEL OF HOUSING

The definition of appropriate housing for the urban low income elderly depends in part on what changes in the quality of their lives is to be achieved through new housing.

Material Comfort

Much of the accommodation displaced by urban renewal or to be replaced by new housing developments is ancient and sub-standard. While not usually verminous, old low-rent accommodations typically have become dirty and dilapidated pending ultimate destruction. Private bathrooms are a comparative rarity, for example. Upgrading and amplification of basic amenities to standard is an assumed purpose of new housing provision.

Social Interaction

Evidence of large-scale studies on health of the elderly in metropolitan centers in the U.S. (none available for Canada) suggests that persons more active in a network of friends and kin have lower morbidity rates. Although causation for the correlation cannot be determined, a reasonable supposition is that opportunity to receive more stimuli allows exercising response potential and reception of more psycho-social support, with both factors inhibiting morbidity.

Security and Clarity of Environment

Earlier paragraphs suggest that with declining sensory acuity and comprehension of innovation, the elderly find themselves in a world of disturbing events that threaten them at a stage of life when their resistive powers are failing. Privacy, security, clarity, stability and slow pace in the environment thus become more important to the elderly than they are to the rest of us.

Alternatives available for housing the urban elderly are restricted to those feasible in the urban setting. All are characterized by relatively high densities, due to high costs of land acquisition. Feasible alternatives include small terraces or row houses (like those in Radburn), grouped around small urban squares; or massive low-rise apartment blocks; or point blocks; or high-rise tower blocks; or mixed cases of terrace, low-rise and high-rise blocks and towers.

This brief holds that the high-rise wing block is the housing form appropriate to housing the urban low-income elderly, given that one accepts that the quality of their lives is improved by sociability constrained by needs for privacy, quiet and security. The reasoning is as follows:

- a) the elderly (typically widows) have lost friends and kin, are lonely to a degree, but lack energies and opportunities to create new friends.
- b) Due to lack of adaptability, an old person is likely to find only a small percentage of the elderly population sufficiently similar in background and values to allow friendship formation.
- c) Therefore, the larger the population available for contact by an elderly person, the more likely it is that she will contact similar and therefore congenial persons.
- d) The elderly are relatively immobile, for physical and economic reasons. Therefore the more dense the immediately surrounding population, the more potentially congenial persons can be contacted by a given resident.
- e) High density in a population can be achieved by aggregation in a central place. Access to a dense population is optimal to those residing in a neighborhood area directly adjacent to it.
- f) In a high-rise building, the different floors can be considered as residential areas largely independent of each other (i.e., there usually is very little communications or social exchange between adjacent floors of elevator-equipped residential buildings). Each floor has via the elevators almost instant contiguity with a lobby or assembly area. Thus, given a community or assembly center in a housing settlement, those living on floors above it are as temporally contiguous to it as those living in a neighboring area directly adjacent to it.
- g) Thus a high-rise building offers residents immediate access to a gathering space without the traffic and noise handicaps that may be associated with horizontal proximity to a gathering place. This proximity provides opportunity for the elderly to seek out the relatively few so similar to them in background and interests that social bonds can develop.

The argument sketched above is clearly incomplete. For example, any implication in the above that the elderly would be willing to mingle in large crowds in a community center or assembly area is incorrect. A community center properly should be thought of as a bazaar with so many subspaces catering to persons with diverse interests and associations that no one group or population segment can dominate the whole. Thus an individual's exposure to an large aggregate should be gradual cumulating through successive encounters with different small groups meeting in community subspaces throughout the day and week.

The lower the elevation of high-density housing, the more dispersed and strung out it must become. In such condition, some persons contiguous to assembly areas or community resources will have advantages of immediate access to people and amenities (as well as possible disadvantages of noise and congestion). Those further away, however, have access to community center resources hindered by space-time barriers, possibly to the extent they will form separate social subcenters in their immediate environs and forego use of community-wide facilities. This phenomenon is common enough and is even sought after and encouraged in housing for clients in younger life stages. Such horizontal dispersion and suboptimization in low-rise construction has the corollary disadvantage that disabled residents must be specially tied to a small subset of the population in the community.

Similar proximity-based curtailment of social contacts also commonly holds for children in suburban subdivisions. Old people who are crippled or chairbound or lacking carfare are like children in the territorial restriction they undergo. The more the territorial restriction, the smaller the proportion of the total residential population that can be contacted. The smaller the population proportion in potential contact, the lower the probability of finding similar and therefore congenial others. Also horizontal dispersal of a high-density low mobile population reduces or eliminates the collective economic advantages of high density, including the support of a wide diversity of amenities by a broad population base.

CONCLUSION

A stereotypic model of the low income old person presents her as faced with personal losses and constraints which call for special housing forms. It is judged that the typical old lady with curtailed income likes to feel near the center of things with a capacity to contribute and receive social involvements but with opportunity for withdrawal and privacy. High rise high density housing would appear to provide those housing attributes.

In summary, vertical stacking of housing areas for the low-income elderly....as occurs with the successive floors of a high-rise building..... allows each area to be contiguous to community amenities in terms of transit times. This contiguity allows economics of large scale use and cumulated consumer support of a wide diversity of amenities. The more the family units so housed, the more self-sufficient the building can become in terms of diverse amenities and activities economically feasible within its walls. The psychological stresses of congestion is diffused by amenities being decentralized into many subspaces interspersed with sociability lounges; by this means, crowds are more or less distributed into small groups that are psychologically manageable. A centralized, compact and mixed distribution of heterogeneous services, amenities, clubs, special interest groups and recreational or lounge spaces permits settings where old people with similar habits, views and values can seek each other out and become friendly acquaintances on the basis of personal common interests...rather than mere proximities. They thereby can achieve heightened participation and interaction rates, and reduced loneliness.

THE EFFECTS OF "ALTERNATIVE RELATIONSHIPS" AND "RELATIVE RESOURCES" ON CONSUMER DECISIONS BETWEEN MOTHER AND CHILD

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Results of survey research indicate that different family members play different roles in purchasing decisions and that this varies considerably across products (Komarovsky, 1961; Sharp & Mott, 1956; Wolgast, 1958). Yet, beyond simple descriptive statements (e.g., "husbands have a greater tendency to be involved in purchasing if the product is high priced and complex," [Engel, Kollat, & Blackwell, 1968, p. 472]), little is known regarding the dynamics underlying such decisions.

Some theorists tend to attribute an individual's influence in certain family decisions to his participation in activities outside the home. For example, Blood (1963) considers social status, educational level, organizational membership, occupational level, and income as "resources" which a person contributes to the family. The more a family member contributes, the greater is his relative influence in family economic decisions.

Others emphasize the availability of interpersonal relationships outside the existent family group as the major determinant of intra-family influence. According to Heer (1963), the person with the most attractive alternatives to the family relationship possesses the greatest influence in decisions. This formulation is similar to Waller and Hill's principle of least interest (1951) and Thibaut and Kelley's comparison level for alternatives (1959). According to these viewpoints, an individual in an interpersonal relationship tends to become independent and exploitive as the attractiveness of the best available alternative increases.

Studies relevant to these two theories (Blood & Wolfe, 1960; Wolfe, 1958) have utilized questionnaire measures of relative influence in household decisions. These studies are inconclusive in several ways. First, alternative relationships are never measured, either in terms of the individual's perception of alternatives or in terms of more objective criteria. If the possibility of terminating a family relationship becomes more feasible with increased relative resources, then the results are capable of supporting either theoretical viewpoint. Second, it is possible that the two factors interact and, when combined, facilitate greater influence than either factor alone. An experimental paradigm in which resources and relationships are effectively manipulated is needed to compare the relative efficacy of the factors.

Most research on family economic decisions has also been limited by focusing exclusively on husband-wife interaction (e.g., Gold & Slater, 1958; Heer, 1963; Wolgast, 1958). Even when children estimate parental power in family decisions (Hoffman, 1960; Straus, 1962), the child's role is usually omitted from presentation of data and discussion or excluded entirely from measurement.

However, studies of purchase behavior suggest that youngsters who are dependent on parental income still influence parental buying decisions. Wells and LoSciuto (1966) observed parents with youngsters in supermarkets. Approximately 60% of the children attempted to persuade their parents to buy a particular brand of cereal, candy, or detergent, and 30% succeeded. Housewives in a Chicago survey reported usually keeping their children's choices in mind as they shopped (Coulson, 1966). More than half of the children between seven

and nine years of age interviewed by McNeal (1969) said that their parents asked them about purchases beforehand.

If economic decisions between an adult and child are incorporated in an experimental format, the limitations noted in previous research can be surmounted. Accordingly, 24 mother-child pairs participated in an experiment to test the following hypotheses: (1) when consumer problems are considered by an adult and child, the child plays a substantial role in determining the outcomes; (2) an individual's influence on economic decisions increases with the resources which he can contribute from outside the interpersonal relationship of the decision-makers; (3) an individual's influence on economic decisions is greater when an alternative decision-making relationship is available to him; (4) an individual's relative contribution of resources and the availability of an alternative relationship will interact to determine his relative influence in economic decisions.

Method

Subjects

Twenty-four children in the fourth grade of schools in West Lafayette, Indiana, participated, each with his own mother. The mothers received a letter asking for their cooperation in a study of buying decisions. Each subject was offered \$1.50 for participating, and each mother-child pair was offered the chance to receive some small consumer good as a prize.

The sample constituted the respondents to an initial mailing of 80 letters. Generalization of results to other mothers and their fourth-grade children must be limited by both the voluntary participation and small number of subjects.

Procedure

Each mother and child responded independently to a 15-item questionnaire about buying decisions. Each item required the subject to provide three (brand, style, or type) preferences, e.g., "If you had the money, what kind of breakfast cereal would you most like to buy? What is your second choice? Third choice?" The mother read and responded to her own questionnaire while a female interviewer read the questionnaire to the child, recording his answers. The pair was then randomly assigned to one of eight cells (four levels of relative resources X two levels of alternative relationships, as described below), after which each pair was asked to provide joint answers to the same questions.

First, incentive was established by informing each subject that one of the 15 product sets was to be selected by chance, and one of the three responses on the joint list would actually be given to the pair. The highest ranked of the three responses had the greatest probability of being selected as the gift, while the third-ranked response had the lowest likelihood of being given away. This served to generate intradyad discussion and negotiations for ranking the three responses to each of the 15 items on the joint list task. Mother and child were each given "chips" in varying amounts (see below), and the member of the pair forfeiting the greater number of non-refundable "chips" for a product set determined the final joint decision rankings.

The experimenter gave the mother an instruction sheet regarding the remainder of the experiment and returned to the child, where she verbally instructed the child. The printed instructions for the mother were as follows:

(In chip conditions): "During the joint decision, you and your child will have some colored poker chips. You will have more, fewer, or the same number of chips as your child. This will be determined by chance selection. With the chips, you can buy a space on an answer list, if you want to. You simply say that you want to place your choice in an answer space. Then tell how many chips you are willing to give to the interviewer to get that space. The interviewer has no chips. The person--you or your child--who puts out the most chips gets to put his choice in an answer place. Once you have put out some chips, you lose these chips. This is true whether you succeed in buying a space or not. No chips are replaced once they are lost. You do not have to use the chips at all."

(In stooge conditions): "You or your child will have the opportunity to make some joint decisions with another interviewer later. The person who is selected will be able to go through again, with the other interviewer, any joint decisions that he chooses. Any decision reached with the other interviewer will become the decision that is used in awarding the prizes. The other interviewer cannot keep any prizes, however."

When the child had indicated that he understood the experimental condition, the mother and child were brought together for their joint decision-making task. The interviewer recorded the responses of each pair of subjects; her comments were restricted to answering questions about procedures.

At the completion of the questionnaire, children were asked if they wanted to re-answer some questions with the other interviewer (i.e., the stooge). The interviewer then stated that the experiment was completed and, when necessary, that no activity with another interviewer would occur. Subjects were asked for their interpretations of the experiment. The necessity of the deception was pointed out within the theoretical context of the experiment. A number was drawn to determine the prize for the pair, and both subjects were paid.

Manipulations

Four levels of relative resources were represented by the relative number of chips which the child possessed. The child possessed 20 chips to the mother's 10 (20:10) in the High condition, 10:20 in the Low condition, 10:10 in the Equal condition, and none (0:0) in the No Chip or Control condition.

There were two levels of alternative relationships. Another interviewer was described as being available to the child for joint decisions (Stooge condition) or went unmentioned (No Stooge condition).

Scoring

Influence scores were based on a comparison of joint responses to responses made by each subject separately on each of the individual questionnaires. The item given as a joint answer was matched, if possible, to the item on each of the individual questionnaires. The pair member who ranked that item highest on his individual questionnaire received the influence score, i.e., credit for having been the influencing agent. The difference between the two individual rankings of the item was determined to be one, two, or three (when one person did not rank that item at all). This number was multiplied by a weight of one, two, or three to determine the influence score for the answer. Each question had three answer spaces for first, second, and third-ranked choices. Any joint answer in the first space received a weight of three, in the second place a

weight of two, and in the third space a weight of one. The highest attainable score on any one answer was nine, representing both a match between the joint answer and that subject's individual answer and a large difference between the subject's and the other pair member's ranking of that answer on their individual questionnaires.

Two zero scores were also used. If the joint response occurred on neither individual questionnaire, both persons received a score of ON (no score-neither). If the joint answer occurred on both individual questionnaires in the same-ranked position, both individuals received a score of OB (no score-both).

The sum of the person's scores across all 15 product sets was his absolute influence score. Several ratios of absolute scores were used to analyze the results.

Results

Manipulation Checks

Following the completion of the joint questionnaire, six of the 13 children in the Stooze condition indicated that they would like to make at least one decision with the other interviewer. The seven negative responses were preceded, in four reported instances, by the mother's comments about the necessity for leaving. The pretext for leaving was highly plausible. Consequently, the manipulation check may inaccurately reflect the effect of the Stooze manipulation during the joint task.

Each interviewer took the time necessary to assure that the child could bargain with the chips. No interviewer encountered a child who did not understand how to use the chips following instructions. Although instructions emphasized that chips did not have to be used, four subject pairs did, in fact, use their chips. None used all the chips.

Child's Relative Influence

For the entire sample, the mean relative influence score of the children, CT/JT, was .4596 (s.d. = .1219). Children contributed almost half of the joint total for the absolute influence scores. For one-third of the children, the ratio of the child's and mother's absolute scores exceeded one; these children influenced joint responses more than did their mothers. In other words, children contributed substantially to the decision outcomes.

Several distinctive demographic characteristics of the sample prevent generalizing to other pairs of mothers and children. With one exception, all mothers contributed nothing to the family income. All were parents of at least two children; the mean number of children was four. Most of the mothers had attended college and most were members of organizations outside the home. Less influence would be expected for a group which was less well educated and less involved in organizations than the experimental sample.

Experimental Effects on Relative Influence

Influence scores were submitted to an analysis of variance for unequal cell sizes (Scheffe, 1949). Table 1 summarizes the results obtained with CT/JT as the dependent variable.

Table 1

Analysis of Variance Summary Table
 Dependent Variable: Child's Relative Influence

Source	df	MS	F	p
Stooge (A)	1	.000094	<1.00	N.S.
Chips (B)	3	.026708	2.49	<.10
A x B	3	.032394	3.02	<.10
Error	16	.010720		

The stooge manipulations had no significant effects. The effects of the chip manipulation and the interaction effects were significant ($p < .10$). The influence ratio was lowest for the Low-chip condition, increased in the Equal condition, and increased again in the High condition.

A separate analysis using the joint total influence scores as the dependent variable indicated that the child's influence increased absolutely as well as relatively. The manipulations did not significantly affect the joint total.

Table 2 indicates that the mother's total absolute influence score was affected ($p < .10$) by the chip factor and marginally affected by interaction between the chips and the Stooge condition. The mother's total is lowest in the High and Control conditions, intermediate in the Equal condition, and highest in the Low condition. Part of the effect of the chip conditions on the child's relative influence is attributable to variation in the mother's influence.

Table 2

Analysis of Variance Summary Table
 Dependent Variable: Mother's Total Influence

Source	df	MS	F	p
Stooge (A)	1	242.67	<1.00	N.S.
Chips (B)	3	1818.78	2.89	<.10
A x B	3	1169.36	1.86	<.25
Error	16	628.91		

Although the child's relative influence did not vary with the stooge manipulations, both the child's and mother's absolute influence for the second group of questions was marginally increased ($p < .25$) by the availability of the "other interviewer." Because similar change occurred for both individuals, the CT/JT ratio remained unaffected.

Presence of the stooge also markedly decreased the number of OB compromises. In an OB compromise, the joint decision represents two identically ranked

initial choices. In Table 3, the dependent variable is the number of OB compromises in the second group of questions. The stooge significantly lowered mean OB ($p < .025$), from 5.5 per mother-child pair to 3.6 per pair when the stooge was available.

Table 3

Analysis of Variance Summary Table
 Dependent Variable: No Score-Both Agree (OB)

Source	df	MS	F	p
Stooge (A)	1	45.35	6.99	<.025
Chips (B)	3	6.31	<1.00	N.S.
A x B	3	1.49	<1.00	N.S.
Error	16	6.49		

Prerequisite for an OB compromise was common use of a brand name by the mother and child on their initial questionnaires. Fewer OB decisions occurred in the Stooge condition even though initial brand agreement was greater for pairs in the No Stooge condition. Mean agreement per pair in the No Stooge condition was 9.1 compared to 7.3 for the Stooge manipulation.

The number of compromises which included no initial choices by participants (ON) did not vary with experimental conditions. Consequently, the noted reduction of OB decisions was accounted for entirely by increased absolute influence for both mother and child.

In summary, results for the entire sample indicated that the children contributed almost as much to the decision as did the mother. In one-third of the cases, they influenced the joint rankings more than their mothers did. Available alternatives marginally affected the child's influence on certain questions and significantly ($p < .025$) lowered the number of compromises in which both participants agreed. Both the effect of relative resources and the interaction effects were significant ($p < .10$) in the expected direction.

Discussion

Experimental results were in the predicted direction--with the exception of the Control condition discussed below. Chip manipulations seemed to be the stronger factor, perhaps because of the visibility of chips during joint decisions. Stooge manipulations were relatively ineffective. Despite the attempt to make her appear compliant, the absentee "other interviewer" probably remained an unappealing entity to the children.

An unexpected finding was that effects of the Stooge condition were confined to the second group of joint decisions. This group of questions apparently encouraged the child to consider using the stooge, who represented a stronger denial of the mother's influence than did the use of the chips. Many product choices for the later questions (Questions 8-22) were designated with precise brand names on the individual questionnaires. With the shift from the first to this second group of questions, the mean use of brand names on first-ranked choices increased from .91 to 6.14 for the children and from .46 to 9.40 for

mothers. The child was arguing, then, for specific products about which he often possessed at least the information of a brand name. In addition, products in the second group were more likely to be won (only two of the first seven questions were part of the drawing for prizes, compared to 12 of the final 15 questions), and this fact was known to the subjects. Thus, greater enthusiasm and desire would be expected for the children for these final questions. They would also be expected to more willingly risk displeasing their mothers by selecting the stooge as a partner. On such a basis, the greater effectiveness of the stooge in the second group of questions is understandable.

Another unexpected finding was that the child's relative influence was greater in the Control condition than in any other chip manipulation. Possibly chips increased the complexity of the experimental task, confusing the child and lowering his effectiveness. (However, the interviewers reported complete understanding of chip usage by children.) Conversely, the mother's effectiveness may have increased when chips were present. In fact, chip conditions significantly affected the mother's total absolute influence.

If lower CT/JT within Control conditions depends largely on changes in the mother's absolute influence, one must speculate about the generality of the phenomenon. A mother may readily understand experimental procedures. But her greater contribution in determining the child's relative influence may also replicate her role in unobserved family situations. Developmental changes in relative influence may depend more on the mother's, rather than the child's, tendencies to relinquish, acquire, and retain influence.

As explanation for relative influence among family members, the concepts of relative resources and alternative relationships are flawed. If placed on the same objective scale of resources and relationships as their parents, children would justify little relative influence. There would also be no way to account for the difference in relative influence between two children who share the same displacement from their parents on such a scale. A theory of intra-familial influence must emphasize resources and relationships as perceived by family members. A single decisive relationship, as in the experiment, may not exist for a child. But other relationships may, to the family, appear to offer differing degrees of emotional support and potential material support for the child.

Reviews of the literature--a cursory one by the present authors as well as a more comprehensive one by Sheth (1970)--reveal not a single experimental study devoted to examining the factors involved in family decision making related to consumer behavior. Perhaps, then, the most noteworthy aspect of the current investigation is not the marginally significant results obtained, but that it provides the first example of how experimentation can be utilized to investigate these factors.

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CHILDREN'S ATTENTION TO TELEVISION ADVERTISING¹

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This paper presents findings from an empirical investigation of the nature of children's commercial viewing behavior. It focuses on understanding the extent and nature of viewing behavior, determinants of viewing behavior, and some short-term consequences of commercial viewing.

Attention to television commercials would seem to be a necessary condition for learning from them, although the low involvement nature of commercial viewing may mean that this learning is relatively gradual, subtle and covert (Krugman, 1965, 1968, 1971). Young children may be especially susceptible to the formation of impressions and attitudes about products, services, and even people, as a function of viewing television advertising. Mass media may be a powerful agent in the socialization process and children may use advertising as a role model in the acquisition of cognitive orientations and skills relating to behavior as a consumer. They may also, of course, use television advertising as a source of information leading to immediate consumption demands (Ward and Wackman, 1971).

Viewing Behavior

Viewing behavior includes several dimensions and characteristics. One dimension is the amount of commercial viewing; a second is the degree of attention to commercials, including the alternative and/or coterminus activities in which a child engages while viewing commercials, such as walking around the room or talking; and a third dimension includes the short-term consequences of commercial viewing, such as product or commercial-related conversations. This paper focuses primarily on the degree of attention and short-term consequences of commercial viewing and does not deal with amount of commercial viewing.

With respect to these dimensions of interest, certain characteristics of the situation are examined, including: (a) elements in the viewing context, including time of day and with whom the child is watching, (b) characteristics of television stimuli, including position of the commercial in the program and type of commercial, and (c) prior viewing behavior and attention to programming.

In outline form then, data were gathered concerning the following aspects of commercial viewing behavior:

Degree of Attention

- . Attention at commercial onset
- . Attention during commercial

Short-Term Consequences

- . Affective verbal comments related to commercial or product

Characteristics or Determinants of Viewing

- . Viewing context (time and day of viewing, with whom child is viewing)
- . Characteristics of Commercial Stimuli (length of commercial, position within programming schedule, object of commercial -- product and brand)
- . Prior watching behavior

Methodology

Since the primary interest is viewing behavior, an observational methodology has been adopted based on Steiner's (1966) study of the viewing behavior of adults. In that study Steiner used college students to unobtrusively observe the viewing behavior of one of their family members over a nine-day period. His data show variations in attention to commercials depending on such characteristics as type and length of commercial, program context, time of day, and sex and age of subject. In addition to viewing behavior, Steiner was also interested in overt reactions, non-verbal reactions, and alternatives to viewing.

The research procedures in the present study follow closely those of Steiner but with some modifications since the context is somewhat different. Mothers of 5-12 year-old children were recruited from women's service clubs sampled from various socio-economic levels in the Boston metropolitan area. The sample is, nevertheless, slightly skewed toward middle and upper socio-economic levels.

The mothers were trained in the use of observation sheets designed to record the various parameters of the viewing situation, the child's viewing behavior and his subsequent behavior. (Exhibit 1 provides excerpts from the training manual). Following training and practice periods, mothers were then instructed to unobtrusively observe a designated child during viewing periods selected by the researchers to represent the child's typical distribution of watching during the week, as previously recorded by the mother. Data were gathered over 10-day periods in April and May, 1971. Each mother observed for a minimum of six hours and a maximum of ten hours during this period.

Of the 180 mothers initially recruited, 135 returned useable observation sheets. The drop in response rate is due to misunderstanding of instructions, failure to observe the child long enough, or simply unwillingness to complete the data sheets. For the analyses reported here, data from the first 65 respondents were coded in three age groups: 5-7 years (n = 29); 8-10 years (n = 18); and 11-12 years (n = 18). A sample of observations was then selected in order to make analysis more manageable, amounting to one-fifth of the total observations. The sample observation base, therefore, includes 6,465 commercials watched by these 65 children during the 10-day period.

Findings

The key data relating to degree of attention and short-term consequences (product or commercial related comments) are shown in Table 1. Marginal percentages of observations are provided for attention to programming just before commercial onset, verbal reaction at commercial onset, attention during commercial and the incidence of verbal comments about the product or commercial.

Exhibit 1

Coding of Commercial Viewing Behavior
(Excerpts from Mothers' Training Manual, Adapted from Steiner, 1966)

I. Behavior Before Commercial Onset

This rating concerns your child's level of attention to television immediately before the onset of the commercial being rated, on the following 3-point scale:

1. Watching - full attention; eyes on set
2. Watching - partial attention; eyes on and off set
3. Not watching TV

II. Behavior at Onset

This scale concerns reactions, if any, to the very beginning of the message. The four possible "at onset" ratings are:

1. Annoyance, dislike ("not another one;" "here we go again," etc.)
2. Relief at break ("oh, good, here's my chance to get . . ." etc.)
3. Pleasure, liking ("now, watch this;" "this is a good one," etc.)
4. No overt reaction

III. Behavior During Commercial

This column relates to the degree of attention to the message itself, according to the following five-point scale:

1. Full attention - stays in chair and watches all or almost all; attention to visual and audio; eyes on set
2. Partial attention - stays in chair but does not pay full attention (turns around, talks, etc.); exposure to visual and audio, but eyes on and off set
3. Gets up but stays in room (gets something, makes phone call in room, etc.)
4. Leaves the room
5. Not in room at onset

IV. Comments on Content

Here emphasis is on reactions to material within the commercial itself, whether form ("cute cartoon") or content ("think I'll try that"). Comments are to be classified according to these four categories:

1. Positive - (cute, interesting, clever, looks like a good idea)
2. Negative (stupid, boring, ridiculous, that looks useless, etc.)
3. Both, or neutral
4. No comments about commercial content

This refers strictly to verbal comments. If your child does not speak about the commercial, record "no comment." The last column refers to the child's comments on the content as recorded in the preceding column. If it is clear whether the negative or positive reaction is for either the specific product (P) or the format of the commercial (C) mark this accordingly.

The data indicate that children in the two youngest age groups (5-7, 8-10 years old) pay somewhat greater attention to programming than children in the older group (11-12 years old). Furthermore, the incidence of paying "no attention" to prior programming increases with age. Steiner (1966) found that adults paid full attention to prior programming in 70% of observations of network commercials -- a distinction which is no longer valid. This compares to children in the younger age groups paying full attention to prior programming in 58% of the observations and children in the oldest age group paying full attention in 50% of the observations. These data do not suggest that children are "entranced" by television relative to adults, although, of course, they could still be more susceptible to influence despite levels of attention.

At commercial onset, the most common observation is that the children do nothing, although older children are slightly more likely to express a "dislike" reaction ("oh no, not another one"), whereas younger children (under 10 years old) are somewhat more likely to express a liking reaction ("now watch this;" "this is a good one" etc.). The data indicate that the children engage in some behavior -- liking, disliking, or take a break -- about 25% of the time. Steiner's data (1966) indicate that adults engage in similar behaviors at commercial onset only about 10% of the time. This comparison would not seem to be in-line with the contentions of some social critics that children are unable to distinguish between programming and advertising fare. The relative degree of liking commercials by younger children versus older children does, however, indicate less cognitive resistance and perhaps the potential for greater influence.

During the commercial "full" attention decreases with age, although "partial" attention increases slightly. Talking with others during commercials occurs most often among the oldest children. Compared with Steiner's data (1966), adults and the two younger age groups exhibit comparable incidences of "full" attention during commercials. The 11-12 year-olds, however, exhibit far less "full" attention during commercials.

Regarding subsequent verbal behavior about the product or commercial -- what has been designated as "short-term consequences" -- the data in Table 1 indicate that younger children are somewhat more likely than the oldest children to make some comment. The overall frequency of verbal comments is slightly greater than observed among adults in Steiner (1966). Furthermore, younger children are considerably more likely to make positive or neutral comments and less likely to make negative comments than older children. This again suggests the lack of resistance to persuasion on the part of younger children. Finally, comments by younger children are more likely to be about the product than the commercial.

The overall attention profile, therefore, shows younger children to be more intent on prior programming, more receptive to commercial interruptions, devoting more full attention to commercials, and commenting more about the product and in a more positive manner than older children. The data seem to suggest that younger children (5-10 years old) have not yet developed cognitive resistance to commercials and may, therefore, be more persuasible. There is no indication that younger children are unable to distinguish program and advertising fare.

Table 1

Viewing Behavior: Degree of Attention and Verbal Comments

	Age Group		
	5-7 yrs.	8-10 yrs.	11-12 yrs.
<u>Attention Levels and Verbal Comments</u>			
<u>Attention Before Commercial</u>			
Full	58%	58%	50%
Partial	23	21	25
None	19	21	25
	<u>100%</u>	<u>100%</u>	<u>100%</u>
<u>Verbal Comments at Commercial Onset</u>			
Dislike	2%	3%	8%
Break	5	7	6
Like	14	16	9
Nothing	78	75	77
	<u>100%</u>	<u>100%</u>	<u>100%</u>
<u>Attention During Commercial</u>			
Full	50%	46%	33%
Partial	16	22	25
Up, in room	9	6	6
Talks	18	15	25
Up, leaves	4	4	5
Not in room	4	7	6
	<u>100%</u>	<u>100%</u>	<u>100%</u>
<u>Verbal Comments About Product or Commercial</u>			
Positive	12%	13%	8%
Negative	2	4	6
Neutral	7	7	4
None	79	76	83
	<u>100%</u>	<u>100%</u>	<u>100%</u>
	(570)	(350)	(348)
Total			
Product-Related Comments	60%	56%	51%
Commercial-Related Comments	40	44	49
	<u>100%</u>	<u>100%</u>	<u>100%</u>
	(63)	(41)	(41)
Total			

Determinants of Viewing: The Context

One contextual variable which could affect attention to commercials is the time during the week when children are watching. The two peak viewing periods are Saturday mornings and early weekday evenings. Analysis comparing these two time periods indicates that older children pay less attention to Saturday morning programming (38% "full" attention) than early weekday evening programming (61% "full" attention). This may reflect their increasing sophistication and the fact that Saturday morning programming may be aimed at a younger age level.

Again, older children make more "dislike" comments at commercial onset on Saturday morning (20%) than on weekday evenings (6%). A similar attention pattern holds during the commercial; older children pay "full" or "partial" attention to 69% of weekday evening commercials but only 53% of Saturday morning commercials. This pattern among older children may reflect their lessening interest in "kid's products" or their satiation with such advertising and their developing interest in more "mature" products. This interpretation is difficult to uphold, however, since older children made positive verbal comments about 21% of the Saturday morning commercials, versus only 7% for the weekday evening commercials. However, they also made negative comments about 14% of the Saturday morning commercials, versus only 7% of the weekday evening commercials.

A further aspect of the context which should affect viewing behavior is the number and types of people who are watching television with the children. A limitation of this study is that the child's mother became a de facto viewing companion since she had to be present to unobtrusively observe the child. Thus, no data are available concerning the child's viewing behavior when he watches alone.

Data in Table 2 suggest that although the incidence of "family" viewing (in the presence of father and siblings, as well as the mother) increases with age, paying full attention to commercials during family viewing decreases with age. One interpretation of this finding is that older children use the occurrence of family viewing for interpersonal communication and that commercial interruptions provide the best opportunity for such interaction. This again indicates the older child's ability to divorce himself from commercial messages.

Determinants of Viewing: Characteristics of Television Stimuli

Several aspects of television stimuli were related to viewing behavior. A first characteristic is the length of the commercial (10, 20, 30, and 60-seconds). Data presented in Graph 1 indicate that the oldest children pay full attention to commercials less than the younger children, regardless of commercial length. It is conceivable, however, that this result could be a manifestation of the ease in coding attention levels to longer commercials. Within all three age groups, least attention is paid to 10-second commercials. With the exception of the youngest age group, attention tends to increase by length of commercial.

A second characteristic of television stimuli is the position of a given commercial within a "block" of commercials. Data in Graph 2 indicate that attention level decreases significantly during subsequent commercials for all

Table 2

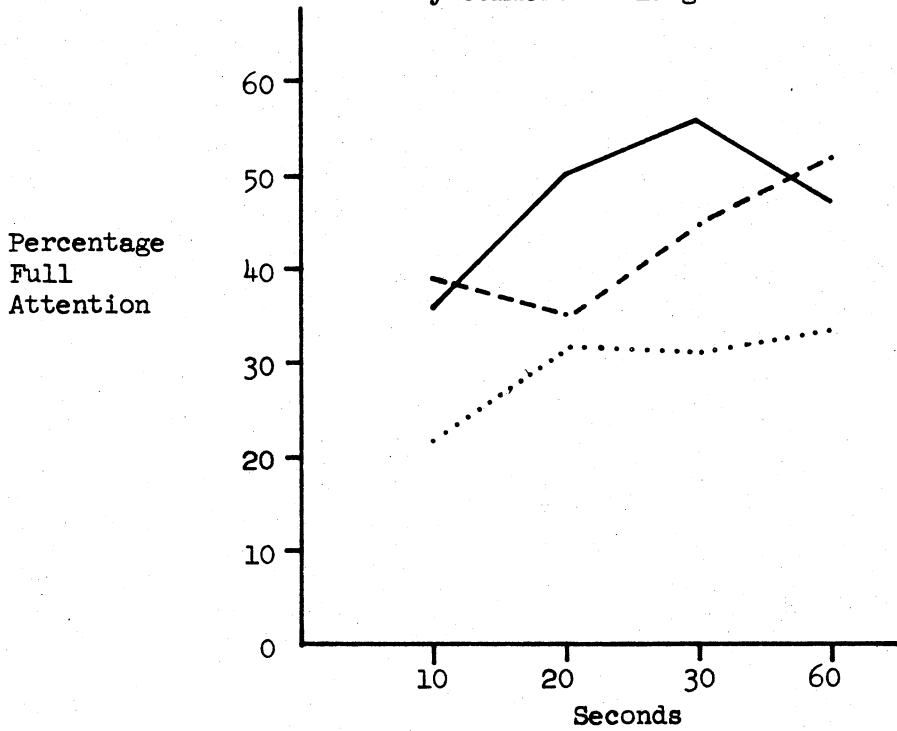
Viewing Behavior: Attention Levels While Watching With Other Viewers

Viewing Behavior During Commercial	Other Viewers Present											
	Mother Only		Sibling(s)		Father		Father and Siblings					
Age Group	5-7	8-10	11-12	5-7	8-10	11-12	5-7	8-10	11-12			
Full Attention	47%	39%	36%	49%	46%	35%	47%	43%	22%			
Talking (exclusive of product or commercial)	16	16	19	19	14	24	27	25	22			
Other (partial attention or no attention)	37	45	45	32	40	41	26	32	56			
Total (N)	100% (148)	100% (51)	100% (69)	100% (350)	100% (213)	100% (190)	100% (151)	100% (28)	100% (23)	100% (63)	100% (59)	100% (76)

Note: Percentage of viewing observations while watching with others by age group is as follows: 5-7 year-olds -- mother only 26%, sibling(s) 60%, father 3%, father and siblings 11%, total 100%; 8-10 year-olds -- mother only 15%, sibling(s) 60%, father 8%, father and siblings 17%, total 100%; 11-12 year-olds -- mother only 19%, sibling(s) 54%, father 6%, father and siblings 21%, total 100%.

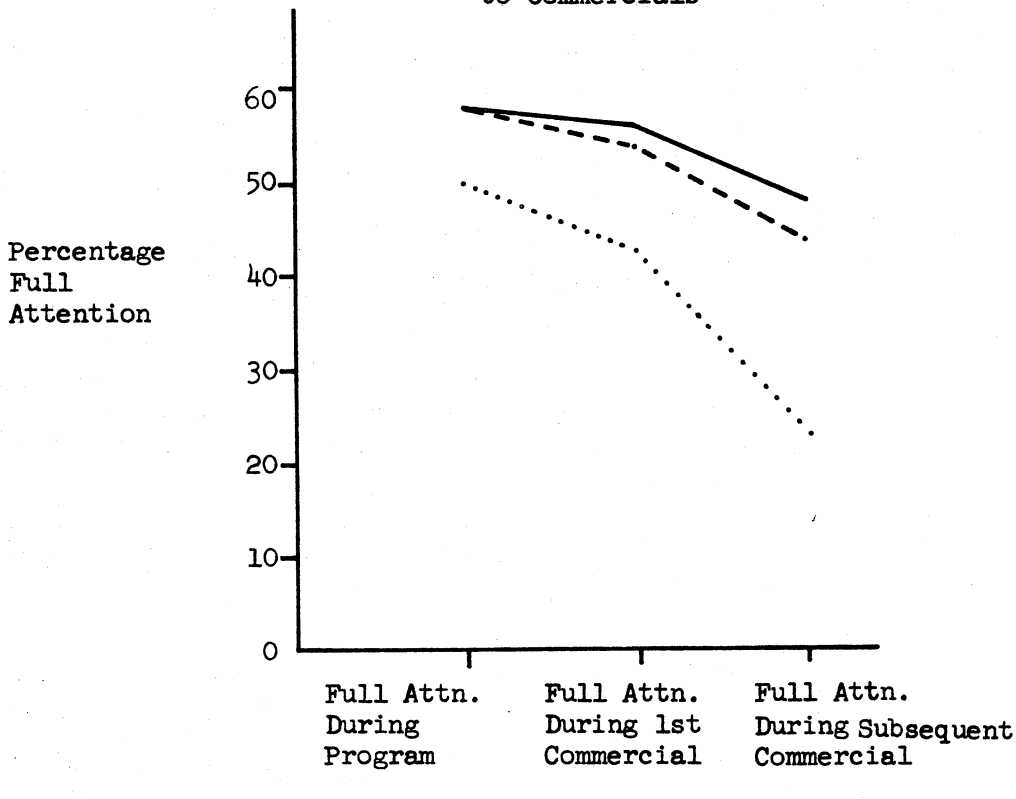
Graph 1

Full Attention to Commercials
by Commercial Length



Graph 2

Full Prior Attention to Program
and Full Subsequent Attention
to Commercials



5 to 7 —————
 8 to 10 - - - - -
 11 to 12

age groups. For the oldest age group, however, attention level decreases most precipitously; full attention falls from 50% for the program to 43% for the first commercial to only 24% for later commercials. The youngest children have a full attention rate of 57% for the program, which decreases to 55% for the first commercial, and 46% for later commercials. The youngest children would seem to be more passive and willing to accept a string of commercials.

Analysis of results by the position of the commercial in the program (beginning, middle, or end) indicates that the frequency of full attention for all three age groups is greatest for commercials at the beginning of the program (Graph 3). In addition, the oldest children show the severest drop in full attention to commercials as the program progresses. The continuing high attention level to commercials at the end of the program by young children may indicate that they are not aware of when the show is ending. Further evidence for this conclusion is that only 26% of the youngest children have left the room or are talking during commercials at the end of the program, compared to 36% of the 8-10 year-olds and 47% of the 11-12 year-olds.

A final characteristic of television stimuli is the product category advertised and its effect on attention level. However, due to the wide variety of products and the different viewing times age groups, cell sizes would not permit meaningful analysis of attention levels by specific product categories. Some analysis is possible by combining product categories and focusing on those occurring most frequently. Data in Table 3 indicate attention to prior programming and viewing behavior during commercials for what have been labeled "more relevant" and "less relevant" product categories. The more relevant category includes food items whereas the less relevant category includes health and beauty aids and household cleaners.

Analysis of viewing behavior before food commercials indicates that the younger two age groups paid more attention than 11-12 year olds. The pattern is just the reverse for viewing behavior prior to commercials for less relevant products, probably reflecting the different program contexts for those types of commercials. The less relevant products are perhaps advertised during adult programming, which is more engaging to older children.

The drop in full attention during the commercial is roughly equivalent for all three age groups for food commercials. However, as Graph 4 indicates, children in the 5-7 age group actually increased their attention during less relevant commercials over their attention to prior programming. As age increases, attention to the "less relevant" commercials decreases.

This finding illustrates the danger of attempting to assess the "relevance" of types of advertising for children. If one defines relevance of products in terms of a child's direct consumption of them, and/or his ability to directly buy them, then clearly food products are more relevant than commercials for health and beauty aids and household cleaners. However, it may be that children are so familiar with food products -- through advertising exposure, direct consumption, and intra-family communication -- that advertising for food products is actually less relevant than advertising for products associated with adult roles. If one defines "relevance" in these terms -- products which illustrate

Table 3

Relevance of Product Category, Attention to Prior Programming, and Subsequent Attention During Commercials

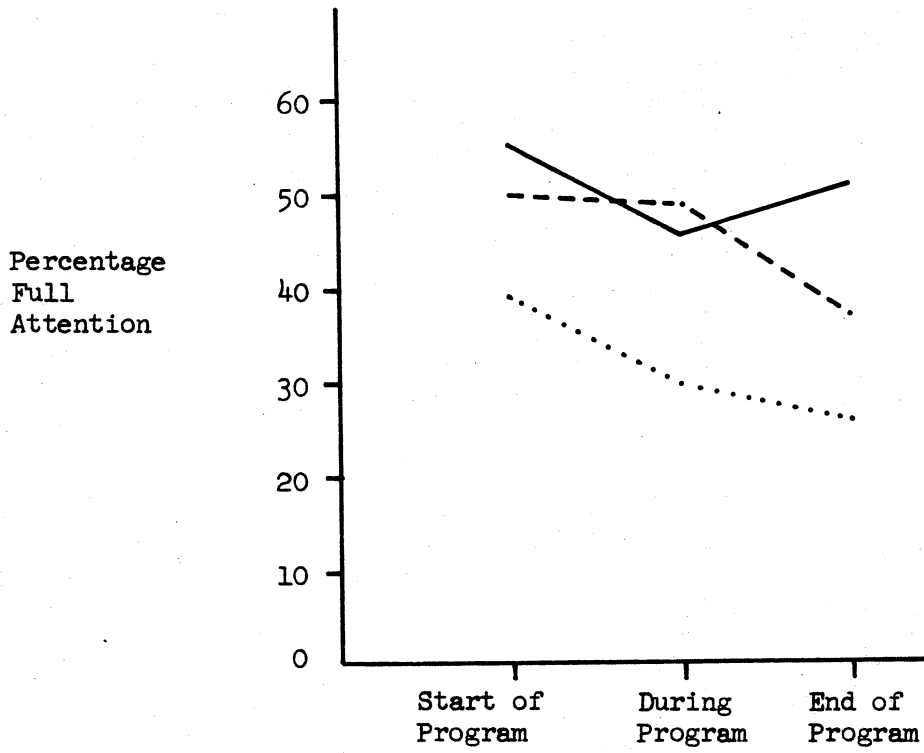
Attention Levels	Relevance of Commercial Product Category					
	More Relevant*			Less Relevant**		
Age Group	5-7	8-10	11-12	5-7	8-10	11-12
Full Prior Attention	61%	61%	46%	44%	54%	61%
Partial Prior Attention	22	19	27	27	20	15
No Prior Attention	17	20	27	29	26	24
Total (N)	100% (193)	100% (98)	100% (95)	100% (63)	100% (82)	100% (62)
Full Attention to Commercial	52%	47%	35%	46%	40%	33%
Partial Attention to Commercial	19	24	26	21	24	22
Talking During Commercial	12	14	23	16	23	19
Other	17	15	16	17	13	26
Total (N)	100% (193)	100% (98)	100% (95)	100% (63)	100% (82)	100% (63)

*More relevant product category includes mainly food items.

**Less relevant product category includes health and beauty aids and household cleaners.

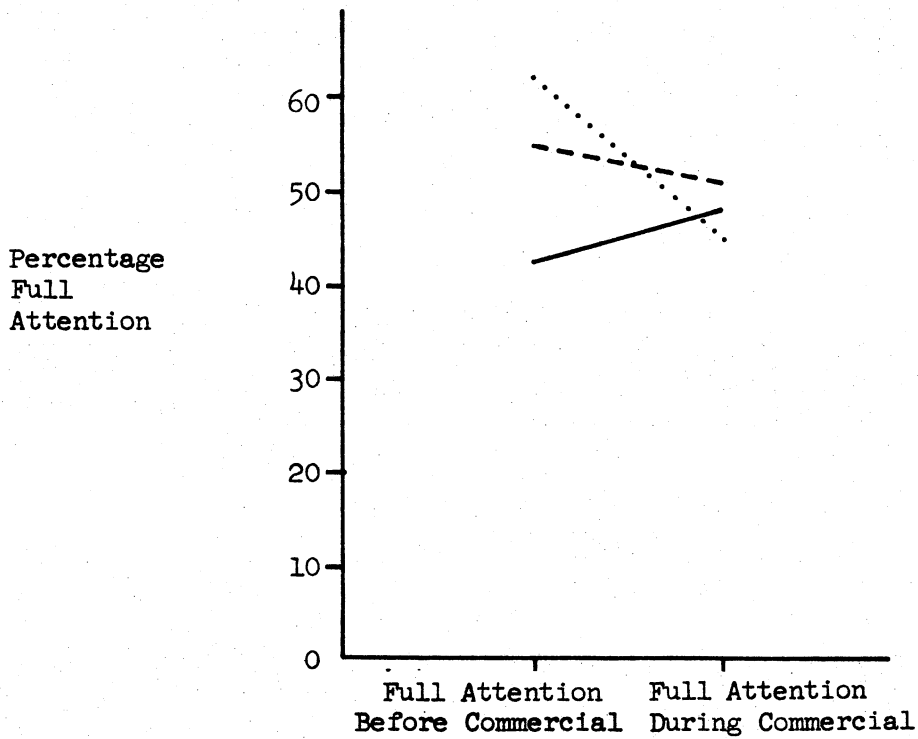
Graph 3

Full Attention to Commercials
by Position in Program Context



Graph 4

Full Attention to the Program
and "Less Relevant" Commercials



5 to 7 _____
8 to 10 - - - - -
11 to 12

adult roles -- then our "less relevant" product category is actually the more relevant category. The complexity of this line of reasoning, however, is reflected in the difference in results by age group and clearly more research is necessary.

Determinants of Viewing: Prior Viewing Behavior

A further determinant of commercial viewing behavior is the behavior of the child just prior to commercial exposure. Data in Table 4 indicate that, among children paying full prior attention to programming, full attention falls off during commercial exposure for all age groups. The smallest drop in full attention is among the 5-7 year olds, whereas the greatest drop is among the 11-12 year-olds. Older children are more likely to engage in other behaviors -- partial watching, getting up and moving around the room or leaving the room or talking -- than younger children.

An observation commonly made in the popular media and among commercial television's critics is that young children actually pay attention to commercials when they were not paying attention to prior programming. Data in Table 5 do not support this generalization. Of the observations of children who were paying no or partial attention to the program, only 12% of the subsequent observations indicated an increase to full attention during the commercial; there were no differences among children of different ages.

Conclusion

This paper has focused on the commercial viewing behavior of young children with particular emphasis on degree of attention to commercials and any resulting short-term consequences in terms of affective comments related to the product or commercial.

A number of general tendencies in viewing behavior have emerged.

- . Children's attention levels fall when a commercial is shown.
- . Attention continues to decrease during later commercials in a "block."
- . Full attention is greatest to commercials at the beginning of a program and declines for commercials shown during or at the end of a program.
- . There is a tendency for attention levels to be higher for longer commercials (60-second) than shorter commercials (10 and 20-second), although this may be a manifestation of the ease in coding attention levels to longer commercials.
- . Verbal comments about the product or commercial are infrequent, but positive comments are more common than neutral or negative ones; comments are more likely to concern the product than the commercial.

Despite these general tendencies, some important differences occur by age.

- . Older children pay less attention to commercials than the younger children and exhibit more negative and sophisticated reactions to television advertising.
- . Decreases in attention from programming to initial commercials to later commercials are substantially greater than for younger children.
- . Older children talk more during commercials but make fewer comments about the product or commercial. Comments are almost as likely to concern the commercial as the product and negative comments are almost as frequent as positive comments.

Table 4

Prior Viewing Behavior: Attention During Commercials
Among Children Paying Prior Full Attention to Programming

Subsequent Attention to Commercials	A g e G r o u p		
	5-7 years	8-10 years	11-12 years
Full Attention	78%*	70%	57%
Other (partial attention and no attention)	22	30	43
Total (N)	100% (329)	100% (201)	100% (180)

*Read: Of all observations among 5-7 year old children paying prior full attention to programming, 78% of the subsequent observations indicated that these children continued to pay full attention to commercials.

Table 5

Prior Viewing Behavior: Attention During Commercials Among
Children Paying Partial or No Attention to Programming

Subsequent Attention to Commercials	A g e G r o u p		
	5-7 years	8-10 years	11-12 years
Full Attention	12%*	13%	12%
Partial Attention	29	30	37
Other	59	57	51
Total (N)	100% (244)	100% (148)	100% (127)

*Read: Of all observations among 5-7 year old children paying partial or no attention to prior programming, 12% of the subsequent observations indicated that these children reached full attention during commercial exposure.

The profile which emerges is of older children jaded to commercials and paying less attention to them and making fewer comments about them -- especially positive comments. Two important indications of the changing nature of commercial impact among the 11 and 12-year-olds are their greater withdrawal of attention to commercials which occur during the program and their increased focus on the commercial itself, rather than the product advertised. The ability to make the product-commercial distinction adds to the immunity of older children to resist involvement in the ongoing scenario.

Thus, differential behavior in viewing is indicated by age level. Older children have clearly developed a greater cognitive resistance to commercials in the form of lower attention and more critical reactions to advertising messages. Younger children (5-10 years-old) are not as well immunized and would appear to be potentially more persuasible. Although there is no indication that younger children are unable to distinguish between program and advertising fare, there is less resistance to commercial interruptions. The television medium is much more of a "massage" for younger children and they play a more passive role.

Footnotes

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STATUS OF PROCEDURES FOR CONSUMER RECOURSE

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As the concerns of the consumer have gained political favor, we find reference made increasingly to the cause of consumer protection or an even more powerful action -- consumer recourse. The implication is that the consumer has avenues to protection open to him through the market system and/or through governmental agencies. The President's message to Congress on February 24, 1971 proposed additional measures.² State legislatures cannot afford to ignore the cause. But before laws are passed or business policies adopted, it behooves us to take account of the existing situation. Unless we understand what now can be done on behalf of the consumer, it is difficult to judge the feasibility of various proposals.

The discussion to follow will include two major elements: (1) a review of consumer protection afforded by existing federal agencies, and (2) suggested approach for the development of effective recourse for the consumer. First, let us state what we mean by protection.

Protection may be defined as safety from injury or harm. Several types of harm or injury may come to consumers, one of which is economic injury. One might wish to term it more explicitly as monetary injury. Protective action may function to avoid injury which casts the appropriate action in a preventive role, or the action may involve seeking remedies for injuries sustained. We shall attempt to identify either type of protection -- preventive or remedial -- as it may be provided by various federal agencies.

Protection Afforded by Federal Agencies

A few months ago the Congressional Quarterly studied federal agencies for their consumer responsibilities.³ Thirty-nine agencies and departments have scattered among them a variety of activities that relate to consumer affairs. Many of the functions relate to the consumer and his welfare only indirectly. The list of 39 agencies was screened for functions that might be construed as relating to consumer protection of either the remedial or the preventive type. By employing a liberal interpretation for protection as the accepting of consumer complaints and any purported efforts on the part of the agency to do something about them, the list is narrowed to five agencies. If we consider consumer protection from the standpoint of providing relief from monetary harm, we find that no federal agency offers such protection.

The five agencies which acknowledge consumer complaints and around which my remarks will center are:

- a) the Federal Communications Commission
- b) the Federal Housing Administration
- c) the Federal Trade Commission
- d) the Food and Drug Administration
- e) the Post Office Department

A few other agencies may receive attention in passing as the discussion develops. The protection afforded by the agencies falls within rather narrow limits. Let us look at each, individually.

Post Office Department. The Post Office Department carries out one of the oldest laws to protect the consumer. That law pertains to the use of the mails for criminal fraud -- a statute which was adopted in 1872.⁴ A second facet of the postal regulations which assist consumers is the false

representation statute which denies receipt of remittances for products or services⁵ by those who are using the mails to misrepresent their product or service. The department is active in the prosecution of those entering into fraudulent activities and using the mails to promote these activities.

We find, further, that the postal reorganization act is designed to treat the problem of unsolicited merchandise. Probably each one of us has at sometime or other received such merchandise through the mails. Section 3009 of the Postal Reorganization Act provides that unsolicited merchandise may be treated as a gift by the recipient to whom it is mailed.⁶ The sender of such merchandise should attach to it a clear and conspicuous statement informing the recipient that he may treat the merchandise as a gift, that he has the right to retain it, use, discard or dispose of it in any manner that he sees fit without any obligation whatsoever to the sender. Because of this particular section in the Postal Reorganization Act, the Federal Trade Commission decided to drop its proposed Trade Regulation Rule on this same class of merchandise.⁷

Notice, however, that none of these activities is designed to restore value lost by anyone falling victim to any of these practices.

Federal Trade Commission. In addition to the trade regulation rule mentioned above, the Federal Trade Commission issued another such rule effective May 18 of last year. That Rule restricted the mailing of credit cards to individuals without first receiving an expressed written request from the party.⁸ The Rule is intended to include the credit cards issued by banks as well as merchandisers. This facet of the rule has been challenged by other agencies (notably the Federal Reserve Board) and the FTC plans to attack ". . . bank and carrier card issuance on a case-by-case basis."⁹ An example of the rule's effectiveness was manifest recently when ARCO (Atlantic Richfield) sent me a simple form on which to list only my name and address and that would constitute my request for their credit card.

The trade regulation rule was offered on the premise that the mailing of unsolicited cards constitutes an unfair method of competition which is in violation of Section 5 of the Federal Trade Commission Act (see Reference 8). This course of action is relatively simple and yet only came after lengthy hearings, numerous bills having been introduced into Congress and lost somewhere in committee and battle lines being drawn among several agencies. The rule was one of the positive steps taken during Chairman Weinberger's short six months as Chairman of the FTC.

In contrast to earlier stances by that organization, the FTC has made a new interpretation with respect to individual complaints -- or as the Commission refers to them "complaint applications." From the Commission's inception, individual consumer complaints served only in developing cases leading to cease-and-desist orders. Involvement in interstate commerce or significant public interest were the criteria for cases to which the commission responded until the Chairman directed that all complaints be referred to someone who could do something about the matter.¹⁰

Another recent innovation of the FTC was the establishment of a position known as the consumer protection specialist. The main concern of these individuals will be to deal with complaints of consumers, with consumer education and consumer counselling (see Reference 10). The job description carries a promising note in that "[u]ltimately [the consumer protection specialist] will be working . . . to resolve all types of consumer problems in their incipency [p.2]."¹¹

For anyone who has read the rather discouraging report on the Federal Trade Commission by "Nader's Raiders," the actions just mentioned represent a distinct change of heart.¹² The Chief of the FTC Consumer Protection Bureau

has stated publicly that the agency should act aggressively and use the powers it already has. He feels that new laws are unnecessary to make the agency effective.¹³ In its pamphlet entitled "Fight Back!! The Ungentle Art of Self Defense," the Federal Trade Commission is indicated as your fourth line of defense if you have been gypped.¹⁴ Hopefully, the new stance of the FTC will reduce the steps in the process.

Food and Drug Administration. A third agency assigned to follow up consumer complaints is the Food and Drug Administration. Such complaints are used in the investigations carried on by that particular agency against manufacturers, processors, etc. If violations of its regulations are found, then cases are referred to the Justice Department for prosecution or for injunctions (see Reference 3). With this approach to complaints, we find some action of a preventive nature in that it may protect future consumers but which in no way alleviates the injury that has come to those earlier consumers.

Similar to an arrangement used by the FTC, the FDA has phone numbers available in at least eight cities for the registering of complaints. The agency uses a consumer phone service to offer recorded messages of interest to consumers (see Reference 3).

Federal Housing Administration. The Federal Housing Administration is expected to investigate any consumer complaints that come to it in addition to providing advice on prospective purchasers of houses or home improvements. The effectiveness of this approach to complaints may be reflected by the potential penalties that may be assessed to wrongdoers. If a complaint is found to be warranted, the FHA requests the builder to correct the situation. If he fails to do so, he may -- I repeat, may -- be denied future FHA assistance (see Reference 3). Here again, restitution is not required, but it is somewhat encouraged.

Federal Communications Commission. The Federal Communications Commission, listed as an independent agency, is responsible for holders of radio and television licenses operating in the public interest. The agency is asked to investigate complaints from the public with respect to whatever is aired by these media. The ineffectiveness of the FCC is described candidly in an article in Harper's entitled "American Radio Today: The Listener be Damned."¹⁵ Many of the complaints that were registered against radio and television in the early 60's remain valid today. The FCC is responsive to the communications media which, as rightfully criticized by Leland J. Gordon¹⁶, turns out to be a handful of very powerful men.

One may wonder why the concern with what comes over the air waves, When we recognize that a substantial number of messages received over radio and television relate to our consumption activities, the concern is understandable. Claims of advertisers may be drawn under closer scrutiny in the future.¹⁷

Other agencies are worthy of mention, not so much for what they do, but more for what they fail to do. One of these is the Interstate Commerce Commission. Anyone who has moved in the last half century can testify to the many difficulties encountered by the householder who moves with a commercial mover. The Interstate Commerce Commission's charge is to assure reasonable transportation charges and efficient service. But when we check on how the agency is to perform that charge, we find that: (1) ". . . it requires motor carriers to maintain insurance to cover. . . damage to goods, and (2) under the Truth-in-Lending Act of 1968, requires that ICC supervised carriers, when acting as creditors, inform their customers of all conditions of a credit arrangement [p.2356]," (see Reference 3). It is difficult to equate these two elements -- providing insurance and information on credit

particulars -- with efficient service. The irony of the latter requirement is that movers seldom grant credit to an individual being moved. The almost universal requirement to pay the bill in cash before the mover will unload the goods, in many instances, leaves the consumer without leverage for settling damage claims. The net effect is to diminish the value of the insurance covering such damages which the carrier is required to maintain.

One of the most recently designated agencies is the National Commission on Consumer Finance which was created by the Consumer Credit Protection Act of 1968 (Truth-in-lending). The Commission which was to study the credit situation and make recommendations for its governance was to have been composed of three members of the House, three members of the Senate, and three persons appointed by the President from private life. The Commission has not begun to function because neither President Johnson nor President Nixon appointed a chairman for the commission (see Reference 3). An important example of what a powerful force inaction can be.

Of the agencies reviewed, then, five receive complaints but none can assess penalties which will compensate the injured consumer. The sanctions which may be levied by the government against the business engaged in the injurious practice, often times, are so limited that the seller is in no way encouraged to reform. The current situation is void of concrete avenues for recourse. The governmental agencies have no power to act on behalf of individual consumers; business firms have sufficient power not to act if they so choose. This state of affairs requires adjustment. However, changes should not be made lightly. Although the discussion thus far has concentrated on federal agencies, the government -- and more particularly, the federal government -- is not the only avenue for protection of the consumer.

An Approach to Effective Consumer Recourse

Most students of the subject agree that a system that truly protects consumer interests has three components: (1) an information and educational component, (2) channels in the market system through which restitution can be effected, and (3) market rules which encompass the legislative and regulatory aspects.^{18,19} The last mentioned of these components -- market rules -- derives power from the government. Because of this fact, that component is unique in that the state (government),²⁰ as so well set out by George Stigler, has ". . . the power to coerce [p.4]." This characteristic requires, therefore, that the power be used with discretion and fairness. Our preceding discussion intimates that some of the current rules give an advantage to the producers and/or marketers. Before changes are effected, however, we must have more accurate information than we now possess to adequately judge the direction that changes should take.

Within the last five years, each of the three persons who has served the President as Special Assistant for Consumer Affairs has illustrated public statements with complaints received -- and selected, seemingly, for their potential impact.^{21,22,23} None of these statements has included the frequency of the complaint or its economic magnitude. No other data have been encountered in our searches. Change should not be predicated solely on the presence or absence of complaints but rather on its potential benefit to the society as a whole. Although it is the consensus of many that a need for redress exists, the ". . . need is neither well identified nor clearly defined [p.136]." ²⁴ It is imperative that research into these matters precede proposals for change, especially as the proposals may pertain to legislative action. Studies of the economic gains and losses that could evolve from proposed changes should provide information useful also to the business community in establishing policies of a voluntary nature.

The need for action in the business community stems from the present imbalance of power in its favor. The traditional avenues of recourse through business and industry have diminished in effectiveness with the changing character of the economy. Urbanization, the increasing size of economic units and the complexity of the consumer goods market have contributed to a relative decline in the power of the consumer. The strength of competitive forces affects the degree of outside control that is necessary for an orderly market that assures economic justice. The present void of avenues for redress through the market system means that stronger controls are required to effect a balance between the consumer and producer. Therefore, the business community stands to gain from its own efforts to develop avenues for informal resolution of disputes and grievances. Such developments would reduce the need for legislative reform. Although no data are available to support the contention, the directness of an approach through the business system should have cost advantages over the more circuitous legislative route. Furthermore, a problem resolved in the market should have educational value and the longer-range impact associated therewith, whereas legislation has been likened to the shotgun approach (see Reference 19).

Since the educational component of the consumer protection process is deemed to be a long-range technique, we should recognize its contributions to the system. Education can be acknowledged as investment in the human agent.²⁵ Consumer education, therefore, becomes an investment in the individual for his role as a consumer. Rather than enumerate the traditional interpretations of consumer education, let us focus for a moment on an oft neglected aspect related to an understanding of economics and market processes and to the recognition that market structures can be affected by the consumer. The consumer can influence market procedures. The importance of such education and its use is related to the maintaining of a balance of power within the market system. The relationship between competition and regulation has been recognized. The theory of markets reveals that firms in the main are confronted with some form of imperfect competition -- something less than free competition and something more than monopoly. Literature, especially that for lay consumption, abounds with the term "free enterprise" oftentimes used in describing our market system as synonymous with free competition. Only when this misconception is corrected will we find consumers making full use of their market power.

Although investment in consumer education can have a social as well as a private return, no data have been generated to measure such returns. Measurement of returns on the investment would call, likewise, for a measure of the investments. Consumer education finds itself competing with the general and vocational education for the resources of the individual. Priorities assigned to these categories of education will differ among individuals, but consumer education traditionally has not fared as well as vocational education. Indeed, the 1968 amendments to the Vocational Education Act relegate consumer education to subcategory status.²⁶ Before any significant policies related to education are undertaken, some input by the researchers is in order.

Another device which can figure in the protection of consumers is the small claims courts. The statutory provisions outlining the judicial process for small claims determine whether such departments assist or deter consumer protection. For example, the small claims departments in the State of Oregon are required to handle all claims of \$20 or less. Controversies involving greater amounts up to \$200 may be handled through the small claims department or at the time of the hearing, the defendant may elect to have the cause tried in the district court.²⁷ Although Oregon law does not permit attachments (before hearing action) to be issued for small claims, a judgment can be

issued and serviced for the payment of \$1 if the case is decided in the plaintiff's favor (see Reference 27). The relatively narrow dollar limits for cases to be tried in small claims courts as well as other provisions of the statutes reduce the effectiveness of this mechanism. The Attorney Advisor for the Federal Trade Commission contends that under current provisions, many ". . . small claims courts are simply collection devices for the easy credit merchants [p.2]."²⁸

Small claims and other "consumer courts" can be devised whereby a nonprofessional will find it possible to go before such a tribunal for relief whenever his complaints have been substantiated. Such a device which would not require the services of an attorney would meet the criteria of economic feasibility. The small claims departments are created by legislative action as channels through which disputes may be mediated. So we find a blend of the second and third components of an effective system for consumer protection.

In recapping the recommendations for establishing effective recourse for the consumer, we find that the need for information to guide our actions is overwhelming. Empirical data are missing with respect to existing laws. We do not know exactly where changes are needed or what form they should take. Costs and benefits have been neither identified nor measured. These measurements would have merit not only for the drafting of legislative proposals but also for the development of policies in the business community. Research into the return on investment in consumer education should precede any substantial policy development with respect to educational programs.

In light of the consumer protection situation as it exists at the national level, we find that a future course of action for effective protection of the consumer should include the following elements:

- a) proposed changes in market rules in light of research findings, including cost and benefit estimates,
- b) establishment of channels for the informal resolution of disputes and grievances through the market system,
- c) an expansion of educational efforts to include an understanding of the consumer's ability to influence the market structure by his economic actions,
- d) modification of the judicial process so that the cost of adjudicating claims is economically feasible.

It is imperative that meaningful research be undertaken to generate data related to each of these items. Unless data are obtained, no basis exists for recommending changes or for judging the feasibility of changes recommended by others. The challenge for improving avenues for consumer protection is ours.

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A SEARCH FOR MODELS OF CONSUMERS UNION'S BRAND EVALUATION:
A MULTIDIMENSIONAL APPROACH¹

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An ever increasing technology complicates the consumer buying decision. The recent growth in consumerism reflects the consumer's need for reliable and valid information to enable him to maximize his well being in a complex society. The consumer has five sources of information when making a buying decision: personal (experience), commercial (manufacturer and retailer promotion), interpersonal (opinion leaders, neighbors, and friends), government, and independent consumer rating services. While consumer rating services have met part of the demand for technological information they have not fulfilled their potential because they do not report the model they use to evaluate brands. Furthermore, their reports are rendered obsolete by model changes in the brands evaluated by them.

Without the evaluation model employed by the rating services such as the Consumers Union the consumer cannot integrate the information from all of these sources, thereby making a decision to meet his personal preferences. He is implicitly led to accept the judgment of the rating services in their selection and weighting of attributes. He must postpone his purchase until the services evaluate new products or he must forego the advantages of new products and purchase those which have been rated previously. He cannot evaluate objectively brands not covered by the services, such as regional brands. In short, failure to disclose fully the brand evaluation model limits the consumer's ability to be a better shopper. Furthermore, it benefits the manufacturer who is able to reconstruct it from reported data thereby inhibiting competition through meaningful product improvements. Thus, a policy of less than full disclosure is unfair to the consumer and some manufacturers.

The purpose of this paper is to demonstrate how recently developed behavioral analytical techniques (nonmetric multidimensional scaling) and multivariate statistical techniques may be used to search for brand evaluation models that approximate those used by one rating service, Consumers Union (CU), using only the data reported in its publication, The Consumer Reports.

The policy implications seem clear. Rating services should practice full disclosure by reporting their brand evaluation models. Furthermore, the form of this reporting should enable the consumer to add attributes and change the weights of attributes so that his purchases will meet his idiosyncratic preferential considerations.

The paper is organized into four major parts: (a) the data base, (b) a description of the methodology, (c) approximating models, and (d) policy implications and suggestions for future research.

Data Base

The data for this search were collected from the Consumer Reports of the CU for the years 1967 and 1968. In all, nine product classes were studied. The information published by CU for any product class includes: (a) brand profiles on product attributes; (b) list price; (c) an overall quality evaluation of brands into ordered categories such as 'Acceptable-Excellent,' 'Acceptable-Very Good,' etc.; (d) check rating for selected brands indicating that they are qualitatively outstanding; and (e) indication of 'Best Buys'

(i.e., the highest quality per unit price) wherever available. Items (a), (c), and (d) were used to develop models of overall brand evaluation and check ratings. The analysis was confined to those brands for which complete profile information was reported. The details on the number of brands, number of attributes (excluding price) and the source of data employed in this study are shown in Table 1. It was not possible to use all of the brand information within product categories. In some categories brands are ranked according to overall quality, but they are listed alphabetically in other categories. Data were incomplete for brands which were judged not acceptable.

Table 1
Description of Data Used

Product Class	Number of Brands	Number of Attributes	Source - <u>Consumer Reports Dated</u>
1. Color TV Sets (large screen)	10	8	January 1968
2. 18" Diagonal Monochrome TV Sets	15	11	March 1967
3. Electric Broilers-Cabinet	14	10	November 1967
4. Electric Broilers-Open	13	11	November 1967
5. Low Cost Still Cameras	30	12	November 1967
6. Phono Cartridges	24	7	March 1967
7. Stereo Phonographs	16	14	June 1967
8. Vacuum Cleaners-Canister	24	12	March 1967
9. Vacuum Cleaners-Upright	9	6	March 1967
Total	155		

Method

The analysis procedure for each product class consisted of three steps summarized in Figure 1 as follows: (a) reduce attribute space, (b) develop a model of overall brand evaluations, and (c) develop a model of check rating.

Reduce Attribute Space

To enable generalizations across product classes the original attributes reported by CU were reduced to a three-dimensional space.³ For each product class, a matrix of interbrand distances was computed using standardized brand profiles. These distances were analyzed using TORSCA, the method of multi-dimensional scaling (Young and Torgerson, 1967) to yield reduced configurations in three dimensions. The three dimensional configurations were interpreted using judgment (extreme analysis) and the property fitting procedure of PROFIT (Chang and Carroll, 1970). These steps are shown in the left panel of Figure 1. These three dimensions served as the predictor variables for the models.

Develop a Model of Overall Brand Evaluations

The model approximating the overall brand evaluations was developed utilizing the multidimensional generalization of Coombsian unfolding model to

Reduce Space and Interpretation

Develop a Model of Ordered Classes

Develop a Model on Check Rating

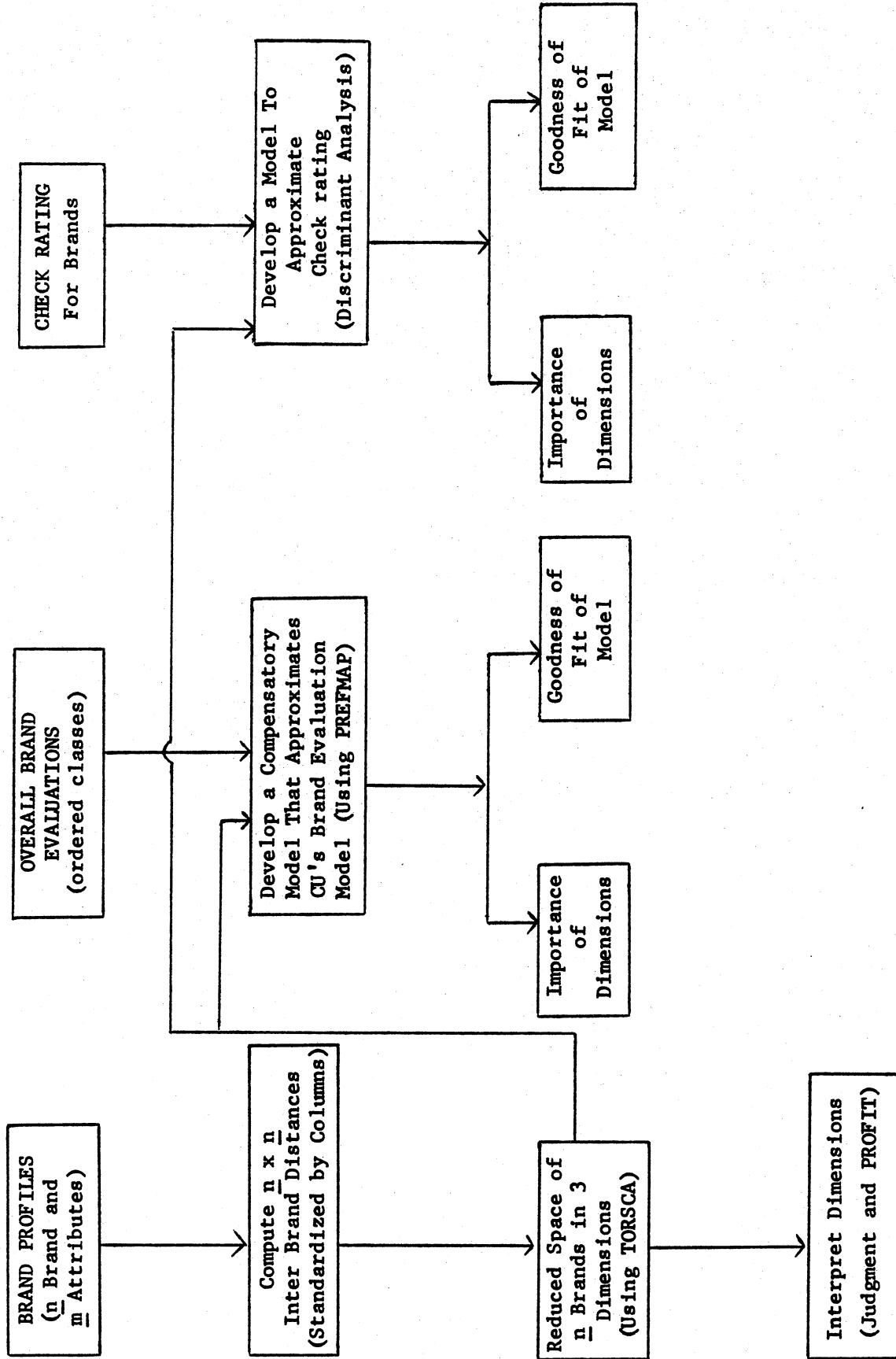


Figure 1. Analysis Steps

depict preferential data (Carroll and Chang, 1967). The nonmetric version⁴ of Carroll and Chang's algorithm, known as PREFMAP, was used to portray the ordered class vector of brand evaluations in the three dimensional reduced configuration developed above (see center panel of Figure 1).

The vector model, which fitted the data better than the point model, is as follows:

$$f(R_i) = b_0 + b_1 X_{1i} + b_2 X_{2i} + b_3 X_{3i} + \text{error}$$

$$i = 1, 2, \dots, n$$

where n = number of brands;

R_i = overall rating in the ordered class for the brand i ;

$f(R_i)$ = monotone transformation of the rating, R_i ;

b_j = importance assigned to the j^{th} dimension, $j = 1, 2, 3$;

X_{ji} = coordinate value for the i^{th} brand on the j^{th} dimension in the reduced space; and

b_0 = constant term.

Develop a Model of Check Rating

A two-group discriminant analysis was used to develop a model to approximate CU's check rating of brands. The three dimensions of the reduced space were used as three variables in a step-wise discriminant analysis (Anderson, 1958 and Dixon, 1968) to classify the brands into two groups - check rated and others. This model in symbols is:

Check rate the brand i if $d_0 + d_1 X_{1i} + d_2 X_{2i} + d_3 X_{3i} > C$ and do not check rate otherwise,

where values of d 's are estimated and C is a critical level for the discriminant function. The standardized values of d_1 , d_2 and d_3 reflect the implicit importances assigned to the dimensions. Goodness of fit of this model is measured by the percentage of brands correctly classified as check rated and not. This phase of the analysis is shown in the right panel of Figure 1.

Results

The three steps described above were applied to each of the nine product classes (Table 1). Because of the extensive findings generated by these steps, the results are reported only in a summary form for all products.

Dimensionality of Reduced Space

The values of stress⁵ for 3 and 2 dimensions obtained in TORSCA analysis (stage 2) of interbrand distances are presented in Table 2. No systematic differences in the degrees of fit can be noticed between the product classes. In the light of significantly better fits and using the Monte Carlo tables developed by Klahr (1969), the three dimensional solutions are utilized for further analysis.

Table 2

Stress by Dimensionality for All Product Classes

Product Class	Number of Brands	Stress in	
		3 Dimensions	2 Dimensions
Color TV Sets	10	0.016	0.092
Monochrome TV Sets	15	0.109	0.204
Electric Broilers-Cabinet	14	0.023	0.046
Electric Broilers-Open	13	0.033	0.110
Low Cost Still Cameras	30	0.052	0.069
Phono Cartridges	24	0.095	0.168
Stereo Phonographs	16	0.127	0.225
Vacuum Cleaners-Canister	24	0.126	0.165
Vacuum Cleaners-Upright	9	0.041	0.083

Dimensional Interpretation

The reduced spaces were interpreted by fitting the various attributes to the reduced space using the linear version of the PROFIT algorithm. This analysis was augmented by comparing the attributes of brands at the extremes of each dimension.

The three dimensions can be interpreted as technical complexity, performance, and user convenience. The order in which these dimensions appear (according to the variance accounted for) varies across the product classes, as shown in Table 3. These dimensions seem to be consistent with CU's

Table 3

Dimensional Interpretation for All Product Classes

Product Class	Dimension ^a		
	1	2	3
Color TV Sets	P	U	T
Monochrome TV Sets	T	P	U
Electric Broilers-Cabinet	T	P	U
Electric Broilers-Open	T	P	U
Low Cost Still Cameras	P	T	U
Phono Cartridges	P	T	U
Stereo Phonographs	T	P	U
Vacuum Cleaners-Canister	T	P	U
Vacuum Cleaners-Upright	T	P	U

^aDimensions are ranked in decreasing order of variance accounted for. T, P, and U refer to technical complexity, performance, and user convenience, respectively.

reported policy of judging brands according to mechanical and functional characteristics rather than aesthetic ones. The construct of 'technical complexity' is what is built into the product by the manufacturer, while the 'performance' construct represents the result of the engineering design aspects under normal operating conditions. The third construct of 'user convenience' represents how conveniently a consumer can interact with the machine. The nine products examined lead one to infer that CU places greater emphasis on the technical aspects of the product than on convenience in use.

Approximating Model for Overall Brand Evaluation

The results of fitting the vector model of PREFMAP to the brand evaluations for the nine product classes are summarized in Table 4. The high multiple correlation coefficients indicate that this linear compensatory model is a good representation of the overall brand evaluations of CU.

Table 4

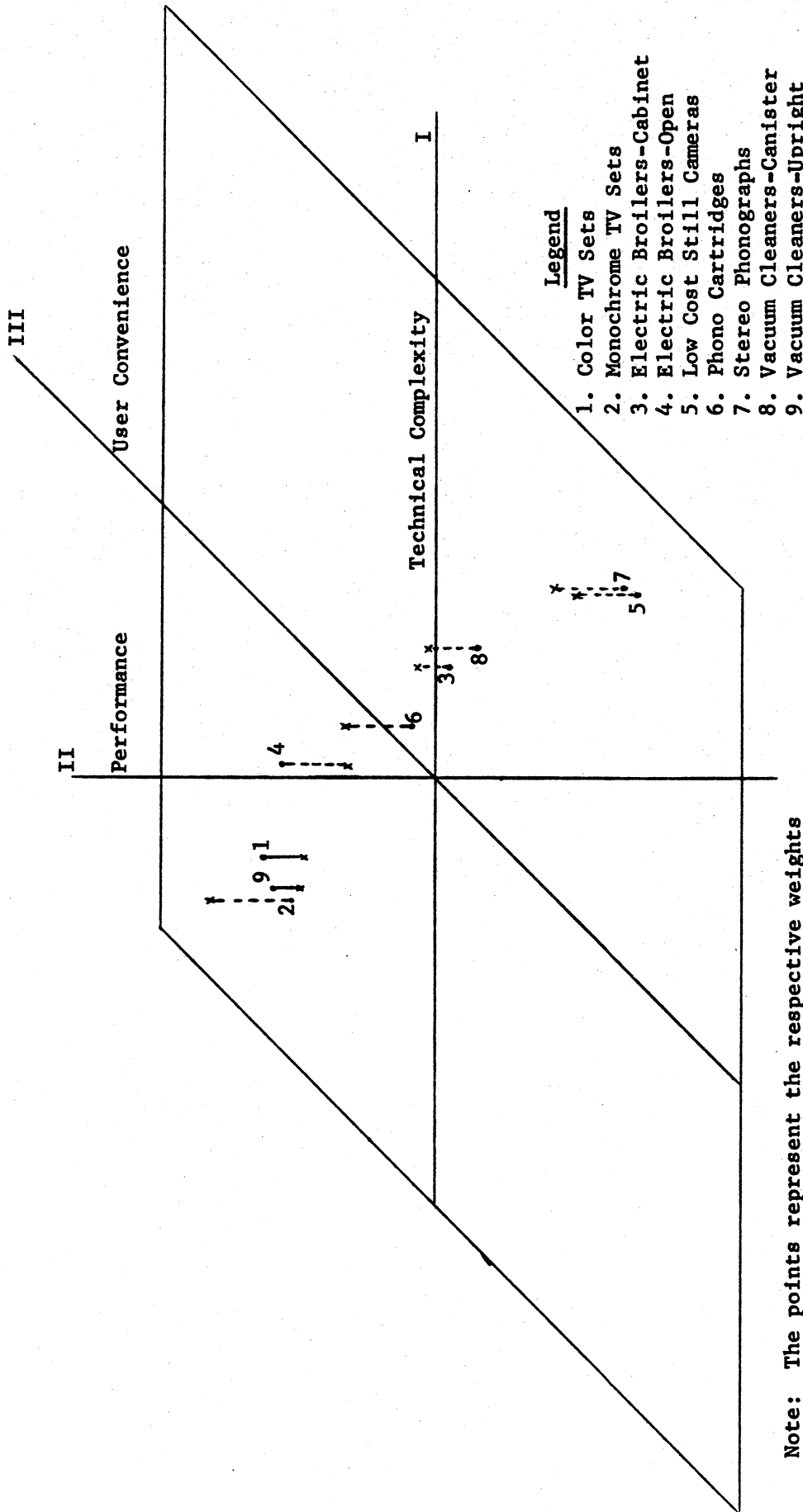
Degree of Fit and Direction Cosines for Model Approximating Overall Evaluations Using PREFMAP

Product Class	Correlation Coefficient	Direction Cosine for the Dimension Labelled		
		Technical Complexity	Performance	User Convenience
Color TV Sets	0.94	0.30	0.85	0.42
Monochrome TV Sets	0.98	0.19	0.98	0.10
Electric Broilers-Cabinet	1.00	0.80	0.55	0.24
Electric Broilers-Open	1.00	0.52	0.71	0.47
Low Cost Still Cameras	1.00	0.98	0.15	0.12
Phono Cartridges	0.99	0.64	0.75	0.12
Stereo Phonographs	0.96	0.97	0.21	0.09
Vacuum Cleaners-Canister	0.98	0.83	0.52	0.19
Vacuum Cleaners-Upright	0.99	0.21	0.86	0.46

In the light of the positive coefficients, brands falling away from the origin in the direction of the vector represented by the direction cosines in Table 4 are judged better than those nearer to the origin. All planes perpendicular are, in fact, the indifference planes in the three-dimensional space.

While the single functional form fits all nine products well, the direction cosines vary greatly among products. The nine models can be summarized graphically, as shown in Figure 2, where each plotted point represents a product class. The finding that product classes are distributed in this space suggests several hypotheses regarding CU's implicit evaluation model. First, weights may vary systematically according to predefined product categories. Second, there may be individual differences in values among the judges which are not resolved prior to reporting. Finally, weights are changed throughout product life cycles. For instance, as brands become homogeneous with regard to technical complexity this dimension is given less weight.

Figure 2. Summary Representation of Overall Brand Evaluations for Nine Product Classes



Note: The points represent the respective weights assigned to the dimensions in the estimated compensatory model.

The first and third of these hypotheses were examined within the limits of available data. For the first hypothesis, clusters of products were developed using the direction cosines (Table 4) and the hierarchical cluster method according to Howard and Harris (1966). The composition of two, three, and four clusters is shown in Table 5. Because no common characteristic could be identified for these products, no interpretation is possible. For example, at the two-cluster level, the products of color TV, monochrome TV, open electric broilers, phono cartridges, and upright vacuum cleaners form one cluster with no obvious common characteristic.

Table 5
Hierarchical Clustering of Nine Products

Cluster Level	Percent Within Cluster Sum of Squares to Total Sum of Squares	Products Assigned to Clusters Numbered			
		1	2	3	4
2	30.6	1,2,4,6,9	3,5,7,8		
3	15.6	1,2,4,9	5,7	6,8	
4	7.7	2	5,7	3,6,8	1,4,9

However, there is support for saying that the weights assigned to technical complexity and performance dimensions vary among product classes according to the stage of the life cycle of the product. For example, Color TV Sets receive a higher weight on the technical complexity dimension than do Monochrome TV Sets. The reverse is true for the performance dimension. Similar patterns can be observed between the product classes of Electric Broilers - Cabinet (a recent introduction) versus Open (an established product); and Vacuum Cleaners, Canister (a recent introduction) and Upright (established product). This implies that Consumers Union tends to rely more heavily on the engineering design considerations for newer products and less so for the established ones. This may be due to the fact that brands in established product categories are less differentiated since, over time, several manufacturers can acquire comparable technological competence.

Approximating Model for Check Rating

The three dimensions of the reduced space were used as predictors in developing a discriminant function for the check rating procedure adopted by CU. The proportion of brands correctly classified by the function and the standardized coefficients are presented in Table 6. In four out of nine product classes the model correctly classifies all brands. The average across all products is 90.9 percent. Generally, the technical complexity and performance dimensions turn out to be important variables in the discriminant functions. These dimensions are not assigned uniform importance, thereby indicating the possibility of individual differences in CU's judging procedures.

Table 6

Results of Discriminant Analysis

Product Class	Percent Brands Correctly Classified	Standardized Coefficient in the Discriminant Function for Check Rating		
		Technical Complexity	Performance	User Convenience
Color TV Sets	80.0	0.352	0.652	0.408
Monochrome TV Sets	100.0	0.244	3.619	-1.332
Electric Broilers-Cabinet	92.8	-8.475	1.315	2.057
Electric Broilers-Open	100.0	-0.869	3.630	6.745
Low Cost Still Cameras	100.0	3.189	9.451	-10.540
Phono Cartridges	87.5	1.642	2.870	-0.936
Stereo Phonographs	75.0	-0.902	-0.238	-0.313
Vacuum Cleaners-Canister	83.3	-1.590	0.809	-0.825
Vacuum Cleaners-Upright	100.0	-2.281	-3.946	2.422

Summary

The various results may now be summarized:

1. CU's measurements of brand profiles can be reduced to a three dimensional model for each of the nine products. These dimensions are technical complexity, performance and user convenience.
2. In the similarity spaces of brands, the potency of the dimensions varies across product classes.
3. The generalized Coombsian model of vector representation portrays the overall brand evaluations extremely well for all product classes. Thus, the model employed by CU for overall evaluations appears to be compensatory in nature.
4. The importance assigned to the three dimensions varies across product classes. This variation could not be attributed to any characteristics inherent in the product classes. There appear to be individual CU expert differences in evaluating brands of several product classes.
5. The linear discriminant function, developed using the three reduced dimensions as predictors, classifies the brands well into check rated and not check rated. The proportion correctly classified is over 90 percent on the average.
6. The variables that turn out to be significant in the discriminant functions differ across products, again pointing to the possibility of individual expert differences at Consumers Union.

Policy Implications

Several implications for policy formulation emerge from this study, not only for Consumers Union but also for various manufacturers and government.

With regard to Consumers Union, there appears to be a clear need for appraising its current system of testing brands and reporting brand information. First, evidence suggests that the number of attributes selected for testing be reduced, thereby lowering the overall costs of product testing.

Second, CU might consider using scales with more response categories for rating attributes as opposed to the grosser scales now in vogue. This practice should be valuable in better describing the similarity structure of various brands (Green and Rao, 1970). Obviously, the need exists for adhering to a uniform format for reporting brand profiles and final evaluations. The current CU practice of not reporting comparable and complete information for those brands judged as 'not acceptable' does limit an objective consumer in examining for himself the reasoning behind CU's evaluations.

Furthermore, CU might benefit from a reappraisal of its differential weighting system so implicit in its evaluations across different product categories. If in fact individual expert differences do exist, it is in CU's own interest to examine and resolve them before passing on its recommendations to an ordinary consumer. Interests of all concerned would be better served if CU were to reveal the full details of its current policy of brand recommendations, particularly in light of implicit lack of uniformity across products. The report on any product should further enable a consumer to incorporate his prior knowledge of product class, additional sources of information, additional attributes and information about new brands that might have appeared in the market-place since the issuance of CU's report. It should also be flexible enough to enable the consumer to apply his own idiosyncratic weighting procedures.

From the manufacturer's point of view, this study should assist in designing product improvement strategies. Manufacturers would benefit by developing models for assessing the effect of a given CU ranking of their brands on market share, for predicting how CU might rank their brands and by utilizing such information in allocating their marketing effort.

One significant public policy implication lies in formulating regulations for full disclosure of the methods adopted by product rating services such as CU. There appears to be no reason for these services to be exempt from policies of full disclosure.

Future Research

Various researchable questions emerge from the foregoing analysis in the general areas of consumer research and public policy. Some of these are enumerated below with a view to fostering interest of various researchers and policy makers.

1. How do individual value systems influence transformation of objective space into perceptual judgments?
2. Is there any evidence that manufacturers use Consumer Reports for product changes?
3. Do the findings extend themselves to other product categories? If so, is there any possibility for reaching a general statement of product evaluations of rating services?
4. Can the life cycle hypothesis be validated by an independent set of CU's evaluation data?
5. Does the previously developed model of brand evaluations in any product class predict evaluations for new brands or improved brands?
6. Can methods be developed to assist CU experts in resolving their value differences, if they exist? Several experiments and group training sessions may be designed based on small group behavioral theories.
7. Are there other kinds of models that could portray CU judgments? For example, the CU experts might be following a lexicographic model wherein different attributes of brands are ranked and brands are classified with prespecified threshold levels.

8. Can models be developed for predicting the best buy brand? In particular, can the interval scaled measures for final evaluations provided by the measurement models of preference be used to predict maximum quality per unit price (i.e., Best Buy)? It appears that this approach will have applications also in the area of unit pricing.

Footnotes

- ¹The authors acknowledge the generous support for computing funds from the Office of Sponsored Research, Cornell University and thank Messrs. Jorge Doehner, Frank Amthor and Geoffry Soutar for their assistance in data compilation and analysis.
- ²Respectively Assistant Professor and Associate Professor at the Graduate School of Business and Public Administration, Cornell University, Ithaca, New York.
- ³This space reduction enables one to conserve degrees of freedom particularly for those product classes with few brands.
- ⁴The block monotone option which handles ties in the evaluation vector was chosen for this analysis.
- ⁵Stress, defined by Kruskal (1964), is a measure of badness of fit. The lower the stress the better is the fit. Stress is a decreasing function of number of dimensions. No statistical tests are available for judging dimensionality.

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CONSUMER AND SALES FORCE PERCEPTIONS
OF DIRECT SELLING: IS CONFLICT INEVITABLE?¹

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When Victor Buell investigated door-to-door selling from the firm's point of view seventeen years ago, he concluded that a well formulated and carefully implemented direct-selling program offered an opportunity for the individual manufacturer to secure a special competitive advantage.³ During the ensuing seventeen years, direct selling has progressed considerably in some directions and suffered setbacks in others. It would probably be unfair to say that the "direct" system of product distribution has flopped. But there is nevertheless a lurking suspicion that the present level of consumer/sales force conflict is both disruptive to economic performance and a threat to the survival of the method of distribution.

The causes of conflict in the channel of distribution comprise the beginning phase of conflict analysis.⁴ Serious trouble indicators such as high sales force turnover rates and a rising rate of government prohibitive or restrictive legislation are salient symptoms of the causes of conflict in direct-to-consumer channels.

Management seeks to discover, understand, and hopefully satisfy the grievances of both consumers and sales force members without disturbing the advantages of the direct selling system. Therefore the design of this article is to summarize the pros and cons of direct selling as perceived by the key members of the channel system--the consumer and the direct salesman. Policy implications for the firm are discussed after a presentation and discussion of the basic findings.

The results and conclusions to follow are based largely upon a broader Baltimore study involving 200 consumers, 300 direct-to-home sales people, and 12 direct selling firms.⁵

Consumer Complaints

Disagreeable Connotation

The findings indicate that direct selling has a disagreeable connotation to many consumers; salesmen are perceived as trying to trick or influence people into buying what they do not need. Consumers resent aggressive "foot in the door" tactics, unsolicited phone contacts, and high pressure sales presentations. Consumers complain of "one call closes," non-cancellable binding contracts, invasion of privacy, and other conditions not normally encountered by customers who trade through conventional retail channels.

It is true that some direct salesmen who see a prospect only once will use high pressure tactics. Such a salesman is really interested only in the signed order and the resultant commission. Whether the customer actually needs the

product or can afford it, or whether the product will perform as promised, is of little importance to this salesman. However, this offensive image fits only a small percentage of the nation's direct salesmen.

Upsets Rational Planning

It is probably more exact to say that the direct selling method upsets the consumer's rational planning and scheduling of his purchases. Many consumer purchases are essentially nonrationally determined. A need or needs exist of which the consumer may be conscious, but these are often reinforced by secondary needs of which he is only marginally conscious or totally unconscious.

The sight of an article, the salesman's description of it, and especially a presentation of what it will do for the buyer causes the consumer to invest it with attributes and properties, real or fancied which give it unusual value. The product may be said at this point to have "seduced" him. This is the point at which the consumer begins to discover that he likes the product and wants it. The procedure is analogous in many respects to the act of falling in love-- and is equally irrational.⁶

Invasion of Privacy

A prime difference between in-store and in-home buying is that the former method allows the consumer to buy at his own convenience at the seller's establishment. On the other hand, a large proportion of consumer contacts by direct selling firms involve uninvited phone calls and drop-ins. Often the consumer's written response to a magazine advertisement or direct mail circularization results in the surprise visit of the salesman who often arrives without having telephoned for an appointment.

The present study's analysis of consumer receptivity toward several frequently used methods of prospecting and customer contact revealed strong significant differences. Consumers are most receptive to sales contacts that they initiate themselves and least receptive to drop-in canvass calls.

Profile of the Direct Salesman

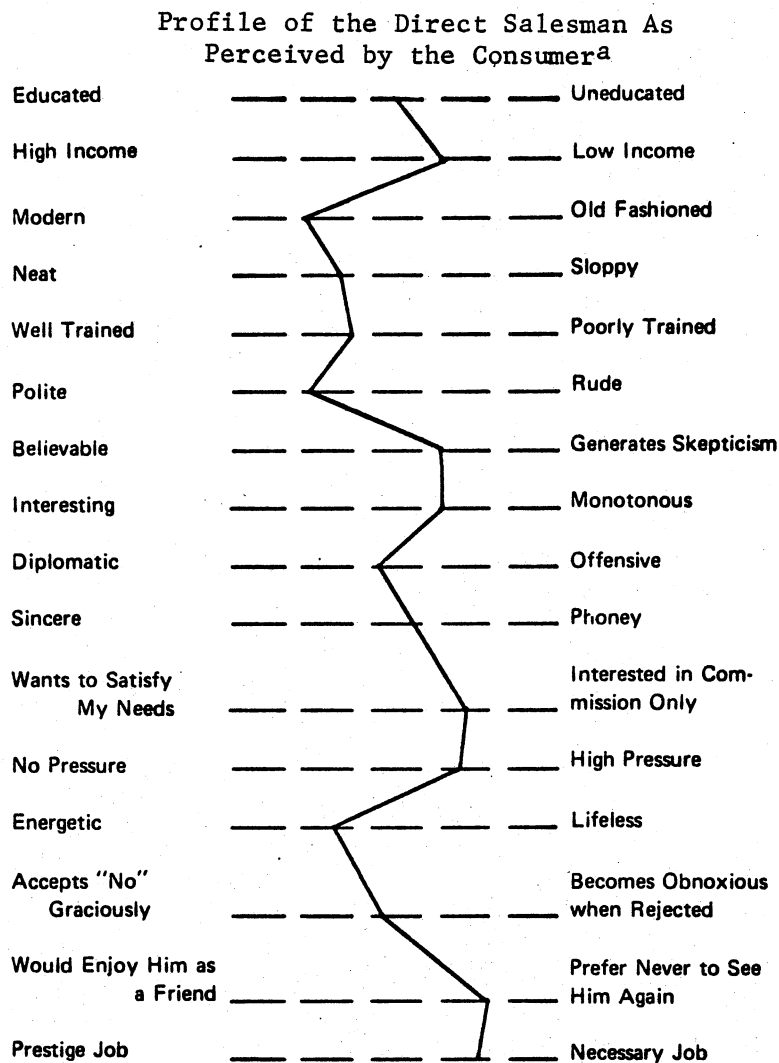
In the eyes of the consumer, the role of the salesman in consummating (closing) the sale may be summarized as follows:

- the salesman is the "procurer" who uses the product presentation to seduce the prospect so that the latter falls in love with it and wants to buy it.
- the salesman provides logical justifications to his prospect for performing what would often impress others as an irrational act, e.g., the purchase of an article which the buyer appears neither to need nor to be able to afford.
- It is the salesman who, when necessary, applies the pressure to effect a "close."

In effect, the buyer is objecting to a purchase at the seller's convenience rather than at the buyer's convenience.

The profile of the direct salesman as perceived by the consumer is shown in Figure 1.

Figure 1



^aReproduced from Marvin A. Jolson, Consumer Attitudes Toward Direct-to-Home Marketing Systems (New York: Dunellen Publishing Company, 1970), p. 106.

The Consumer's Preference for In-Home Buying

Despite the consumer criticism described in the previous section there are several reasons why consumers support the direct-to-home method of distribution.

The Entire Family Can Be Consulted

Nearly 65 percent of the consumers sampled felt that a major advantage of direct selling is that all family members can inspect the product together so that a joint decision may be made. This is particularly important when higher priced items such as encyclopedias, storm windows, water softeners, vacuum

cleaners, etc. are being marketed. The average housewife is reluctant to take full responsibility for spending two or three hundred dollars or more. Most direct sellers of expensive products deliver a majority of their sales presentations during evening hours or on weekends. The net result is shared responsibility for the buying decision and a minimization of regret. The findings indicated that jointly signed contracts generate significantly less buyer's remorse than situations where a husband or wife enters into a contractual agreement in the absence of his or her spouse.

The Consumer Requires Persuasion

Analysis of 490 purchase transactions indicated that 80 percent of the purchases would not have been made in the near future if a direct sales person had not made his unsolicited visit. Many consumers readily admitted that considerable persuasion took place but "they are now glad that the salesman talked them into making the purchase."

Trying In Advance Of Buying

Approximately 45 percent of the consumers interviewed confirmed the advantage of trying out the product under actual conditions of use. For example, the prospect housewife can operate the vacuum cleaner on her own carpeting, the prospect's children can verify the readability of the reference library, or the blending of the silverware pattern with the prospect's home environment can be examined. The prospect often desires special services, advice and instructions about effective product use. Few people like the self-service principle for everything they buy.⁷

The Convenience and Comfort of In-Home Buying

There is a growing demand by millions of consumers for shopping facilities that will save time, effort, and expense. Suburbanites seek to eliminate driving time, parking fees, and babysitting costs. Also there is substantial evidence that in-store shoppers are demanding and not receiving the required level of courteous, personal, and intimate treatment by salesmen.⁸ This is partially due to the presence of queues in busy stores, the lack of familiarity of retail clerks with the profusion of available products, and the absence of financial incentives for the in-store sales person.

On the other hand, the direct seller usually carries only one product or a limited line of products, and therefore is quite familiar with the features, benefits, and advantages of what he sells. There are no seller inflicted interruptions of the sales presentation and the usual result oriented compensation program motivates the seller to please the customer. As indicated by Figure 1, the consumer perceives the direct seller as being polite and well trained.

Negative Observations by Salesmen

More than 85 percent of the consumer respondents indicated that they would not consider employment as a direct sales person. People reluctant to try direct selling and those who have suffered disappointing experiences as direct sellers have a number of objections to the method of distribution.

It is "Forcing" People to Buy Things They do Not Need

This observation is very much related to direct distribution's objective of upsetting the consumer's rational planning and scheduling of purchases. The following transactions are salient examples:

- the 21 year old Washington, D.C. stewardess who purchased a double cemetery lot in suburban Maryland.
- the 17 year old San Antonio high school senior who purchased a \$200 set of waterless cookware although she lived with her parents and had no immediate intentions of marriage or relocation of her residence.
- the Johnstown, Pa. newly married couple who purchased a \$300 encyclopedia even though their apartment was completely devoid of furniture due to meager finances.
- the Hibbing, Minnesota couple who contracted for \$389 worth of storm windows even though they lived in an apartment and had no specific plans to move into their own home.⁹

All of the above customers regretted their purchases and attempted to cancel their contractual agreements.

It is Frustrating and Too Prostituting

A certain amount of door-to-door canvassing (cold turkey) is required depending upon the lead system of the company. Field sales positions have the disadvantage of being lonely. The representative must frequently work by himself without the supportive presence of an associate or supervisor.

The salesman is often in an inferior status position vis-a-vis his prospect. He must be willing to accept rudeness and rebuffs as a matter of course. In many instances the salesman sees himself as the perpetual introducer, forcing himself on people and into homes where he is not only unwelcome, but often actively resented.¹⁰

The Frequency of Rejection is High

Consumers may resist the salesman on three separate levels--at the door, just preceding or during the sales presentation, and after the price is quoted. Put another way, the prospect may have as many as three decisions to make:

- Will I admit this sales person to my home?
- Will I listen to his story?
- Will I buy his product or service?

For example, an encyclopedia salesman may be required to approach ten doors before being admitted. Once admitted he may be allowed to complete only one of three attempted presentations. Once the presentation is completed, he may convert only one of six completed presentations into a sale. Therefore, the salesman may suffer 179 turndowns in order to acquire one sale.

No one without a well defined capacity to take punishment can tolerate such activity on a continuous basis.¹¹

The rejection ratio is considerably lower when less expensive products such as cosmetics, brushes, detergents, etc. are being marketed.

There is No Security of Earnings

The impact of 179 "no's" in exchange for each "yes" is especially tortuous when the salesman's earnings are totally tied to sales. There are two undesirable effects of a straight commission plan: one is the actual low earnings when sales are scarce; the other is the anticipated nonuniformity of earnings. The first causes terminations; the second causes both terminations and a reluctance to even seek a career in direct selling.

Many salesmen, both inexperienced and experienced have a tendency to magnify out of all proportion the potential penalties or fears which a straight commission situation presents.

Several examples were offered by respondent sales force members. Jim S. refused employment because he recalled a friend who failed on a straight commission basis. Bill T. decided to "try" a commissioned job. After three non-productive days his fears were reinforced. George J. did well on straight commissions; however, he resigned because of fears that "some day" he would stop producing.

Unethical Conduct is Required

There is little doubt that the present level of consumer stigma and increasing legislative interest in protecting the consumer from the door-to-door salesman has painted direct-to-home distribution a dubious color. Some of the charges are justified; others are not. Most direct sales people are trained by their firm to transmit only true, correct statements to the consumer. Yet, there are some sales people who, in the interest of more sales and increased commissions, intentionally convey untruths to the prospective customer. Unfortunately, the findings indicate that some direct selling firms train their representatives to misrepresent.

As a result, public condemnation of the direct selling method has done much to tag this distribution system with a label of rascality. Potential career salesmen are concerned therefore with a perceived lack of status, dignity, ethics, and prestige.

Selling Must Take Place at the Prospect's Convenience

Direct selling is not ordinarily a five day a week, eight hours a day job. The present findings have disclosed several advantages to the direct seller of delivering the sales presentation when husband and wife are both present. Husbands are significantly more at ease, more patient, and more willing to listen to a sales presentation than their wives.

Consequently, companies are increasing their frequency of evening and weekend calls. The preference of the prospect for joint decision opportunities has already been discussed. The firm also benefits by the requirement for fewer call-backs and a resultant reduced probability of cancellation under the cool-off option.¹²

Despite the reported advantages of adjusting the salesman's schedule to include the husband, the requirement for evening and weekend sales activities imposes an irregular hour burden upon the sales person. Such a need may adversely affect the very living pattern that motivates his productivity.

A Combination of Hypnotism and Jujitsu

The person with little or no successful experiences in direct selling often has some weird notions about "in-home" selling. He has generally heard about "getting in" and "closing" techniques and the chances are he thinks these processes require some kind of black art combining both hypnotism and jujitsu by means of which a salesman, combining guileful and violent methods, makes prospects buy something they do not want.

The Successful Salesman Sees Advantages

There is, however, much evidence to prove that the image of today's direct salesman is far different from the kind of sellers once described as men of "glittering eye and well-oiled tongue," each with a "large and heavy foot which he was ready to wedge into a doorway." Those old-time agents of an earlier era, bold and truculent, often carried samples slung from a harness under their coats. They were primarily wanderers who swept into a city or neighborhood, turned a quick profit, and moved away swiftly and silently. They preyed on ignorance and often charged prices three to four times the physical or intellectual value of the product.

Even after the ranks of such agents had thinned, there still continued to be certain shady practices in the still muddy channel of direct distribution. With reason, prospects were wary of anyone who announced that he had come to bring benefits to their households. But as time passed, people grew wiser and less susceptible to chicanery and sophistry. When consumers were not alert, various governmental agencies and Better Business Bureaus were.¹³

As previously hinted, consumer/salesman conflict and buyer dissonance are greatly decreased when low ticket purchases are involved. Recent studies by Haring of over 15000 direct-to-home sales people disclose that 80 per cent of the respondents reported that three-fourths or more of the prospects contacted received the sales person in a courteous and friendly manner and seemed to welcome his call. However over 6500 of these people sold Avon Products averaging under ten dollars per sale.¹⁴ Thus the intensity of the problem area is not identical for all direct sellers.

Regardless of product price today's successful direct salesman sees himself as an ethical businessman who fulfills an important need in America's marketing system. Moreover, he visualizes a number of advantages over the salesman who operates in more conventional channels.

Few Qualifications For Entry

Direct selling requires only good character and a willingness to roll up one's sleeves and work. Age, sex, race, lack of education or experience, and time availability are not barriers.

Flexible Hours

The direct salesman may work as many or as few hours as he wishes with income tied only to productivity.

Rewards for Productivity

The average income of the direct salesman is similar to that of most other salesmen. However, the median mid-point income is low, probably caused by the high proportion of part-time direct sales people.

But hidden within the mass of data are income phenomena which are seldom enjoyed by sales people who sell in other channels. A company in the home security field which primarily recruits salesmen under 25 years of age, reported 28 earners in excess of \$30,000 in 1970. Another firm in the cookware industry tells of three salesmen who entered the company in 1968 from non-selling positions and each in his first year of direct selling surpassed \$40,000 in net earnings. A national cosmetics sales organization, which relies heavily upon female representatives, reported that more than 300 of its sales ladies bettered the \$20,000 personal earnings mark in 1969. An international publisher whose sales volume rises substantially during the summer season points with pride to more than 150 college students who netted incomes of more than \$2500 during a single summer.

Advancement Potential

The successful salesman finds that advancement to a supervisory position is rapid and extremely rewarding. The field sales manager receives a commission or overwrite on the sales turned in by his six or eight assigned salesmen. The branch or district manager profits on all orders in a city or state. The regional manager typically receives compensation on all volume in a multi-state territory. The product division sales manager may receive a substantial salary, an overwrite on every sale in the nation as well as bonuses and stock options adding up to sizeable financial rewards. Six figure incomes for direct-to-home sales executives (who are not corporate officers) are frequently observed.

Conclusions And Policy Implications

The purpose of this article has been to examine the current state of in-home selling from both positive and negative viewpoints. The positive views may help to explain the magnetic lure of direct selling which is continuously attracting many new companies into the field.

The negative views place consumer/sales force conflict problems in perspective for management and also identify certain consumer/company and sales force/company forms of conflict.

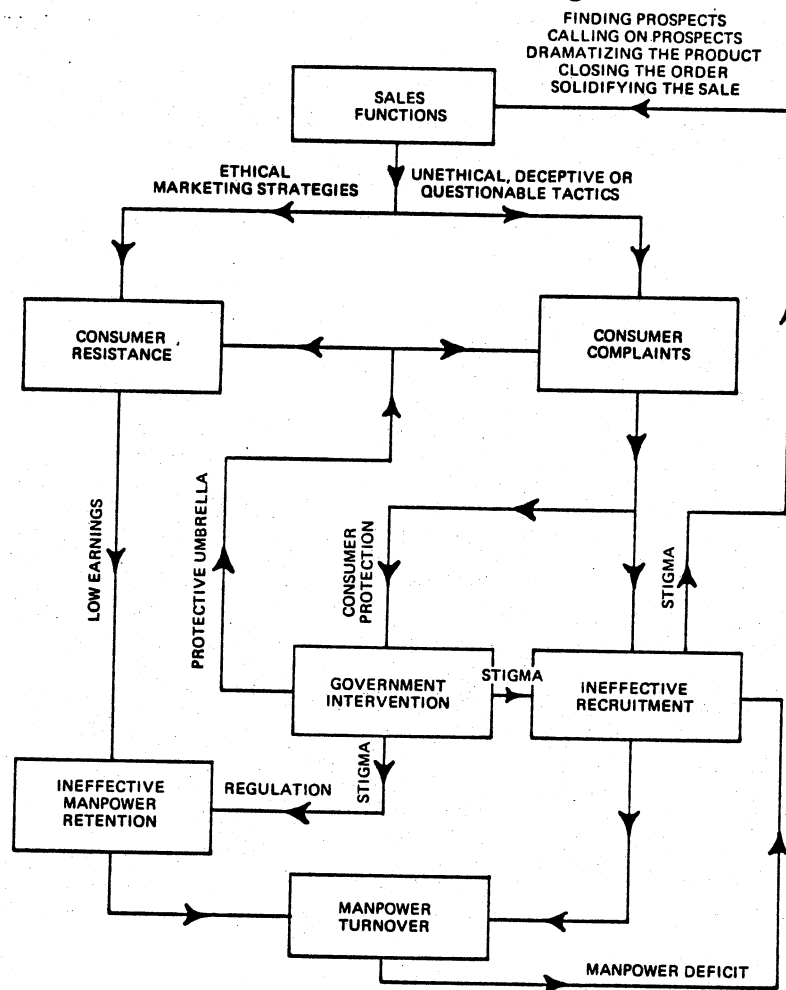
Recruitment and Retention

As a result of the reported negative perceptions by consumers and/or potential employees, "selling the job" is often more difficult than "selling the product."

While emphasizing the recruiting function, the firm's management often neglects the basic indoctrination, continuous training, sales planning, and sales force control systems that are essential for manpower retention. High consumer rejection frequencies, low earnings by the salesman, and harassment by local municipalities and federal authorities all contribute to a manpower turnover rate that quite often exceeds 500 percent annually. The interrelationships among these factors are shown in Figure 2.

Figure 2

Block Diagram Showing Interrelationship of Problem Areas Facing Direct Selling Firms^a



^aReproduced from Marvin A. Jolson, Consumer Attitudes Toward Direct-to-Home Marketing Systems (New York: Dunellen Publishing Company, 1970), p. 5.

Ideas For Progress

It is predicted that consumer and corporate interests will become more compatible. Acceptance of some of the following suggestions may quicken the process.¹⁵

1. Direct selling leaders should initiate an educational program directed at consumers, government officials, the Better Business

Bureau, news media, and university students and faculty members. The thrust of these communications should be upon the benefits of direct marketing to consumers and the overall economy.

2. An accrediting organization consisting of industry leaders working in conjunction with selected consumer agencies should be established for the purpose of developing, promoting, and controlling a code of ethics and standards of operations acceptable to all parties concerned.
3. Companies marketing higher priced packages should initiate a post-sale system of verifying the sales transaction with the new customer with the purpose of uncovering misunderstanding, complaints, or buyer's remorse. The order should not be processed until after any customer grievances have been settled.
4. Sales calls of new or questionable sales people should be monitored and offenders should be corrected or terminated.
5. Companies should install a more rigorous, more objective sales personnel selection system especially by use of a thorough system of checking the applicant's character and past employment record.
6. Compatible with the above suggestions, research must be undertaken constantly for the purpose of uncovering newly developed attitudes of consumers and present or former sales force members, to combat ignorance and prejudice, and to generally provide a sounder base for policy decisions. Proper organization requires a total integration and coordination of all the factors that can influence the final sale.

Footnotes

¹The author wishes to thank Professor Victor P. Buell of the University of Massachusetts for his critical review of this manuscript.

²Dr. Marvin A. Jolson is Assistant Professor of Marketing at the University of Maryland, former Senior Vice-President, Encyclopaedia Britannica Inc. and a leading consultant to direct selling firms. He is the author of Consumer Attitudes Toward Direct-to-Home Marketing Systems (Dunellen Publishing Co., 1970) and Selected Quantitative Techniques for Marketing Decisions (to be published by Macmillan Co., 1972).

³Victor P. Buell, "Door to Door Selling," Harvard Business Review (May-June 1954), pp. 113-123.

⁴Larry J. Rosenberg and Louis W. Stern, "Toward the Analysis of Conflict in Distribution Channels: A Descriptive Model," Journal of Marketing, 34 (October, 1970), p. 44.

⁵Marvin A. Jolson, Consumer Attitudes Toward Direct-to-Home Marketing Systems (New York: Dunellen Publishing Co., 1970), pp. 65-82.

⁶Robert N. McMurry, "The Mystique of Super Salesmanship," Harvard Business Review (March-April 1961), pp. 113-115.

⁷Albert Haring, "Can Door to Door Selling Perk up your Profit Picture," Sales Management (October 21, 1960), p. 101.

⁸For example, see Gregory P. Stone, "City Shoppers and Urban Identification: Observations on the Social Psychology of City Life," American Journal of Sociology, 60 (1954), pp. 36-45 and Richard A. Smith, "The Ceiling on Selling," Fortune (August 1958), p. 91-92.

⁹Marvin A. Jolson, "Cooling off the Direct-to-Home Seller," Business and Economic Dimensions (February 1971), pp. 8-9.

¹⁰McMurry, op. cit., p. 116.

¹¹Ibid.

¹²The most common form of direct sales regulation requires a cool-off clause in the sales agreement which allows the customer to cancel his commitment within 24 to 96 hours following the signing of the contract. To date, cool-off statutes have been enacted in 22 states and others are following suit. For detailed descriptions of cool-off legislation see Orville C. Walker Jr. and Neil M. Ford, "Can Cooling-Off Laws Really Protect the Consumer," Journal of Marketing 34 (April 1970), pp. 53-58 and Jolson, op. cit. "Cooling-Off the Direct-to-Home Seller" pp. 7-17.

¹³Herman Kogan, The Great E.B. (Chicago: University of Chicago Press, 1958), pp. 300-302.

¹⁴As reported by Professor Albert Haring during his testimony before the U.S. Congress, Senate, Consumer Subcommittee of the Committee on Commerce, Hearings on Senate Bill Number 1599, Door-to-Door Sales Regulations, Ninetieth Congress, Second Session, March 4, 5, 20, and 21, 1968, pp. 173-177.

¹⁵Several of the following suggestions were discussed at the National Roundtable Seminar on Direct Selling, October 8-10, 1970 at Vail, Colorado.

CONSUMER LEARNING IN AWARENESS AND TRIAL OF NEW PRODUCTS*

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Introduction

In the consumer acceptance process of new products, it is customary to identify the following five stages: awareness, interest, evaluation, trial and adoption (or acceptance). This reflects the tradition established by sociologists in their research of the adoption process of innovations.¹ Much effort has been directed toward the identification of the determinants of consumer behavior in those stages, resulting in a number of studies of individual and situational factors which affect consumer acceptance of new products. In addition to those qualitative studies, attempts have been made to construct mathematical models of consumer response to new products. But the main thrust of past such attempts seems to have been aimed at the stages following the first (=trial) purchase. Stages preceding the trial stage have often been either ignored or simply lumped together in many of those models. It is the purpose of this study to quantitatively investigate this neglected area of transitions between the preawareness and trial stages. In so doing, a particular attention is given to consumer learning involved in the awareness and trial stages.

Models based on mathematical learning theory abound the literature of consumer behavior. But most such models appear to be derivatives of the linear operator model for subject-controlled events.² In short, this model postulates that the feedback from a purchase affects an individual's probability of purchasing the same product (or brand) next time. It is an attractive model for describing the consumer's response to new products after the first purchase,³ but is not particularly useful in dealing with consumer learning prior to the trial stage simply because there is no purchase which may give the consumer some feedback.

It is obvious that consumer learning associated with the new product acceptance process is not limited to purchase-event feedback. For example,

1. The consumer learns the existence of the new product (the awareness stage).
2. He learns the price, availability, functions and other types of information related to the new product (the interest and evaluation stages).
3. He learns what the product is like by using it (trial stage).
4. Finally, he learns how to use the product properly and even learns to like it (the acceptance stage).

It is necessary, therefore, to consider other models of learning in order to describe such varied types of consumer learning.

In this study the following special question on consumer learning is examined: Do successive exposures to advertisements have cumulative effects on the probability of a consumer's being aware and/or that of his making a trial purchase of a new product? Such cumulative effects are somehow taken for granted, but it is the purpose of this study to throw some light on this type of consumer learning through the construction and testing of mathematical models.

Models

Two basic models which are examined in this study are the variable Markov model (strictly speaking, a first-order Markov chain model with variable transi-

tion probabilities) and the linear operator model for experimenter-controlled events. Those are chosen because they permit transition probabilities among states to vary over time, reflecting the level of marketing activities of the firm which introduced the new product. In short, the linear operator model allows for cumulative effects of successive exposures to advertising, and, therefore, one may conclude that such effects exist if the linear operator model turns out to be more descriptive than the variable Markov model. More precise specifications of those models in the awareness and trial stages follow.

Identification of States

Before turning to the model specifications, it is necessary to identify the relevant stages between which the consumer makes transitions. It is theoretically possible to identify a large number of states between the preawareness state to the post-trial state, but the availability of data severely limits the number of states which can be incorporated in the model. In this study, only those states which can be identified by the following two survey questions were considered.

1. Aided Recall Question.⁴ "Have you heard of _____ (new product or brand name)?"
2. Trial Question. "Have you bought it?"

Four states corresponding to the two questions are:

- No-Awareness (NA): the states in which the consumer is in if he is not aware of a new product.
- Awareness (A): the state in which the consumer is if he is aware of the new product.
- No-Trial (NT): the state in which the consumer is if he has not tried the new product.
- Trial (T): the state in which the consumer is in if he has tried the new product.

Those who answered the aided recall question affirmatively are assumed to be in a state A; others are in state NA. Those who answered the trial question affirmatively are in state T; others are assigned to state NT. Note that the validity of the models to be developed are to a large extent dependent on the nature of responses to those questions. For example, it is impossible to identify those consumers who have bought the product, but cannot identify it by the name with those two questions. It is important that we keep in mind that some implicit assumptions are made in order to use the responses to the aided recall and trial questions as the operational definitions of awareness and trial.

Awareness Stage Models

Let P_t be the probability that a consumer is in state A (i.e., aware of the new product) at time point t . Also let $x(t)$ be the probability that the consumer is exposed to advertisements of the new product in period t (defined between time points $t-1$ and t). This $x(t)$ plays a central role in the following development.

Variable Markov model. Consider the transition probabilities between NA and A. The variable Markov model specifies them as follows:

$$\begin{aligned} \text{Prob. (NA} \rightarrow \text{A in period } t) &= a_1 x(t) && 0 \leq a_1 \leq 1 \\ \text{Prob. (N} \rightarrow \text{NA in period } t) &= a_2 (1 - a_3 x(t)) && 0 \leq a_2, a_3 \leq 1 \end{aligned}$$

Given those specifications, we obtain

$$\begin{aligned} E p_t &= a_1 x(t) (1 - p_{t-1}) + [1 - a_2 + a_2 a_3 x(t)] p_{t-1} \\ &= a_1 x(t) + (1 - a_2) p_{t-1} - (a_1 - a_2 a_3) x(t) p_{t-1} \end{aligned}$$

Linear Operator model. This model postulates that:

$$p_t = Q_1 p_{t-1} = (1-k)p_U + kp_{t-1} \quad \text{if the consumer is exposed to advertisements in period } t, \text{ and}$$

$$p_t = Q_2 p_{t-1} = (1-k)p_L + kp_{t-1} \quad \text{otherwise.}$$

The expected operator for p_t is then given by

$$E p_t = [(1-k)p_U + kp_{t-1}]x(t) + [(1-k)p_L + kp_{t-1}](1-x(t)) \\ + (1-k)p_L + kp_{t-1} + (1-k)(p_U - p_L)x(t).$$

The specification for $x(t)$ will be deferred until the empirical test section.

Trial Stage Models

Let q_t be the probability that a consumer is in state T at time point t .

Variable Markov model. Since a person has or has not tried a new product, it is reasonable to assume that q_t is monotone increasing. With this assumption, the model allows only one way transition from the no trial state to the trial state. Then,

$$\text{Prob.}[NT \rightarrow T \text{ in period } t] = bx(t)$$

Hence,

$$Eq_t = q_{t-1} + bx(t)(1 - q_{t-1}).$$

It is convenient to redefine the above equation in terms of $y(t) = (q_t - q_{t-1}) / (1 - q_{t-1})$ rather than q_t , i.e.,

$$Ey(t) = bx(t).$$

Linear operator model. Unlike the case of the awareness stage model, operators are applied to $y(t)$ rather than q_t .

$$y(t) = Q_1 y(t-1) = (1-h)y_U + hy(t-1) \quad \text{if the consumer is exposed to advertisements in period } t,$$

$$y(t) = Q_2 y(t-1) = (1-h)y_L + hy(t-1) \quad \text{otherwise.}$$

This results in the following expected operator.

$$Ey(t) = (1-h)y_L + hy(t-1) + (1-h)(y_U - y_L)x(t)$$

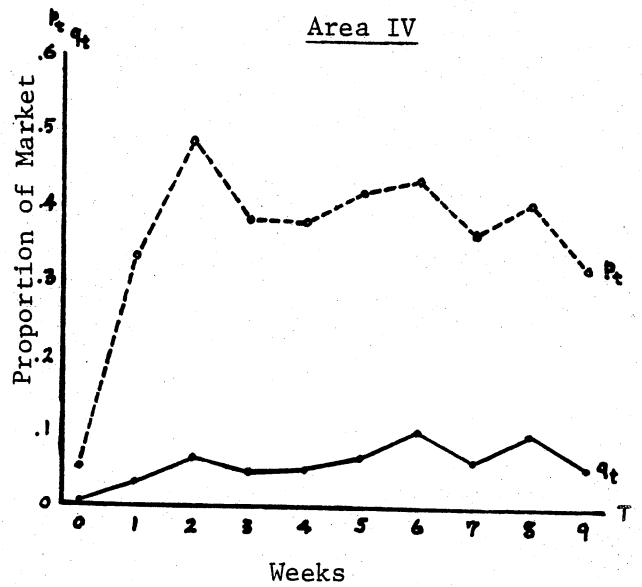
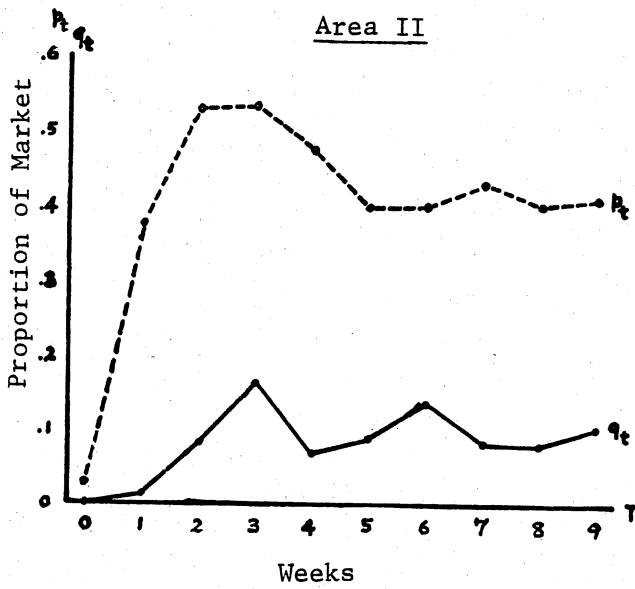
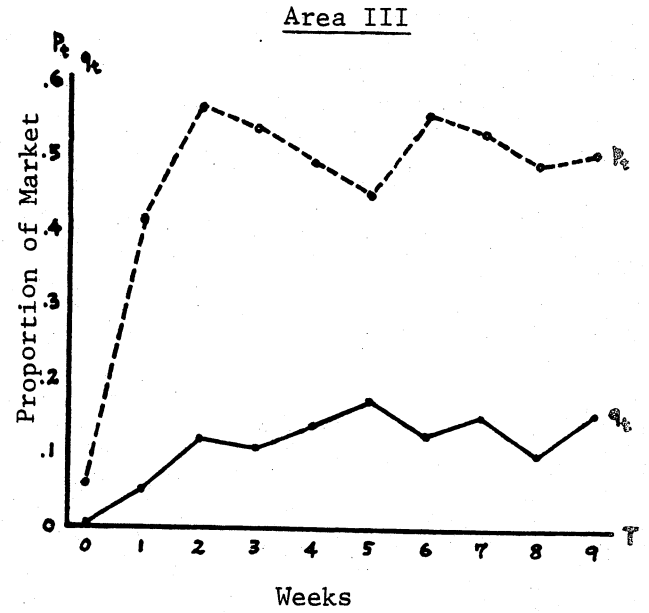
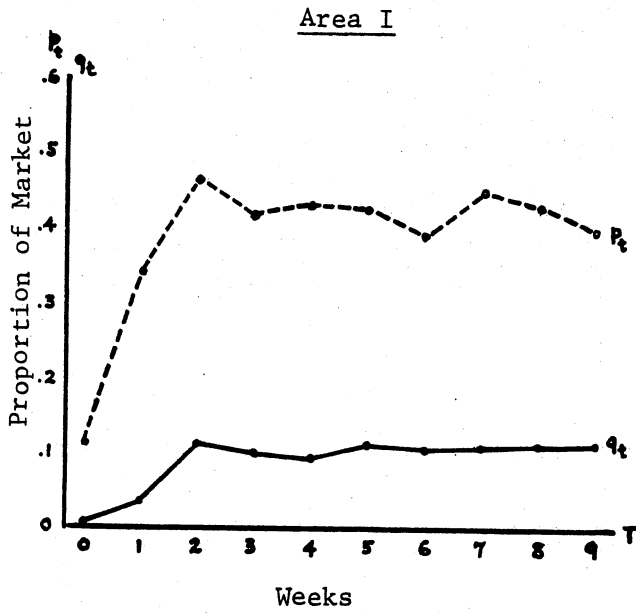
Specified in this manner, the linear operator model for the trial stage is actually a combination of the variable Markov model and the linear model. A simple application of the linear operators to q_t yields an expected operator which is essentially identical to the variable Markov model, thus making it impossible to distinguish between the two.

Test of Models

A test marketing of a new product was conducted in four cities for a period of ten months. Ten monthly telephone surveys of consumers (sample size = 200 each month) in those market areas constitute the data base for testing alternative formulations. A number of measures were taken in those surveys, but only the responses to the aided recall and trial questions discussed previously were necessary to compute p_t , q_t , and $y(t)$. Figure 1 shows p_t and q_t for each area. Expenditures in newspaper advertisements, spot TV commercials, and direct mailing of coupons in each city were also recorded.

The technique for testing the alternative models used in this study is the regression analysis. In order for obtaining specific results, it is assumed that $x(t)$ is linear in the advertising expenditures in period t . If we let

Figure 1. Level of Awareness and Trial



$A(t)$ be the advertising expenditures in three media mentioned above,⁶ then it is assumed that $x(t) = d_0 + d_1 A(t)$ for an appropriate range of $A(t)$. Given this assumption, the expressions for $E p_t$ and $E y(t)$ can be rewritten as the following set of regression equations:

Awareness Stage.

A1. Variable Markov model equation

where:
$$p_t = c_{10} + c_{11} A(t) + c_{12} p_{t-1} + c_{13} A(t) \cdot p_{t-1} + e_t$$

$$c_{10} = a_1 d_0; \quad c_{11} = a_1 d_1; \quad c_{12} = (1-a_2) - (a_1 - a_2 a_3) d_0;$$

$$c_{13} = (a_1 - a_2 a_3) d_1; \quad e_t = \text{the disturbance term.}$$

A2. Linear Operator Model equation

$$p_t = c_{20} + c_{21} A(t) + c_{22} p_{t-1} + e_t$$

where:
$$c_{20} = (1-k)[p_L + p_U - p_L] d_0; \quad c_{21} = (1-k)(p_U - p_L) d_1; \quad c_{22} = k$$

Trial Stage.

T1. Variable Markov model equation

$$y(t) = c_{30} + c_{31} A(t) + e_t$$

where:
$$c_{30} = b d_0; \quad c_{31} = b d_1$$

T2. Linear operator model equation

$$y(t) = c_{40} + c_{41} A(t) + c_{42} y(t-1)$$

where:
$$c_{40} = (1-h)[y_L + (y_U - y_L) d_0]; \quad c_{41} = (1-h)(y_U - y_L) d_1; \quad c_{42} = h$$

All of those equations are underidentifying in terms of the original parameters of respective models. But the differentiating factor between equations A1 and A2 is the cross product term, $A(t) \cdot p_{t-1}$. If c_{13} is significant one may reasonably conclude that this set of observations are better described by the variable Markov model. Similarly, if c_{42} (= the coefficient of the $y(t-1)$ term in equation T1) is significantly positive, then we may conclude that cumulative exposures to advertisements increase the trial purchase probability.

The basic format of the regression analysis is the combination of time series and cross sectional analyses to take advantage of the entire data set, but equations are also run for each test area separately in order to detect any special source of variations between areas. The regression results for the combined data set are given in Table 1. Area-by-area equations are shown in the Appendix.

In equation A1, neither the coefficient of the $A(t)$ term nor that of the $A(t) \cdot p_{t-1}$ term is significant. The inspection of area-by-area equations shows that this is caused by an extremely high correlation between the $A(t)$ and $A(t) \cdot p_{t-1}$ terms. In order to cope with this multicollinearity problem, a procedure suggested by Telser is used.⁷ In equation A1', the $A(t) \cdot p_{t-1}$ term is replaced by the yz_t term which is less highly correlated with the $A(t)$ term. The coefficient of the $A(t)$ term in A1' becomes significant, but not that of the yz_t term. Dropping this term, we obtain equation A2 whose coefficients are all significant. Thus it is concluded that the linear operator model is adequately descriptive of the underlying process.

Table 1
Regression Analysis Results: Over-All Equations

In the following, the significance level of regression coefficients are shown by (**) ($\alpha = .01$) and (*) ($\alpha = .05$).

$$A1. \quad p_t = .2746 + .0535D_3 + .00665A(t) + .3120p_{t-1} - .00818A(t) \cdot p_{t-1}$$

(**) (**) (*)

where: D_3 = the dummy variable for area III;
 $R^2 = .69$; $F = 17.31^{**}$ (d.f. = 4, 31)

$$A1'. \quad p_t = .3191 + .0580D_3 + .00362A(t) + .1973p_{t-1} - .01994yz_t$$

(**) (**) (**) (**)

where: $yz_t = (A(t) - \text{ave.}A(t)) \cdot (p_{t-1} - \text{ave.}p_{t-1}) - \text{cov}(A(t), p_{t-1})$
 $R^2 = .70$; $F = 17.80^{**}$ (d.f. = 4, 31)

$$A2. \quad p_t = .3050 + .0567D_3 + .00337A(t) + .2395p_{t-1}$$

(**) (**) (**) (**)

$$R^2 = .69$$
; $F = 23.465^{**}$ (d.f. = 3, 32)

$$T1.y(t) = -.00303 + .00224A(t)$$

(**)

$$R^2 = .25$$
; $F = 11.48^{**}$ (d.f. = 1, 34)

$$T2.y(t) = -.00151 + .00281A(t) - .5080y(t-1)$$

(**) (**)

$$R^2 = .46$$
 $F = 14.25^{**}$ (d.f. = 2, 33)

Turning to the trial stage equations, we see that the coefficient of the $y(t-1)$ term in T2 is significant but negative. Area-by-area equations show similar results. This is inconsistent not only with the linear learning model, but with the variable Markov model. Two reasons may account for the result. First, the $y(t)$'s are computed by dividing $(q_t - q_{t-1})$ by $(1 - q_{t-1})$. But, if q_t has some upper limit, $q_u (< 1)$, then the denominator should be $(q_u - q_{t-1})$ rather than $(1 - q_{t-1})$. In other words, the $y(t)$'s may be underestimated by using $(1 - q_{t-1})$ in the denominator. This underestimation becomes more serious as q_{t-1} approaches q_u . Unfortunately, it is impossible to identify the q_u value using the regression analysis. Second, because of the variability of the data, the value of $y(t)$ was negative in some cases. This is unavoidable so long as we use telephone survey data for which a fresh sample was taken at each time point. In fact, another study which used consumer purchase diary panel data yielded a positive (and significant coefficient for the $y(t-1)$ term), suggesting the appropriateness of the linear operator model.⁸ Since both T1 and T2 yielded a statistically significant coefficient for the $A(t)$ term, the effect of advertising on trial purchase probability was beyond doubt. Whether successive exposures to advertisements has cumulative effects on trial purchase probabilities had to be left for more precise analyses.

Discussion and Extension

To summarize the results of the previous section, it was clearly shown that exposures to advertisements affected the awareness and trial probabilities. However, the regression results were less conclusive on the existence of consumer learning related to cumulative effects of exposures to advertisements. It turned out that the linear operator model was an adequate representation in the awareness stage, but yielded an inconsistent coefficient in the trial stage. As was explained, this inconclusiveness may be due partly to the nature of data and partly to the inability of the regression analysis to identify all parameters of the model.

Perhaps, a more basic fault lies in the identification of relevant states. In the preceding formulation, all individuals who answered the aided recall question affirmatively were assumed to be in the awareness state. However, this is only one of many ways "awareness" can be operationally defined. The aided recall question in fact fails to isolate those individuals who are actually unaware of the product (in the sense of being able to identify the product by the name), but answer the question affirmatively anyway. Also, the responses to an unaided recall question are known to result in an over-time pattern totally different from that of the responses to an aided recall question. It may be more reasonable for the purpose of model construction if we treat the affirmative responses to a recall question as exactly what it is and not as a surrogate measure of "awareness."

Another serious shortcoming of model construction in the preceding sections is that very little integration was attempted between the awareness and trial stages. For example, the upper limit of q_t in the trial stage was assumed to be one although it is inconceivable that q_t exceeds p_t at any time--particularly with the data collection procedure used here. Also, even though $x(t)$ plays a central role in both stages, no attempt was made to estimate the parameters of $x(t)$ from the joint data set for the awareness and trial stages.

The proposed extension of the models of this study begins with redefinition of relevant states.

- No Exposure (NE): the state in which a consumer is if he has not been exposed to information concerning a new product
- Exposure (E): the state in which a consumer is if he has been exposed to new product information, but has not tried it.
- Trial (T): the state the consumer is in if he has tried the product.

It is assumed that a consumer answers yes to the awareness question with probability of p_c (= probability of confusion), p_t , and one if he is in state NE, E, and T, respectively. It is also assumed that a consumer answers affirmatively the trial question (with a probability of one) only if he is in state T. The transitions between states are summarized by the transition matrix of Table 2.

Table 2
Transition Matrix for the Proposed Model

		At t			Probability of an Affirmative Answer to:	
		NE	E	T	Awareness Question	Trial Question
NE		$1-x(t)$	$x(t) \cdot (1-y(t;t))$	$x(t) \cdot y(t;t)$	p_c	0
At t-1	E	0	$1-y(t;t')$	$y(t;t')$	$p_{t \cdot t'}$	0
	T	0	0	1	1	1

where: $x(t)$ = the probability of exposure to new product information in period t.

$y(t;t')$ = the probability of trying the new product in period t given that the consumer is first exposed to new product information in period t'.

p_c = the probability of confusion

$p_{t \cdot t'}$ = the probability of answering the awareness question affirmatively at time point t given that the consumer is first exposed to new product information in period t'.

A significant characteristic of the above formulation is that awareness state is now replaced by the exposure state. What is affected by company advertising is not the probability of being aware, for which no precise definition exists, but the probability of answering the aided recall question affirmatively. This seems to be more sensible than the previous formulation. Another important point is that now $x(t)$ is defined as the probability of being exposed to any type of new product information including advertisements for the product. There are other sources of new product information such as in-store sighting, free sampling, and word-of-mouth although advertisements are perhaps the most important to many consumer goods.

It should be noted that both $y(t;t')$ and $p_{t \cdot t'}$ have two subscripts. This is because $y(t) = 0$ and $p_t = p_c$ prior to the first exposure to new product information in period t'. If exposures to new product information should have cumulative effects, only the $x(t)$'s after t' should affect $y(t;t')$ or $p_{t \cdot t'}$. More specifically, the following linear operators are defined:

$$p_{t \cdot t'} = (1-k)p_U + kp_{(t-1) \cdot t'} \quad \text{if exposed to new product information in period } t \text{ (} t > t' \text{),}$$

$$p_{t \cdot t'} = (1-k)p_L + kp_{(t-1) \cdot t'} \quad \text{otherwise;}$$

and

$$y(t;t') = (1-h)y_U + hy(t-1;t') \quad \text{if exposed to new product information in period } t \text{ (} t > t' \text{),}$$

$$y(t;t') = (1-h)y_L + hy(t-1;t') \quad \text{otherwise.}$$

The expected operators for $y(t;t')$ and $p_{t \cdot t'}$ are given by

$$Ep_{t,t'} = (1-k)p_L + kp_{(t-1),t'} + (1-k)(p_U - p_L)x(t)$$

$$Ey(t;t') = (1-h)y_L + hy(t-1;t') + (1-h)(y_U - y_L)x(t)$$

Also, considering the fact that the probability of a consumer's making a purchase is zero to his first exposure to new product information in period t , it seems reasonable to let $y(t;t) = (1-h)y_U$. Similarly, $p_{t,t}$ may be defined as $(1-k)p_U$.

Given the transition matrix of Table 3, we find that:

$$\text{Prob. (in NE at } t) = \prod_{j=1}^t (1-x(j))$$

$$\text{Prob. (in E at } t) = \sum_{i=1}^t \left[\prod_{j=1}^{i-1} (1-x(j)) \right] \cdot x(i) \cdot \left[\prod_{j=i}^t (1-y(j;i)) \right]$$

$$\text{Prob. (in T at } t) = 1 - \text{Prob. (in NE at } t) - \text{Prob. (in E at } t)$$

In addition, we derive the following:

$$\begin{aligned} \text{Prob. (Yes to awareness question)} &= \text{Prob. (in NE at } t) \cdot p_c + \sum_{i=1}^t \left[\prod_{j=1}^{i-1} (1-x(j)) \right] \\ &\cdot x(i) \cdot \left[\prod_{j=i}^t (1-y(j;i)) \right] \cdot p_{j,i} + \text{Prob. (in T at } t) \end{aligned}$$

$$\text{Prob. (No to awareness question)} = 1 - \text{Prob. (Yes to awareness question)}$$

$$\text{Prob. (Yes to awareness question)} = \text{Prob. (in T at } t)$$

If we let:

n_t = the sample size for a survey taken at time point t

n_{1t} = the number of those who answered the awareness question affirmatively at t .

n_{2t} = the number of those who answered the trial question affirmatively at t ,

then the likelihood function for the observations from a series of surveys taken at time points $(t_1, t_2, t_3, \dots, t_M)$ where M is the total number of surveys is given by

$$L = \prod_{m=1}^M (P_{AN})^{(n_{t_m} - n_{1t_m})} (P_{AY} - P_{TY})^{(n_{1t_m} - n_{2t_m})} (P_{TY})^{n_{2t_m}}$$

where: P_{AN} = Prob. (No to awareness question)

P_{AY} = Prob. (Yes to awareness question)

P_{TY} = Prob. (Yes to trial question)

This likelihood function may be used to estimate the parameters of the model. There seem to exist no closed-form estimators for the parameters of the model, and hence it will be necessary to rely on a non-linear programming routine to maximize the above likelihood function.

Tests of hypotheses on certain parameters may be performed, using the likelihood ratio test. The most interesting hypotheses are of course $H_0: k = 0$ and $H_0: h = 0$, but for practical purposes we will be interested in knowing the relative effectiveness of various vehicles of new product information. So

far the relationship between $x(t)$ and those promotional activities has not been specified because it is believed that the best functional form for the exposure probability should be empirically determined.

The proposed extension is still highly tentative, but it squarely attacks some of the more basic problems in model building in the awareness and trial stages of the new product acceptance process. The model may appear overly complex, but the complexity is a problem only in relation to the parameter estimation procedure. The availability of an efficient non-linear programming routine mitigates this problem considerably. It may be added that the manner in which survey results are utilized as the data base represents a new approach. Consumer models have heavily relied on continuous consumer panels in the past. The proposed likelihood function opens up a source of data which so far has not been tapped to its maximum potential.

Footnotes

* Necessary computations for this study were done at the Campus Computing Network of UCLA and partly at Japan Information Service Center, Ltd., Osaka, Japan. A sincere appreciation is due to the management of the latter company for making its facilities available to the author.

1. See Everett Rogers, Diffusion of Innovations (New York, N.Y.: The Free Press, 1962), p. 78.
2. For a detailed discussion of this model, see R. Bush and F. Mosteller, Stochastic Models for Learning (New York, N.Y.: John Wiley and Sons, 1955.)
3. See, for example, George Haines, "A Theory of Market Behavior after Innovation," Management Science, Vol. 10, No. 4 (July, 1964), pp. 634-657.
4. It must be pointed out that an unaided recall question (e.g., "Have you noticed anything new in the _____ line recently?") may also be used to measure awareness although it was not used in this study.
5. This set of data was first reported in Masao Nakanishi, "A Model of Market Reactions to New Products," unpublished Ph.D. dissertation, Graduate School of Management, University of California, Los Angeles, 1968.
6. Actually, advertising expenditures were expressed in terms of dollar spent per 1,000 households within the effective area of each test market. For the justification of this procedure, see Nakanishi, op. cit., pp. 180-183.
7. See Lester G. Telser, "Least Squares Estimation of Transition Probabilities," in C. Christ and others, eds., Measurement in Economics (Stanford, Calif.: Stanford University Press, 1963), p. 287.
8. See Nakanishi, op.cit., p. 146.

Appendix

Regression Analysis Results: Area-by-Area Equations

The significance level of coefficients are indicated by:

- ** = significant at the $\alpha = .01$ level
 * = significant at the $\alpha = .05$ level
 Δ = significant at the $\alpha = .1$ level

$$A1. P_t = c_{10} + c_{11}A(t) + c_{12}P_{t-1} + c_{13}A(t) \cdot P_{t-1}$$

Area	c_{10}	c_{11}	c_{12}	c_{13}	R^2
I	.7971**	-.05317	-.9517	.15320	.70
II	.3259**	.00255	.2098	.00532	.77
III	.5326**	-.00978	-.0895	.02721	.63
IV	.1623**	.02727	.5562	-.06624	.48

$$A1': p_t = c_{10} + c_{11}A(t) + c_{12}p_{t-1} + c_{13}A(t) \cdot p_{t-1}$$

Area	c_{10}	c_{11}	c_{12}	c_{13}	R^2
I	.4930**	.00574	-.2830	.15164	.70
II	.3102**	.00466*	.2451Δ	.00578	.77
III	.4070**	.00247	.1522	.02699	.63
IV	.3077**	.00332	.1836	-.06577	.48

$$A2: p_t = c_{20} + c_{21}A(t) + c_{22}p_{t-1}$$

Area	c_{20}	c_{21}	c_{22}	R^2
I	.2565**	.00589	.3436*	.55
II	.3076**	.00463**	.2529*	.77
III	.3759**	.00207Δ	.2334*	.59
IV	.3176**	.00409Δ	.1356	.42

$$T1: y(t) = c_{30} + c_{31}A(t)$$

Area	c_{30}	c_{31}	R^2
I	-.01260**	.00567**	.70
II	-.00900	.00302Δ	.37
III	.00129	.00180	.22
IV	-.00254	.00126	.08

$$T2: y(t) = c_{40} + c_{41}A(t) + c_{42}y(t-1)$$

Area	c_{40}	c_{41}	c_{42}	R^2
I	-.01097**	.00621**	-.3351	.81
II	-.00817	.00318Δ	-.2334	.43
III	-.00050	.00288*	-.7582*	.65
IV	.00127	.00226	-.9371*	.61

METHODS FOR ANALYZING CONSUMER INFORMATION PROCESSING MODELS

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Several researchers have recently proposed information processing models of individual consumers' decision processes (Alexis et. al., 1968; Bettman, 1970; Haines, 1969; King, 1969; Russ, 1971). However, it has been difficult to interpret and analyze these models, since they have been presented as complex discrimination nets. It is readily apparent that the lack of attempts at internal analysis of the properties of these models stems from the almost complete lack of work on analysis techniques for information processing models.

Several types of analyses might be fruitful. First, information processing models of different individuals seem to be quite dissimilar and idiosyncratic. However, particular information processing models should serve as data points from which a general information processing model structure could be induced. Methods for comparing particular information processing models would be useful for this purpose.

Secondly, examining how complex process models can be collapsed into conditional simpler process models can yield insights into the dynamics of change in information processing models. Formal mathematical representations that allow for manipulation of the models are helpful here.

Third, by analyzing the fine grain details of structure in an information processing model, it may be possible to develop experimental situations to attempt to verify particular aspects of information processing models. To do this, measures of fine structures must be developed. Finally, parsimony in model building often requires testing simple models to see if they fit data. With complex information processing models, there are many possible corresponding simple models. To have a strong test of parsimony, it is desirable to have a 'rational' simple model; i.e., one that fits the data better than other simple models. Otherwise one can conclude, if a simple model fits poorly, that he just chose a bad simple model, rather than conclude that a more complex model is needed to describe the data.

This is a brief overview of some analyses of information processing models that would be useful. In previous work (Bettman, 1971), it has been shown how graph theory is useful in performing the second type of analysis outlined above, collapsing complex models into simpler models. The present study will consider further analytical tools based on graph theory that attack the other problems mentioned. The main thrust of the paper, however, deals with the first problem considered, comparing information processing models of different individuals. Accordingly, after presenting a brief review of the necessary graph theory concepts, a method for comparing information processing models will be developed. This method is then applied to artificial cases and to actual information processing models of consumer decisions. These results are interpreted. Finally, other graph theory applications are briefly considered, and the problems and prospects for this type of research are outlined.

Graph Theory Terminology

A graph consists of a set of nodes, or points, with arcs (lines) connecting pairs of nodes. In the graphs to be considered in the present study, the arcs have direction - that is, arcs are specifically directed from one node to another node. Consumer information processing models can be represented as graphs in the following manner. Each node represents a test of a particular condition (e.g., is price high?), and the arcs directed out of such a node depict the processing sequence taken, depending upon the outcome of the test. For example, in Figure 2, the first node in the model of raincoat purchasing for Subject C tests whether color of the coat is orange. If it is, an arc leads to rejection of the raincoat. Otherwise, the next node tests if the color is blue or peacock, the next node tests for brand, and so forth.

Several concepts from graph theory are useful in analyzing such information processing models. A path from some node i to some other node j is a sequence of arcs which lead from node i to node j , taking the direction of the arcs into account. In Figure 2 there is a path from node 2B to node 8B in Subject C's model, but no path from node 8B to node 7B, because the arc directions are not correct. If there is a path from node i to node j , node j is said to be reachable from node i . The distance between nodes i and j in a graph is the number of arcs in the shortest path joining nodes i and j . For Subject C of Figure 2, the distance between nodes 2B and 8B is 4.

Finally, the following matrices for any graph, based on the above concepts, will be necessary:

a) The n^{th} reachability matrix R_n

$$r_{ij}^n = 1 \quad \text{if there is a path from node } i \text{ to node } j \text{ of length } n \text{ or less}$$

$$r_{ij}^n = 0 \quad \text{otherwise}$$

b) The reachability matrix R

$$r_{ij} = 1 \quad \text{if there is a path from node } i \text{ to node } j \text{ regardless of length}$$

$$r_{ij} = 0 \quad \text{otherwise.}$$

The following result will also be needed:

Theorem: If λ is the minimum value of n such that $R_n = R_{n+1}$, then $R_\lambda = R$ (Harary et.al., 1965, p. 122).

An Information Processing Model Similarity Coefficient

Given the graph theoretic concepts outlined above, it is now possible to develop a method for comparing information processing models. The overall goal in developing such a tool is to allow a researcher to develop process-based typologies from models of several individuals. From such typologies, more general models might ensue. The rationale used in developing the method will now be presented.

Following Haines (Haines, 1969), decision process models can be thought of as attitude structures. The essence of an attitude structure is the particular rules implied for processing information. Therefore, one should compare

attitude structures in terms of the order in which information is processed and the interrelationships of various types of information as implied by the attitude structure. That is, if attitude structures can be represented as graphs, the order and sequence of particular nodes should be examined. Since the nodes in a decision net represent cues, two models are similar in the way they process information if corresponding nodes are processed in roughly the same sequence and have similar interrelations in the two models.

Thus, one way of defining similarity is by examining path and reachability structure. If for some given node i there is a path to node j of length n or less in one model, then if such a path also exists in the second model, this should add to a measure of similarity between the two graphs. Note that it is therefore necessary to label all of the nodes and retain these labels, since the identity of cues is important in making comparisons. Both models will not necessarily use the same sets of cues, so this must also be taken into account.

Suppose we have two graphs representing decision processes which we wish to compare, G_1 and G_2 . Let N_1 and N_2 be the sets of nodes for G_1 and G_2 respectively. Consider the binary variables, p_{ij1}^n and p_{ij2}^n , based on reachability structure, for the graphs G_1 and G_2 respectively:

$$p_{ijk}^n = r_{ij}^n(G_k) \text{ if both } i, j \text{ in } N_k$$

$$p_{ijk}^n = 0 \text{ if } i \text{ or } j \text{ are not in } N_k,$$

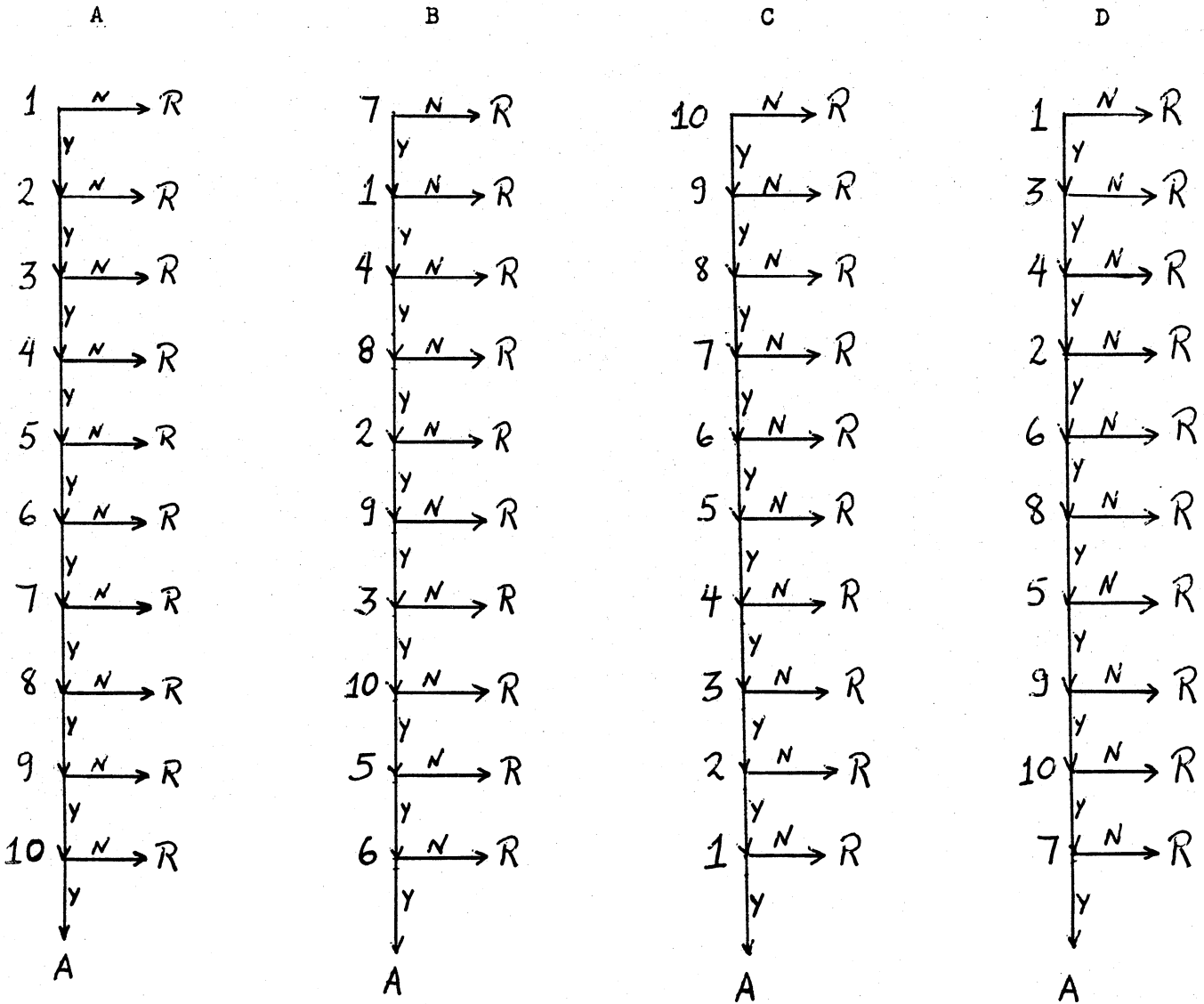
for $i, j = 1, 2, \dots, t$ and $k = 1, 2$. The total number of different cues used by both graphs is t . Thus, p_{ijk}^n just describes reachability for nodes in the same process, but is zero if node i or node j is not used in process k .

If λ_1 is the value of λ in the Theorem above for G_1 , and λ_2 the value for G_2 , define $\lambda = \max(\lambda_1, \lambda_2)$. Then a path structure similarity coefficient, $S_p(G_1, G_2)$, which we will use as a basis for comparing information processing models, is given by

$$S_p(G_1, G_2) = \frac{\sum_{n=0}^{\lambda} \sum_{i=1}^t \sum_{j=1}^t p_{ij1}^n p_{ij2}^n}{\sum_{n=0}^{\lambda} \sum_{i=1}^t \sum_{j=1}^t (p_{ij1}^n + p_{ij2}^n - p_{ij1}^n p_{ij2}^n)}$$

This coefficient mirrors the following ideas as discussed above: if both graphs have a path from node i to node j of length n or less, this increases both the numerator and denominator, and hence similarity. If there is only a path in one graph, only the denominator increases. Also, nodes not used by both graphs can only increase the denominator, not the numerator, because of the way p_{ijk}^n is defined. Thus, the greater the set of cues used by both of the two decision processes, the greater similarity can be. Finally, note that if a node i is in N_k , $p_{iik}^n = 1$ for all n .

Figure 1
Example Graphs



N No
Y Yes
A Accept
R Reject

This coefficient is certainly somewhat arbitrary. Many other possible definitions could be proposed. However, this alternative does deal with path structure and in that sense has a firm underlying rationale. A somewhat similar measure was developed independently in numerical taxonomy by Jackson (Jackson, 1969). Efficient methods for computing the coefficient using the distances between nodes can be developed.

Application of the Similarity Coefficient
Artificial Cases

Now the method will be applied to a series of examples. First a small set of artificial cases is examined to gain some initial insights into the behavior of the coefficient. The artificial cases to be considered are shown in Figure 1. Applying the coefficient to selected pairs of these graphs yields the following results:

$$S_p(A,B) = .453 \quad S_p(A,C) = .149 \quad S_p(A,D) = .635$$

Note that these graphs in Figure 1 all represent conjunctive satisficing processes. An accept decision is made only if all cues are satisfactory. Also, given acceptable levels for each cue, all conjunctive processes having the same set of cues have the same output, regardless of cue order. However, the basic idea underlying information processing models is an interest in process structure as well as output. Thus, the coefficients comparing the above model pairs should differ based on the order of cues for each graph, even though the outputs are the same. That is in fact what happens. Also, it can be seen that the coefficient varies directly with the similarity of the cue orderings for these simple cases. Of course, for more complex process graphs the results would be less obvious.

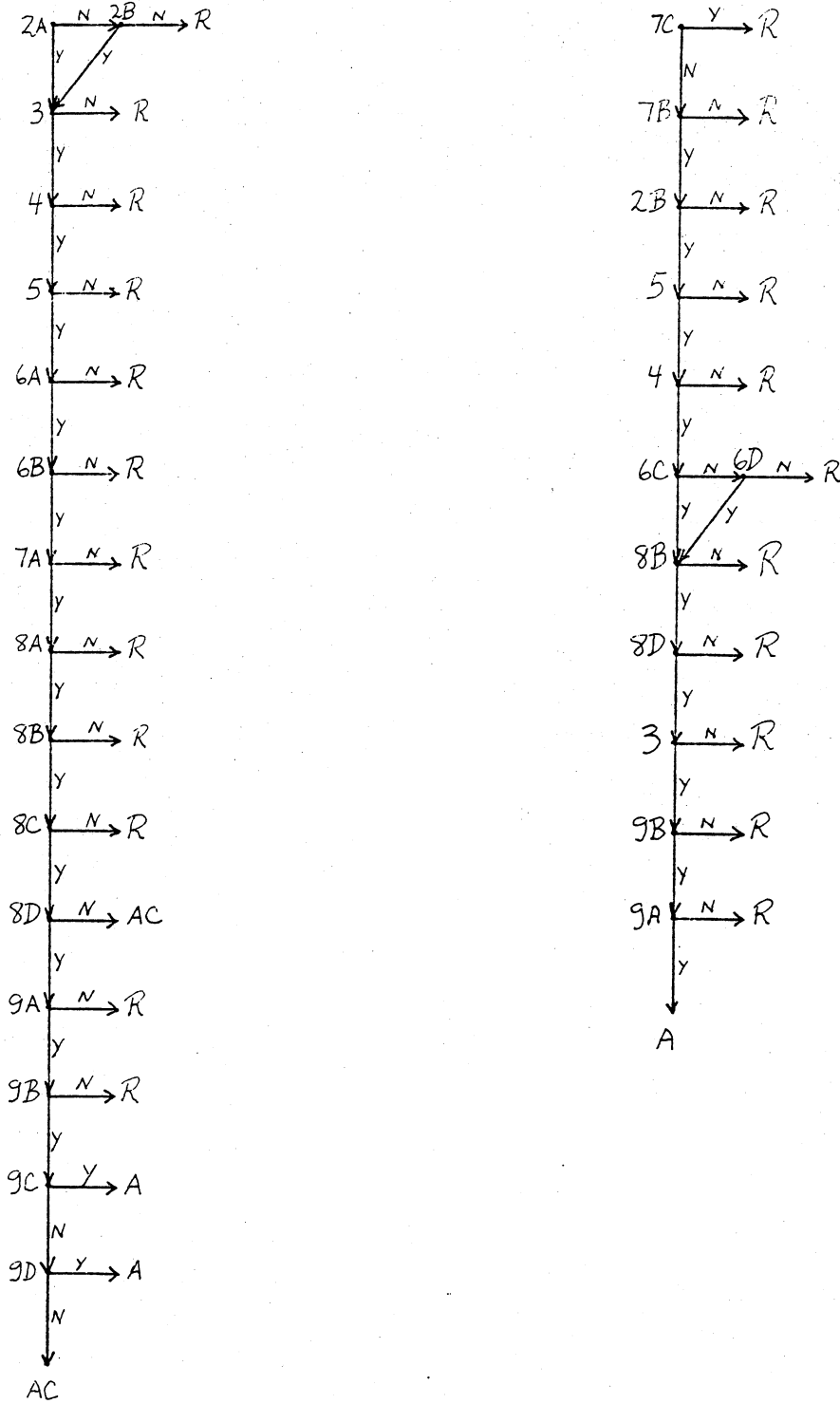
The Alexis, Haines, and Simon Models

Alexis, Haines, and Simon have developed models of two consumers' decision processes for raincoats (Haines, 1969) and of two consumers' decision processes for women's clothing (Alexis et. al., 1968). The graphs depicting these models are shown in Figures 2 and 3 respectively. Two analyses were run for each set of data. First, the similarity coefficient was applied to the entire processes, with all nodes included. Second, an analysis was performed where the similarity coefficient was computed using only those cues used by both subjects modeled. Cues idiosyncratic to each individual were ignored. For example, for the raincoat decision both subjects used cues 2B, 3, 4, 5, 8B, 8D, 9A, and 9B, and the analysis was carried out with respect to these cues. The results of the analyses were:

	Raincoats Models	Women's Clothing Models
Entire Process	.150	.060
Common Nodes Analysis	.554	.537

Note that the entire process similarities are quite low, but that for the commonly used cues the similarities are fairly high. This suggests that the common cues used by both processes have similar information processing interrelations within the context of the larger decision processes including the idiosyncratic cues. It is the idiosyncratic cues which detract from overall process similarity rather than different use of the same cues. This suggests that general models may be possible where the emphasis is on the interrelations and processing rules for a set of generally used cues. Finally,

Figure 2
 Raincoat Shopping Decision Models: Alexis, Haines, and Simon^a



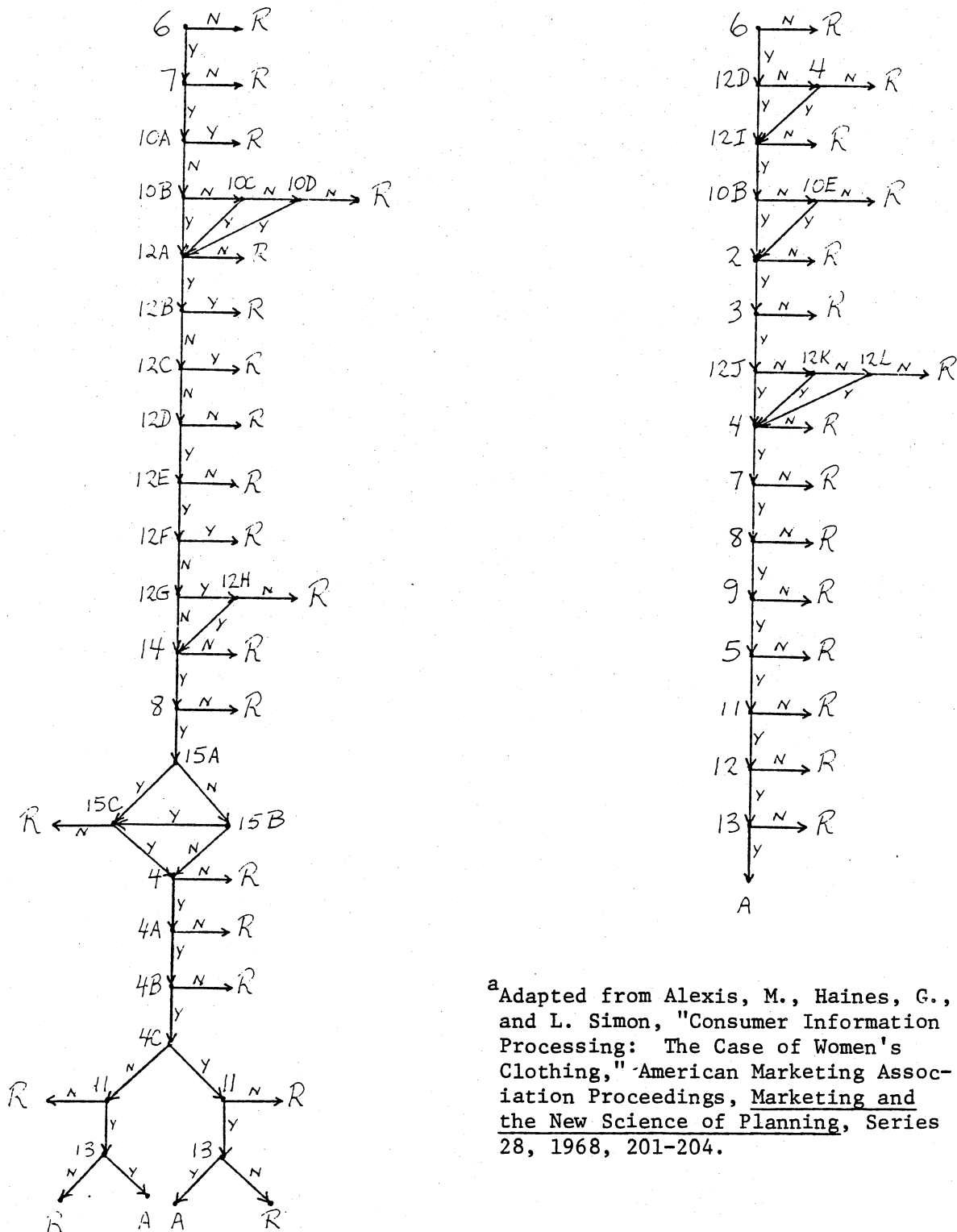
^aAdapted from Haines, G., "Information and Consumer Behavior," Working Paper, University of Rochester, College of Business Administration, July 1969, 7-11.

Key to Figure 2

A Accept
R Reject
AC Accept Conditionally
n No
y Yes

2. Is it desired brand:
 - 2 (a) London Fog?
 - (b) Misty Harbor?
3. Is it lined?
4. Is my size available?
5. Is it within the desired price range?
6. Style:
 - 6 (a) Does it not have "football" shoulders?
 - (b) Is it A-line or straight?
 - (c) Turndown collar?
 - (d) Mandarin collar?
7. Color:
 - 7 (a) Is it dark blue, black or beige?
 - (b) Is it blue or peacock (blue with some green in it)?
 - (c) Is it orange?
8. Fit:
 - 8 (a) Is it not tight underarms and without pull across back?
 - (b) Are sleeves right length?
 - (c) Does it fit correctly without the lining?
 - (d) Is the length correct?
9. Practicality:
 - 9 (a) Is it easy to care for?
 - (b) Can it be worn with most of my clothes?
 - (c) Is a less expensive lining unavailable?
 - (d) Is the more expensive lining worth the difference?

Figure 3
 Women's Dress Shopping Decision Models: Alexis, Haines, and Simon^a



^aAdapted from Alexis, M., Haines, G., and L. Simon, "Consumer Information Processing: The Case of Women's Clothing," American Marketing Association Proceedings, Marketing and the New Science of Planning, Series 28, 1968, 201-204.

Key to Figure 3

A Accept
R Reject

n No
y Yes

2. Do I need this type of item?
3. Do I have this type of item, color included, already in my wardrobe?
4. Is the item practical - in style, in fabric - i.e., will it be comfortable to wear and easy to care for?
 - 4 (a) Is it a dress I could not make?
 - (b) Is it well made?
 - (c) Can I wear it in many situations?
5. Is the item on sale?
6. Is my size available?
7. Is the item within the price range I can afford?
8. Does the item fit in hips, thighs, rear, and at the waist?
9. Does the item fit at the neckline, shoulders, and bustline?
10. Color
 - 10 (a) Is it black?
 - (b) Is it yellow or blue?
 - (c) Is it red with white flowers?
 - (d) Are the colors not too bright?
 - (e) Green, cranberry, or butterscotch print?
11. Is the item worth the price?
12. Do I like the item in general?
 - 12 (a) Does it have large, rounded, glossy buttons?
 - (b) Does it have short cap sleeves?
 - (c) Is it a shirtwaist, or does it accent the waist?
 - (d) Does it have long sleeves?
 - (e) Is it youthful and/or innocent and demure?
 - (f) Is the skirt straight?
 - (g) Is the skirt pleated?
 - (h) Is it not polka dot or clashing patterns?
 - (i) Round or roll (cowl) collar?
 - (j) Cotton or synthetic mixture?
 - (k) Cotton pique?
 - (l) Arnel knit?
13. Do I like it better than other dresses considered?
14. Is it a known and favored brand?
15. Length
 - 15 (a) Is it too long?
 - (b) Is it too short?
 - (c) Can the length be easily adjusted?

note that the raincoat models are more similar overall than the women's clothing models. However, the more complex women's clothing models still have a fairly high coefficient for the common cues, so complexity per se may not detract from the goal of building general models. The above kind of micro analysis of information processing structure is made possible by the similarity coefficient developed. One point of the present study is that this kind of analysis must be done to fully understand the implications of decision process models. The real value is in setting up a formal analysis approach rather than using casual inspection.

Process-Oriented Typologies

The path similarity coefficient can be used to develop process-oriented typologies. A matrix of interindividual path similarity coefficients could be developed if one had models of several individuals. This matrix could be used as a basis for cluster analysis to form groups. One problem with this type of approach is that obtaining large data sets of models is very time consuming, although work is being done on formal analysis of protocols (Newell, 1966).

Other methods for defining typologies might be possible. One could try to define content and structure measures for the graphs representing the processes (the specific nodes used and the structure of the graph) and develop a content vs. structure cross-classification scheme. Finally, other types of similarity coefficients could be defined. The one in this study defines similarity in terms of path structure. Other possible bases for similarity are isomorphisms or pure structural measures; distances between nodes; and clusterings of nodes. (For development of these notions, see (Bettman, 1969, pp. 169-223).)

Further Analytical Tools

As discussed in the introduction, other types of analyses might be fruitful for information processing models. Analyzing fine grain structure can be approached by measuring properties of the decision process graphs and using these measures to suggest corroborating experiments. For example, using the graph theory notion of gradability (Harary et.al., 1965, pp. 265-280), which formalizes the notion of the depth of a node in a graph, one can design an experiment to test the preferred order of cue reception in a decision making task. The results of the experiment can then be compared with the gradability measures as one means of verifying model microstructure.

The development of 'rational' simple models for a given set of data, as briefly outlined in the introduction, can also be approached from the graph theory point of view. The problem can eventually be formulated as a complex integer programming problem. The computational problems here have not been solved, however.

Problems and Prospects

There are definite problems with attempting to develop analytical tools for information processing models. The tools proposed here share several problems. Path coefficients computed for graphs with differing numbers of nodes are not strictly comparable. Some form of adjustment needs to be

investigated. The methods proposed are all reasonably arbitrary, of necessity. Many other measures could be defined. Examination of alternatives must be undertaken. Finally, for large and complex models, the computations become burdensome.

However, even with all these problems and potential pitfalls, the contention of this study is that it is essential to analyze information processing models to advance the state of the art for these models. This study has attempted to outline some of the possibilities and discuss one particular method. The results show that the prospects are good for developing a solid analytical framework.

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INDUSTRIAL SEARCH BEHAVIOR AND PERCEIVED RISK

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Introduction

One of the many fertile hypotheses suggested by Howard and Sheth's Theory of Buyer Behavior (1969) is the notion that the perceived risk of a purchase situation is strongly related to the search for information engaged in by buyers. The main purpose of this study is to test this hypothesis in an industrial marketing setting.

Anyone generally familiar with the pioneering work of Bauer, Cox, Cunningham, and others at Harvard (Cox, 1967) on the manifestations of perceived risk and information handling will note the importance of the theoretical foundations of Howard and Sheth's contention. Indeed, the latter researchers suggest that perceived risk may be an analog of a more generic construct, such as that of stimulus ambiguity, developed by Berlyne, K. C. Montgomery, and others (Howard and Sheth, p. 259). The hypothetical relation is represented in Figure 1.

The Berlyne Function

Concerning the X_1 to X_2 segment of the curve in Figure 1, the buyer is motivated to obtain more information, thereby reducing the stimulus ambiguity (perceived risk) to the left. The X_2 to X_3 portion of the curve is called 'supramaximal inhibition'. From an industrial buying viewpoint, this might be regarded as a zone in which the risk of a particular situation appears so great that the purchasing agent tends to 'freeze up' rather than to seek information about new sources of supply that would reduce the perceived risk. In such cases the agent's information seeking would drop markedly, thus moving from right to left on the curve. To the left of X_1 the ambiguity (perceived risk) is so small that the industrial buyer increases his search behavior due to curiosity and a need to relieve the monotony of continually using the same sources of supply. The present study tests the existence of this 'two bump' (two local maximums) relationship between the perceived risk and industrial search described in Figure 1.

Styles of Risk Perception and Search Patterns

A secondary objective of this study is to determine whether or not there are distinct styles of risk perception, and whether or not these styles, if they exist, in any way affect purchasing agents' search for information.

Several writers have suggested conflicting theories in an effort to explain how industrial buyers search for information. For example, Webster (1965) says, "The search process starts with an evaluation of goals and if the present state of goal attainment is satisfactory, there is no need to search." From this one can see that if goals are raised the search process will be activated. However, any search effort has high cost and time constraints. Webster suggests that one stops searching when the value is less than the cost of gathering information.

Ammer (1968) disagrees that the buyer is limited in his search process at all. He feels that good buyers go to great pains to develop new and untried suppliers, even when there is nothing

new or revolutionary about the product, if for no other reason than to stimulate competition. He says, "Buyers should always be in the process of developing new suppliers in an effort to lower prices, assure continuity of supply, consistency of quality, and to gain favorable relations with suppliers."

However, the work of Bauer (1960) disagrees somewhat with both Webster and Ammer. Citing the work of Katz, Menzel, and Coleman on the adoption of new drugs by physicians, he says that people concentrate on ways to reduce risk after a decision is made and seek out information that confirms the wisdom of their decision. People change their own responses to bolster their perception of the desirability of their actions.

The work of Wilson (1970) suggests a reconciliation of the divergent views on the search process. He would say that there are distinct 'styles' of search behavior which are related to personality variables, such as the need for certainty, the need to achieve, and generalized self confidence. In his study three decision styles were evident. There was (1) a normative group which generally tended to make choices congruent with a normative decision model (analogous to Webster's view) and, (2) a conservative group which tended to avoid uncertainty and large negative outcomes (the Bauer argument). Wilson also found (3) a group which appeared to have more vague behavior which could neither be categorized as 'conservative' nor 'normative'. We suggest that this group represents one which tends to have a wider range of search strategies that would closely approximate the Berlyne curve of Figure 1.

Under some conditions (e.g. low risk) the switchers would undertake considerable search for 'curiosity' type motives, as cited above by Ammer. In conditions of medium risk they would undertake search patterns more consistent with 'rational' or economic considerations - that is, they would respond to price and product characteristics as opposed to perceived risk.² With higher risk perception, the switcher would act to reduce risk by increasing his information up to a point of overload. At the overload or 'supramaximal inhibition' point, information seeking would decline. In fact, if one accepts the Berlyne relation as a valid explanation of the relation between perceived risk and search, that of a "switcher" would be the most normal style of decision-making. Conservative or normative styles would be deviant from the norm. (A style which is normal, of course, is not necessarily the most effective.)

This study will attempt to show that there are distinct patterns of search behavior, and that these styles are correlated with styles of risk perception.

Organization of the Paper

This paper is organized into six major parts: (1) the data base, (2) a description of the instruments, (3) methodology, (4) hypotheses and results, (5) alternative explanations for data, and (6) implications for further consumer research.

Data Base

The data for this study were obtained from questionnaires returned through the mail by 71 purchasing agents belonging to two active chapters of the National Association of Purchasing Management, both located in the northeastern United States. Of 409 listed members in these two chapters, 200 were mailed questionnaires. Seventy-one (71), or 35%, of the 200 members contacted returned usable questionnaires.

A secondary questionnaire was necessary to obtain independent judgments by a second, but presumably similar, group of purchasing agents. One hundred (100) members of the same two northeastern U.S. chapters, who had not received the main questionnaire, were distributed copies of the secondary questionnaire. Thirty (30) of the 100 questionnaires were returned and usable. In both cases the cover letter accompanying the questionnaire was made purposely vague in regard to the objectives of the study in order to avoid engendering a positive response set or bias. Given the meager information that the cover letter supplied, and the lengthiness of the forms, the relatively high rate of return, that is, 35% and 30%, is surprising.

The Instruments

The instruments were the main questionnaire and the secondary questionnaire. The former was used for measuring risk and search, and the latter was used only for scaling, that is, to determine the scale values of the search strategies.

The Case Used as the Basis for Responses

Both questionnaires used the same hypothetical purchasing case, citing the "DeLar Industries". It read as follows:

"DeLar Industries produces metals and chemicals for the electrical and electronic industry. Recently the company developed a new process for manufacturing a copper metal powder more efficiently. The plant producing this powder has now been in operation for six months.

"Ted Tallon, the purchasing manager for the division, established the sources for the raw materials used in the process. The major chemical used in the process is soda ash. It would have been possible to use caustic soda; however, at the time the availability and price were more favorable to the use of soda ash. During the first six months of operation there were no major difficulties with either the price or availability of soda ash."

Directions accompanying the main questionnaire instructed the purchasing agent to play the role of Ted Tallon in answering twelve situational variants of the main case. (See Figure 2.) Since the secondary questionnaire involved the scaling of industrial search, slightly different instructions were given. For each situation area, the respondents to the secondary questionnaire were asked to indicate their assessment of the degree of 'search' represented by each strategy that DeLar could adopt. The instructions stated that search could be formally defined as:

"The systematic investigation and development of alternative sources of supply, selection, and new products consistent with purchasing objectives and company goals."

Each of the twelve situational variants used in the main questionnaire included two five-point rating scales, one for certainty and one for consequences, respectively. Four or five search strategy alternatives were provided for each variant. Each situational variant in the main questionnaire had its counterpart in the secondary questionnaire. However, the rating scales for scaling search, which are described in the next section, were quite different. The similarities and dissimilarities between the main and secondary questionnaires will become clear after examination of Figures 2 and 3.

Scaling of Perceived Risk and Industrial Search

In order to maintain continuity with the earlier Harvard work, a technique almost identical with Cunningham's operational measure of perceived risk was used (Cox, p. 84-86). Measures of

certainty and consequences (danger) were obtained on five category rating scales. The number one was arbitrarily assigned to the first category, two to the second, etc. The product of the certainty rating and that of the consequences rating was taken as a measure of risk. In spite of some methodological problems with the scaling procedure, as noted by Cunningham, this method has been assumed in the past to be reasonably indicative of the perceived risk variable. (See Figure 2.)

The scaling of industrial search called for a different approach. The purchasing agents were given a set of 4 or 5 search strategies per question and were asked to choose the one which they were most likely to adopt given the purchase situation. (Also see Figure 2.)

The method adopted for obtaining scale values of search for each strategy was the method of successive intervals first introduced by Thurstone (see Saffir, 1937), and later refined by Edwards and Thurstone (1952) and Torgerson (1958). This method involves the use of a separate set of "judges" who do not fill out the main questionnaire; rather, their only contribution is to rate each strategy according to how much "search" they believe it represents. To some extent, then, the validity of the scale values is dependent upon the judges having been drawn from exactly the same population as the respondents to the main questionnaire. Scale values obtained in this manner have been found to be highly valid, even when as few as 15 judges were used per group (Rosander, 1936).

Independent judgments are obtained for the values of items, such as, in our case, the (a), (b), (c), and (d) strategies. In this study these strategies were sorted into a series of eleven categories. Cumulative frequencies were obtained for the number of times a strategy was placed in each of the eleven categories. The cumulative frequencies were converted to their normal deviates, and then the strategies were scaled according to the formula:

$$S_i = \ell + \frac{0.50 - SP_b}{P_w} w_j$$

where:

- S_i = the value of the i th search strategy
- ℓ = the lower limit of the interval on the 'psychological continuum' on which the median falls
- SP_b = the sum of the proportions below the interval in which the median falls
- P_w = the proportion within the interval in which the median falls
- w_j = the width of the interval on the 'psychological continuum'

Despite the criticism that there are confounding effects associated with the judges being presented with a different task than the subjects, the method of successive intervals seems to be a reliable scaling procedure. (See Scott, 1968).

Methodology

A polynomial regression was run, treating all values of risk and search across subjects as separate cases. In order to demonstrate a two bump curve similar to the one in Figure 1, a polynomial regression equation of the form

$$Y = b_0 + b_1X + b_2X^2 + b_3X^3$$

would have to be statistically significant. (In general, a curve with one "bump" has the equation $Y = b_0 + b_1X + b_2X^2$. For each successive term of higher degree added, such as b_3X^3 or b_4X^4 , the curve acquires one more "bump".) However, the particular routine which was used (Dixon, 1968) proceeds in a step-wise fashion. First it fits a linear relation, then a quadratic, then a cubic, until the user specifies that it stop. At each stage an analysis of variance is performed and an F ratio is calculated.

In order to isolate distinct styles of risk perception, a Q-type factor analysis with orthogonal rotation was performed on the risk data. In other words, each subject was considered to be a variable, and each of the twelve situational areas to which the subjects responded was regarded as an observation on the variables. The effect of this type of factor analysis is to group subjects into distinct groups according to their loadings on each factor. Four factors were rotated. An arbitrary minimum cut-off point was set for deciding whether or not to include a subject in a given factor. Only if his loading was equal to or greater than 0.50 with, say, factor 1, but lower than 0.40 with any other factor was he included.

Polynomial regressions were run for each significant risk factor. In addition, an R factor analysis was run. The risk measure for each of the twelve situational areas was taken to be a variable, and the responses of each of the subjects was taken to be an observation. Regressions were run on each factor of any significance.

Results and Hypotheses

Hypotheses

The basic hypotheses of this study were:

- 1) That a Berlyne shaped curve would fit the relationship between perceived risk and search behavior; and
- 2) That there would be specific types, that is, groups, of risk perceivers, and that each group would demonstrate a characteristic search behavior different from, yet consistent with, the Berlyne curve.

Design Considerations

The polynomial regression program adopted in this study was taken from the University of California Biomedical Program Library (BMD 05R) edited by Dixon (1968). The program in question allows only a maximum of 500 observations on each variable. Since 71 purchasing agents returned questionnaires, and since there were 12 responses per questionnaire, there was a total of $12 \times 71 = 852$ responses -- 352 more than could be analyzed. It would, of course, be possible to eliminate 352 responses on a random basis, thus bringing the total down to 500. However, if certain of the twelve questions evoked a radically different set of responses from the norm, a random selection would not ensure representativeness.

It was decided to factor-analyze both the 12 risk questions and the 12 search questions. If any distinct factors were determined on either variable, a random selection of responses would be precluded. The results of the two factor analyses are presented in Table 1.

The factor analyses indicate that it is not possible to group the questions together on the basis of search. The first factor on the search variable accounted for only 10% of the variance and only had one question which loaded on it. On the other hand, the first factor in the risk factor analysis accounted for 32% variance and had three questions which loaded on it. The mean rating on it for risk was 15.74, which was considerably higher than the overall average of 11.48. (Range was 1 to 25.)

As a result, the data were divided into two groups of questions - (1) all of the responses for variables loading high on the first risk factor, which will be called the "high risk" group of questions, and (2) all other responses, which will be called the "normal risk" group.

The curve fit to the "high risk" factor appears in Figure 4. The means, correlation co-efficients, ANOVA tables, et cetera, are given in Table 2. Similarly, the curve fit to the "normal risk" questions appears in Figure 5, and Table 3 presents the data on it.

Figure 4, representing the "high risk" questions, does exhibit some of the characteristics of the Berlyne curve, such as two local maximums. However, the curve is dissimilar in some important respects. No overload point is observed beyond which search declines. Also, at low ranges of risk, search actually declines. The most disturbing quality of this group, though, is the almost zero correlation co-efficient between risk and search ($R^2 = 0.001$).

The second set of data, representing the "normal risk" questions, exhibits a higher correlation co-efficient ($R^2 = 0.289$); however, the curve fit to the data is nowhere close to the Berlyne curve. The curve fit to the data (Figure 5) is almost linear with a slight bow to it. Searching only gradually increases with the risk.

At this point it could not be argued that the data generally supports the Berlyne formulation of hypothesis 1. However, the authors believe that the low correlation co-efficient and the unexpected shape of the curves can be explained as the result of an artifact of composition, that is, the result of regressing several heterogeneous groups of risk perceivers. The effect of this would be to confound the actual relationship between risk and search.

The next section is devoted to analyzing the results of segmenting the respondents into distinct groups of risk perceivers. It will be seen that the effect was to remove some of the 'noise' from the data, and to provide results more clearly consistent with the hypotheses.

The Q-Factor Analysis of Subjects

A factor analysis of perceived risk was conducted with varimax rotation of four factors. Each subject was considered to be a variable, and each of the twelve questions was considered as a separate observation. Only 64 subjects were included, because several were eliminated for not answering a complete set of questions. The results of the factor analysis are presented in Table 4.

The fact that the first four factors account for such a large percentage of the total variance on the risk variable strongly supports the division of subjects into groups of distinctly different risk perception. In fact, the first ten (10) factors in the analysis accounted for a total of 98% of the variance. Additionally, the pattern of variable (subject) loadings was very unambiguous

- subjects tended to exhibit loadings of 0.70-0.99 on one of the rotated factors, and 0.35 or less on all other factors.

The relationship of these risk perception groups to search behavior will be the subject of the next section.

Polynomial Regressions for Each Group of Risk Perceivers

On the basis of their loadings on the Q-factor analysis, the subjects were divided into five groups. The first four groups were composed of those subjects, respectively, who unambiguously loaded on the first four factors. The fifth group, the largest, was composed of those subjects who did not clearly load on any of the first four factors. Table 5 indicates the composition of each of the five groups.

For each of the five groups, referred to as Groups 1 - 5, search was regressed onto risk by the polynomial regression routine. The analysis of variance for each of these regressions are presented in Tables 6a through 6e. Figures 6A through 6E present the line of regression fit by the routine to each group of data.

The results of the regressions for each of the five risk groups were consistent with both the Berlyne curve hypothesis and the notion that style of risk perception affects the search pattern. Although the means of risk and search for each of the five groups were fairly similar, the frequency distribution of risk, that is, the skew towards the low risk (left) end of the frequency distribution. (See Figures 6a and 6b.) For reasons which will be explained in the following pages, these two groups were dubbed the "search simplifiers." (2) Group number 3 had a risk frequency distribution which approximated the normal curve. (See Figure 6c.) This group was called the "search norms". (3) Finally, groups 2 and 5 had a skew to the high end of the risk scale. (See Figures 6d and 6e.) These two groups were called the "searchers: mirror image groups". The results of the regression analyses follows.

The Search Simplifiers

The search simplifiers, who are made up of groups 1 and 4, tend to be low risk perceivers. Their means are lower than the mean for all groups, and their modes are considerably lower than the average. The mode in each case was 4, versus the overall average for all groups of 11.48. The type of search curve was very similar for both groups 1 and 4. (See Figures 6A and 6B.) The simplifiers' search curves increased very gradually as the risk was increased, and at the higher values of risk the amount of searching leveled off and declined. The most obvious thing about these curves is the very slow rate of change of search and the absence of inflection points similar to the Berlyne curve. One might argue that this group is similar to what Wilson (1970) called the "conservative" group. They seem to have no curiosity 'bump' at the low levels of risk. Instead, they seem to be motivated to seek more information up to a certain level of risk. At that point of risk overload, the simplifiers reduce their information intake.

Conservative often means a disposition to do things in traditional ways. The search process, as Bauer (1961) notes, often fulfills the need to justify previous decisions, that is, in the case of a conservative purchasing agent, decisions made according to traditional criteria. In this case the agent is likely to be examining and reexercising his well worn criteria and searching to find more support for them. At levels of high risk the criteria he is using are likely to be challenged the most. To avoid the possibility of discovering new information which might enlarge the challenge to his traditional criteria, he reduces his search for new information. In other words, he simplifies the situation by avoiding new information. The fact that these persons tend to perceive risk as low could be accounted for by the fact that they refuse to look at the whole

range of consequences which might result from their purchase decisions. We might further speculate that these individuals are likely to believe that observance of "tried and true" decision rules, or "rules of thumb", will always minimize the possibility of harmful consequences.

The Search Norms

"Search norms" is the term used to designate group 3. (See Figure 6C.) The mean (10.94) of this group on risk was only 54/100 of a unit of risk different from the overall mean of 11.48. The mode of the group was 12, which was even closer to the overall mean. The type of search curve observed was very similar to the Berlyne curve illustrated in Figure 1. It had a characteristic bump at the low end of the search scale, representing the curiosity motive; at the higher levels of risk search increased and then eventually dropped off at the point of supramaximal inhibition. The curve appears to be a good deal flatter than the theoretical curve of Figure 1, as indeed do all of the observed curves. The reason for this flatness may be largely attributed to the fact that search is scaled on a range of 0 to 3.2, while risk is scaled on a range of 1 to 25.

The search norms are probably the same group to which Wilson (1970) refers as the "switcher" group. This group tends to seek information for its own sake at lower levels of risk, but at the higher levels search behavior is consistent with that of the search simplifiers, or conservatives. The search activity at low levels of risk is similar to what Ammer (1968) meant when he said that buyers go to great pains to develop new and untried suppliers, even when there is nothing new or revolutionary about the product, if for no other reason than to stimulate competition.

The fact that this group accounted for only 8% of the total variance indicates that in the purchasing profession most agents do not fall into the switcher category. On the contrary, they tend either to be search simplifiers or searchers.

The Searchers: Mirror Image Groups

The searchers were called "mirror image" groups because their search curves (see Figures 6D and 6E) were mirror images of the familiar Berlyne curve. This fact suggests that these individuals tend to regard as risk just the opposite of what would be expected. It will be recalled that the original justification for the hypotheses stated that perceived risk should be considered an analog of "stimulus ambiguity". Thus the higher the perceived risk, the higher the stimulus ambiguity. For the searchers, however, it appears that a low risk situation represents a greater ambiguity than a high risk situation.

The risk means for each of the searcher groups were higher than the overall mean: 12.51 and 11.25 versus 11.48. The modes in each case were 16. (See Figures 6d and 6e.) The fact that the searchers see all situations as more risky may be the key to why they exhibit a mirror image search curve. These purchasing agents may fit the model suggested by Webster (1965); that is, "the search process starts with an evaluation of goals, and if the present state of goal attainment is satisfactory, there is no need for search." These persons' curiosity motive would be activated only when goals are higher than goal attainment. This would certainly be a situation in which there was very high risk. However, to the searcher, such a clear gap between goals and goal attainment would be a very unambiguous situation. Hence, their curiosity would be aroused.

As the risk becomes smaller, goals and goal attainment would be closer together. Ambiguity would increase because the searchers would no longer have a clear goal at which to aim. Paradoxically, as the risk declines even more, the response level increases. This might occur when the searcher begins to feel too comfortable. At the very lowest level of risk the searcher's

search would fall off completely, as he would seek to reduce the information overload of being concerned with a situation in which his goals and goal attainment are in perfect harmony. The searcher then is primarily an active person in his outlook. His idea of ambiguity is a situation in which he can't act. In contrast, the search simplifier, or conservative, is basically passive in his outlook. To him an ambiguous situation is one in which he must act.

Summary of Results

The results of this study were generally consistent with the Berlyne relationship between perceived risk and search suggested by Howard and Sheth (1969). Through a Q-factor analysis of perceived risk 5 distinct groups of risk perceivers were isolated. These 5 groups exhibited distinct styles of search behavior. On the basis of their search behaviors the five groups were reduced to three groups of distinct risk search inter-relationships. These three groups were labeled (1) the "search simplifiers", (2) the "search norms", and (3) the "searchers: mirror image groups". The search simplifiers exhibited an almost linear curve with slight positive slope; it had a slight bow to it, making it concave to the x-axis. The search norms had a curve identical to the Berlyne relationship of Figure 1. The searchers had a curve that was the mirror image of the Berlyne curve. The frequency distributions of risk for each of these three groups was consistent with an explanation of their shape.

Alternative Explanations for Data

The rule of parsimony for use with polynomial regression is to drop from the equation those terms of higher degree which do not enlarge the overall significance of the equations. Examination of Tables 6a through 6f will demonstrate that, with one exception, the equations were significant at the 0.01 level or below for each stage (degree) of the equation for each of the five groups. This implies that the quadratic and cubic terms should be dropped from every equation considered, because they do not contribute meaningfully to the explanation of the data. In other words, a strong case could be made for saying that all relationships observed were linear. Acceptance of the linear point of view would necessitate rejection of the Berlyne curve explanation.

The best counterargument for the linear claim is a consideration of the presence of a considerable "noise", that is, random, unexplained variance, in the data. The direct mail questionnaire, when filled out by busy executives in their offices, is an inherently fallible tool. Interruptions to the executive by his secretary and others, insufficient time to study each question, and the distractions of work pressure are likely to create such random error. In such a case the "noise" is likely to take the form of considerable scatter in the data points.

Polynomial regression, like linear multiple regression, uses the least square technique of fitting the line of regression to the data points. When the data points are widely scattered the polynomial regression loses much of its sensitivity to patterns in the data. In such cases a simple linear equation is likely to be as significant, statistically speaking, as a polynomial one. Nevertheless, it is not then possible to accept a null hypothesis of no polynomial equation. One can only say that no polynomial was observed.

The strongest support for the hypothetical Berlyne relationship between risk and search is the curves themselves (Figures 6A through 6E). They represent least square cubic fits of lines to the data. In other words, each curve represents a cubic polynomial which is drawn such that no other cubic curve better fits the data. This being the case, it would be an amazing coincidence to obtain 5 curves which so closely approximate our a priori expectations for each of the five data groups.

Implications for Further Consumer Research

From the viewpoint of purchasing management, certainly the most important implication of this research has to do with the three styles of risk-search interaction. The question should be asked as to which of the three styles, the simplifier, the norm, or the searcher, tends to be the most effective in specific situations. For example, would it be better to have a searcher or a simplifier if the company is rapidly expanding its facilities? Each style would be likely to have its own peculiar weaknesses and strengths.

Marketers would, of course, be concerned with risk perception styles, particularly from a segmentation viewpoint. The Berlyne curve relationship also suggests points to be considered in personal selling to purchasing agents. For example, a searcher is more likely to respond to a moderate or high pressure sales approach than to one which is extremely low key. An industrial salesman using a low key approach on a searcher should be careful that "low key" does not become synonymous with low risk. On the other hand, a search norm is likely to respond well to a low risk - low key sales approach.

From the standpoint of consumer research, the fact that perceived risk can be tucked into the stimulus ambiguity paradigm suggests that other constructs with which we have been working might fit the mold too. Some possible candidates are source credibility, persuasive fear, divided attention, and cognitive clarity. Perhaps a more generic understanding of these constructs is abuilding.

¹Assistant Professor of Business Administration, Washington State University, Pullman, Washington. Effective August 1971.

²Cardoza and Cagley (1971) found that generalized risk was associated with selection of vendors, but that risk specifically associated with price or product differences was not influential on vendor selection. This indicates that there are not strong interaction effects between the buyer's risk perception and his price/product perception.

TABLE 1
R-Factor Analyses of Risk and Search: Proportion
of Variance Accounted For and Factor Loadings

Search			Risk		
Factor	Variance Accounted For	Number of Variables Loaded*	Factor	Variance Accounted For	Number of Variables Loaded
1	0.10	1	1	0.32	3
2	0.05	0	2	0.08	3
3	0.04	0	3	0.05	2
4	0.03	0	4	0.03	1
5	0.02	-	5	0.02	-
6	0.01	-	6	0.01	-
Total	0.25	-	Total	0.51	-

*Throughout the study a variable was considered to be loaded if its loading exceeded 0.50 on a given factor, and was less than 0.40 with respect to all other factors. Only the first four variables were rotated in each case.

TABLE 2
Analysis of Variance for "High Risk" Factor

<u>Source of Variation</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
Due to regression:	3	1.54	0.51	2.20
Deviation about regression:	170	39.64	0.23	-
<u>Total:</u>	173	41.18	-	-
n - 174	\bar{x} - 15.75	\bar{y} - 2.51	R^2 - 0.002	

TABLE 3
Analysis of Variance for "Normal Risk" Factor

<u>Source of Variation:</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
Due to regression:	3	17.76	5.92	15.51
Deviation about regression:	491	187.42	0.38	-
<u>Total:</u>	494	205.19	-	-
n - 495	\bar{x} - 9.97	\bar{y} - 2.04	R^2 - 0.29	

TABLE 4
Q-Factor Analysis of Risk Across Subjects:
Proportion of Variance Accounted For and Factor Loadings

<u>Factor</u>	<u>Variance Accounted For</u>		<u>Number of Variables (Subjects) Loaded</u>
	<u>Each Factor</u>	<u>Cumulative</u>	
1	0.43	0.43	12
2	0.11	0.54	9
3	0.08	0.62	7
4	0.08	0.70	7
5	0.06	0.76	not rotated
6	0.06	0.81	not rotated
7	0.05	0.86	not rotated
8	0.04	0.90	not rotated

TABLE 5
Composition of the Five Groups of Subjects

	<u>Number of Subjects</u>
Group 1	14
Group 2	9
Group 3	7
Group 4	7
Group 5	27
Total	64

TABLE 6a
Analysis of Variance for Group 1 - the "Search Simplifiers"

<u>Source of Variation</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
Due to regression:	3	2.51	0.84	2.21
Deviation about regression:	152	57.56	0.37	—
<u>Total:</u>	155	60.07	—	—

TABLE 6b
Analysis of Variance for Group 4 - the "Search Simplifiers"

<u>Source of Variation</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
Due to regression:	3	7.68	2.56	5.78
Deviation about regression:	80	35.38	0.44	—
<u>Total:</u>	83	43.06	—	—

TABLE 6c
Analysis of Variance for Group 3 - the "Search Norms"

<u>Source of Variation</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
Due to regression:	3	8.50	2.83	7.48
Deviation about regression:	80	30.29	0.38	—
<u>Total:</u>	83	38.78	—	—

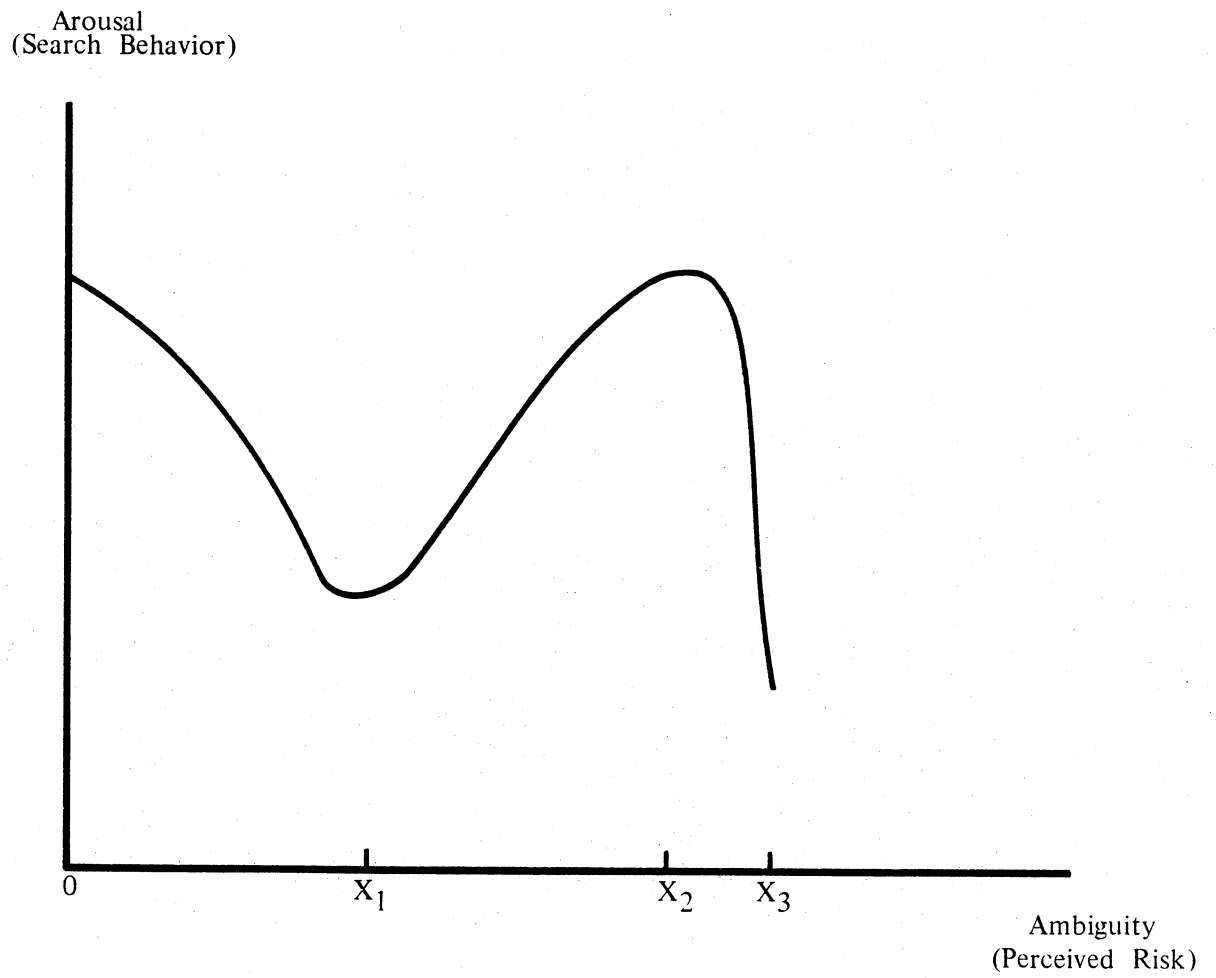
TABLE 6d
Analysis of Variance for Group 2 - the "Searchers: Mirror Image Group"

<u>Source of Variation</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
Due to regression:	3	28.04	9.35	28.88
Deviation about regression:	104	33.71	0.32	—
<u>Total:</u>	107	61.75	—	—

TABLE 6e
Analysis of Variance for Group 5 - the "Searchers: Mirror Image Group"

<u>Source of Variation</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
Due to regression:	3	33.22	11.07	29.54
Deviation about regression:	332	124.48	0.37	—
<u>Total:</u>	335	157.70	—	—

FIGURE 1
The Berlyne Function



Search Behavior and Perceived Risk (See Howard and Sheth, p. 161).

FIGURE 2

Typical Format Used for the 12 Situational Areas of the Main Questionnaire

The soda ash suppliers have a labor contract being negotiated next month. The history of the industry favors a three month strike. Your plant only has enough storage capacity for one month.

How dangerous (grave, serious) would be the consequences of this situation area?

not dangerous	a little dangerous	somewhat dangerous	dangerous	extremely dangerous
/ _____ /	/ _____ /	/ _____ /	/ _____ /	/ _____ /

Considering the level of danger that you have judged above, how certain are you that the consequences will be as dangerous as you think?

not certain	a little certain	somewhat certain	certain	extremely certain
/ _____ /	/ _____ /	/ _____ /	/ _____ /	/ _____ /

Check one of the following strategies:

- a. Find warehouses in which to store material.
- b. Find and develop non-union suppliers of the product.
- c. Seek foreign sources with no unions.
- d. Fill your warehouse and hope the strike ends in a month.
- e. Work overtime to build up finished powder.

The purpose of this questionnaire was to measure certainty, consequences (danger), and search strategy.

FIGURE 3

Typical Format used for the 12 Situational Areas of the Secondary Questionnaire

The soda ash suppliers have a labor contract being negotiated next month. The history of the industry favors a three month strike. Your plant only has enough storage capacity for one month. One of the following strategies will be adopted by DeLar:

- A. Find warehouse in which to store material.
- B. Find and develop non-union suppliers of the product.
- C. Seek foreign sources with no unions.
- D. Fill your warehouse and hope the strike ends in a month.
- E. Work overtime to build up finished powder.

Rate each of the above strategies on the corresponding scales below by placing an "X" at its level of 'search'.

	very low search	slight search	some search	average search	above average search	high search	very high search
A. :	_____	: _____	: _____	: _____	: _____	: _____	: _____
B. :	_____	: _____	: _____	: _____	: _____	: _____	: _____
C. :	_____	: _____	: _____	: _____	: _____	: _____	: _____
D. :	_____	: _____	: _____	: _____	: _____	: _____	: _____
E. :	_____	: _____	: _____	: _____	: _____	: _____	: _____

The purpose of this questionnaire was to determine scale values for search strategy by the method of successive intervals. This example corresponds to the question in Figure 2.

FIGURE 4: Curve representing the "high risk" questions.

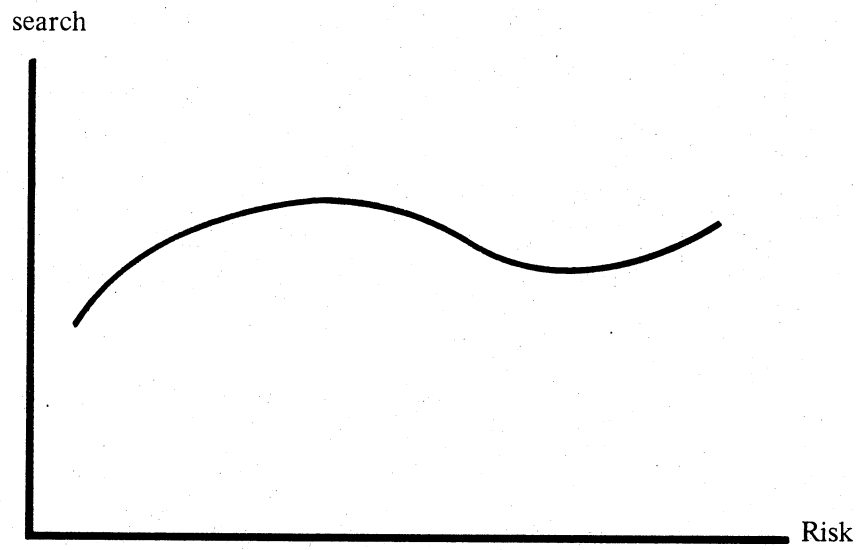


FIGURE 5: Curve representing the "normal risk" questions.

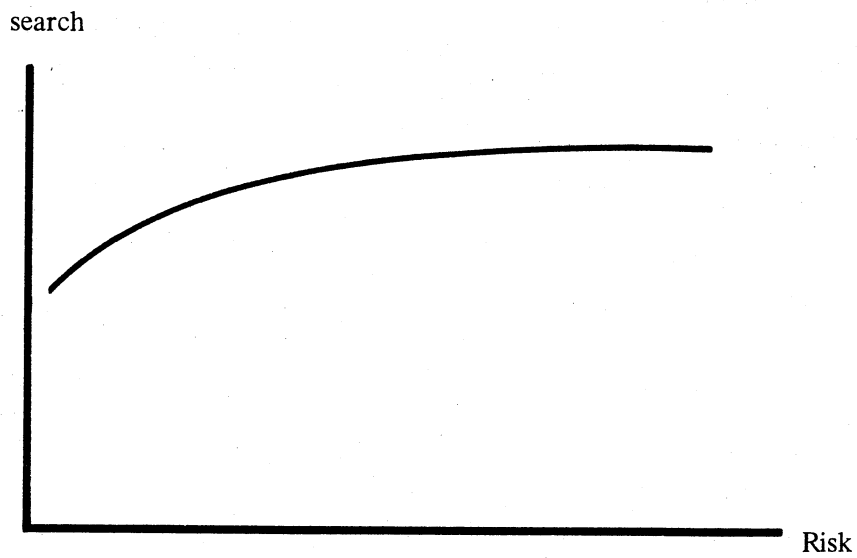


FIGURE 6A. Least squares cubic fit of group 1. The frequency curve for risk is skewed to the left.

$$n = 113$$

$$\bar{x} = 9.12$$

$$\bar{y} = 2.18$$

$$R^2 = 0.20$$

Variance accounted for: 43%

Figure 6a. Frequency distribution of risk.

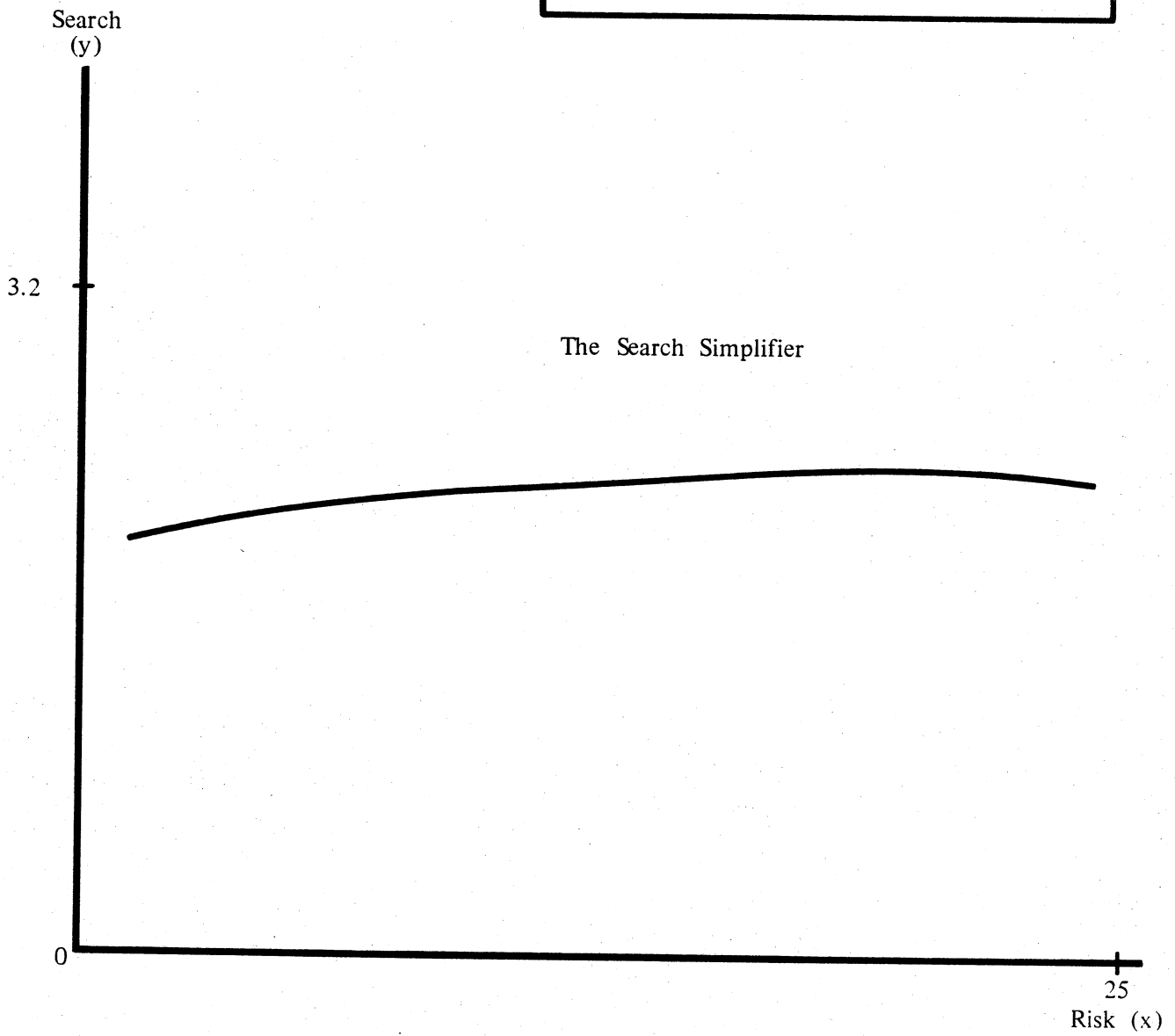
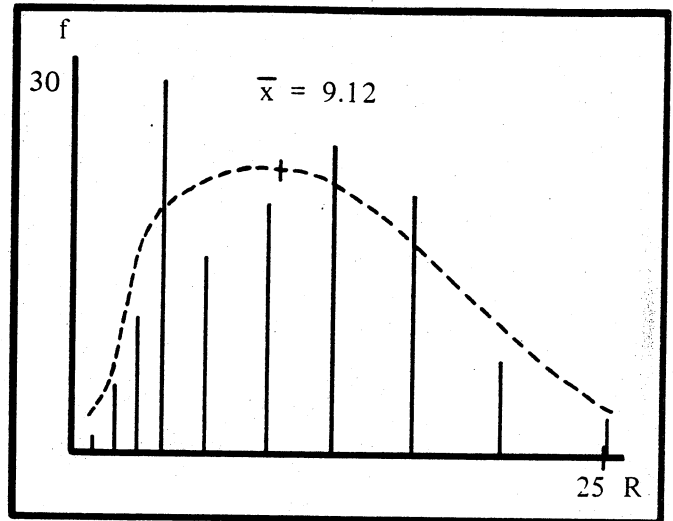


FIGURE 6B. Least squares cubic fit of group 4 data. The frequency distribution appears to be biased to the lower values.

$$n = 84$$

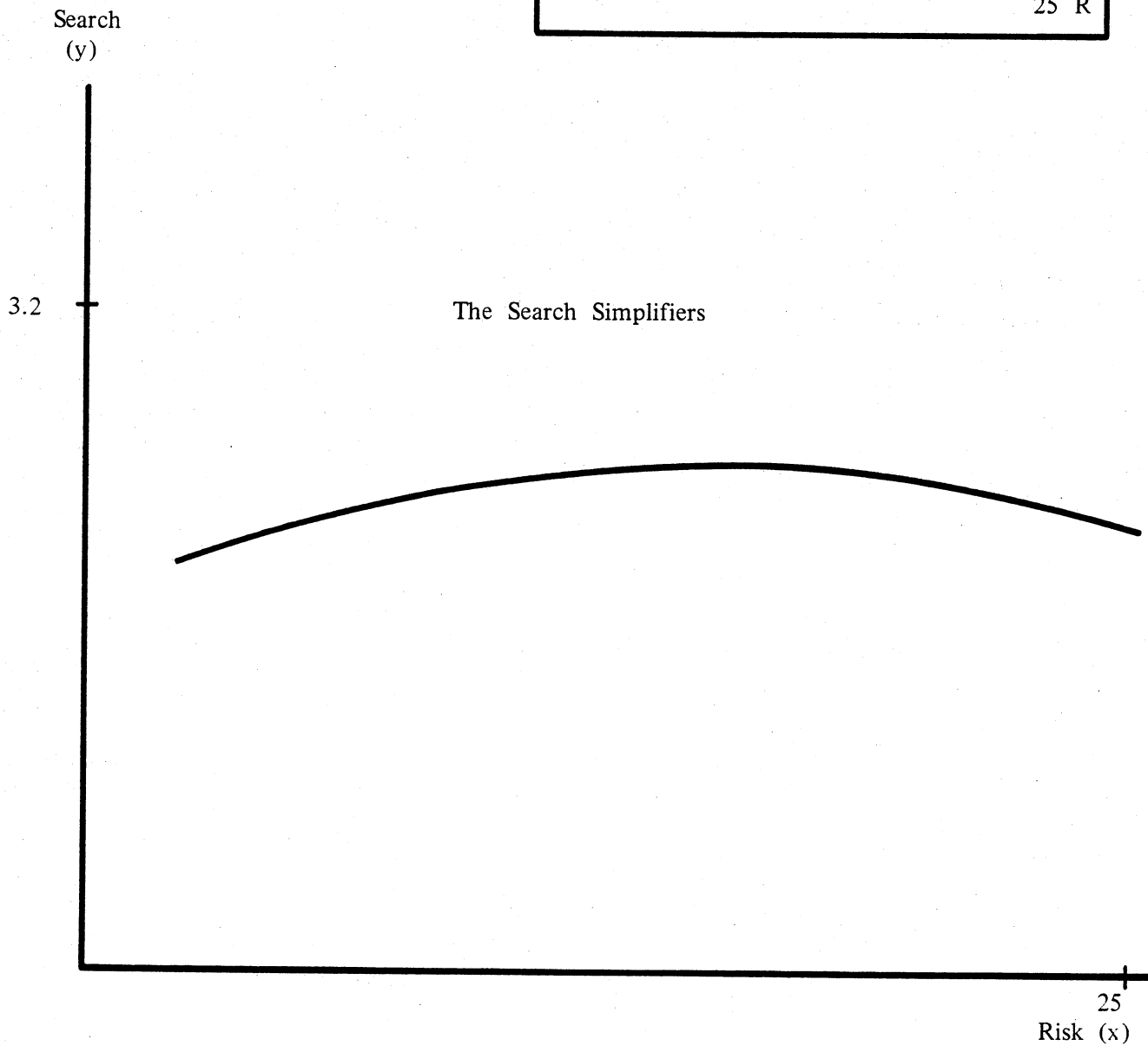
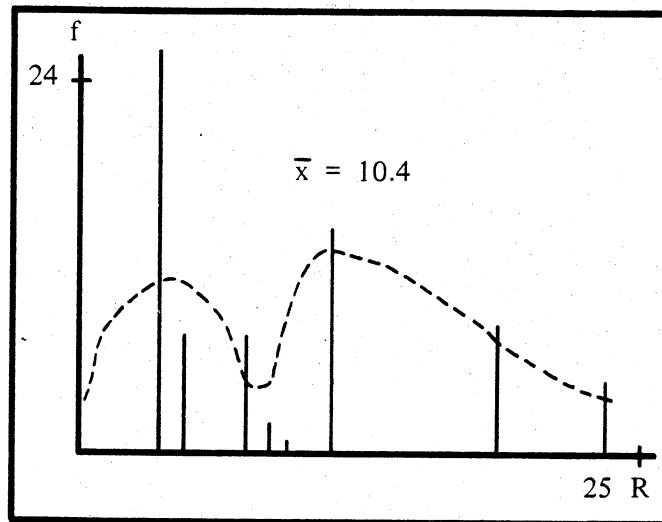
$$\bar{x} = 10.43$$

$$\bar{y} = 2.12$$

$$R^2 = 0.34$$

Variance accounted for: 8%

Figure 6b. Frequency distribution of risk.



* Correction made for spurious zero values of x due to no response.

FIGURE 6C. Least squares cubic of group 3 data. The frequency curve for risk appears to approximate a normal distribution.

$n = 84$
 $\bar{x} = 10.94$
 $\bar{y} = 2.16$
 $R^2 = 0.39$

Variance accounted for: 8%

Figure 6c. Frequency distribution of risk.

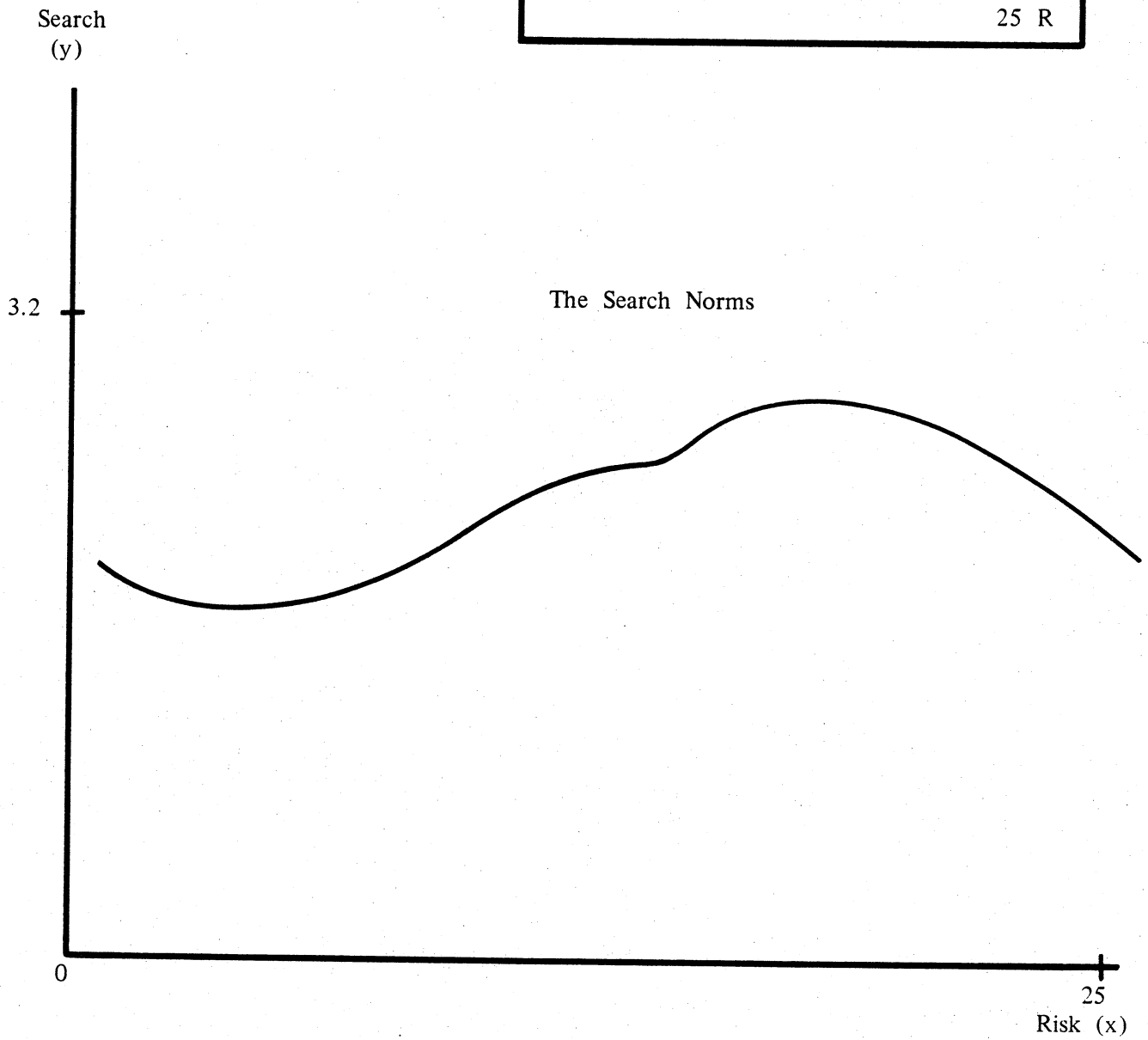
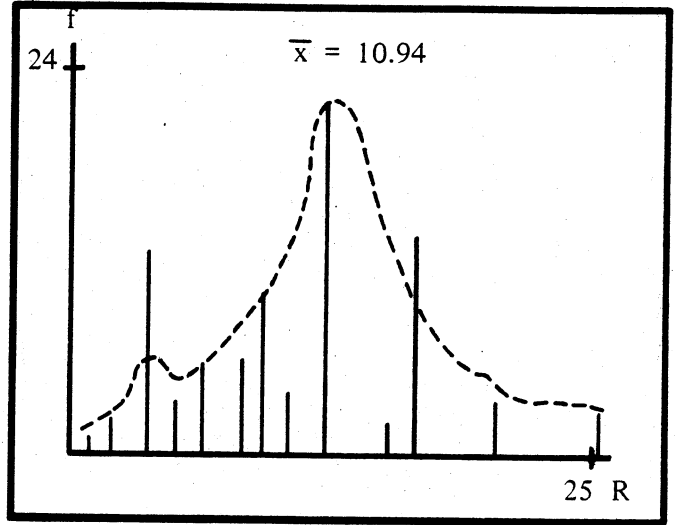


FIGURE 6D. Least squares cubic fit of group 2 data. The frequency curve for risk appears to be very close to a normal distribution.*

$n = 108$

$\bar{x} = 11.25$

$\bar{y} = 2.08$

$R^2 = 0.48$

Variance accounted for: 11%

Search
(y)

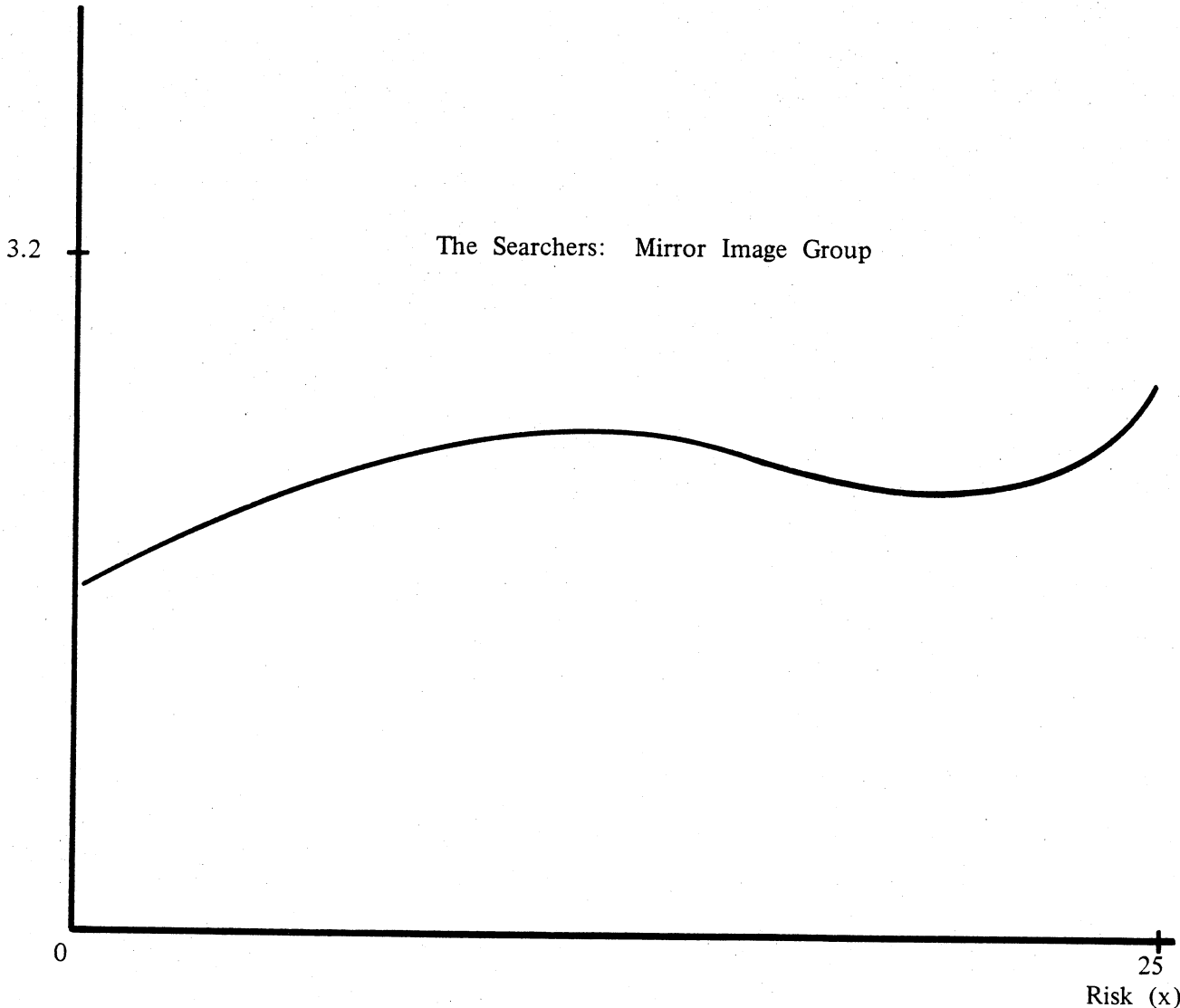
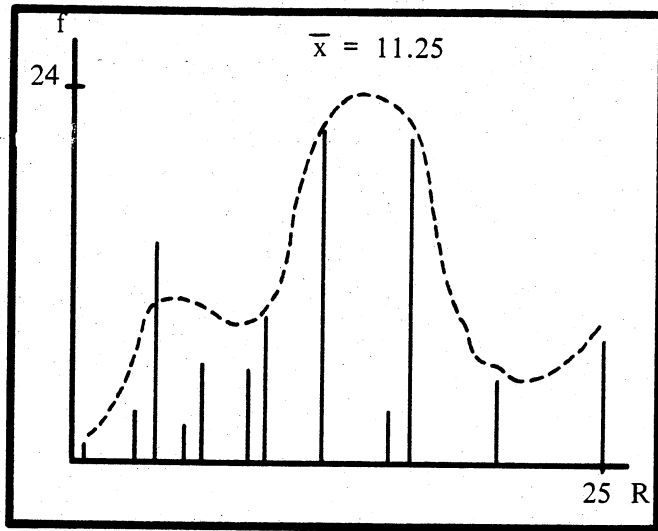


Figure 6d. Frequency distribution of risk.



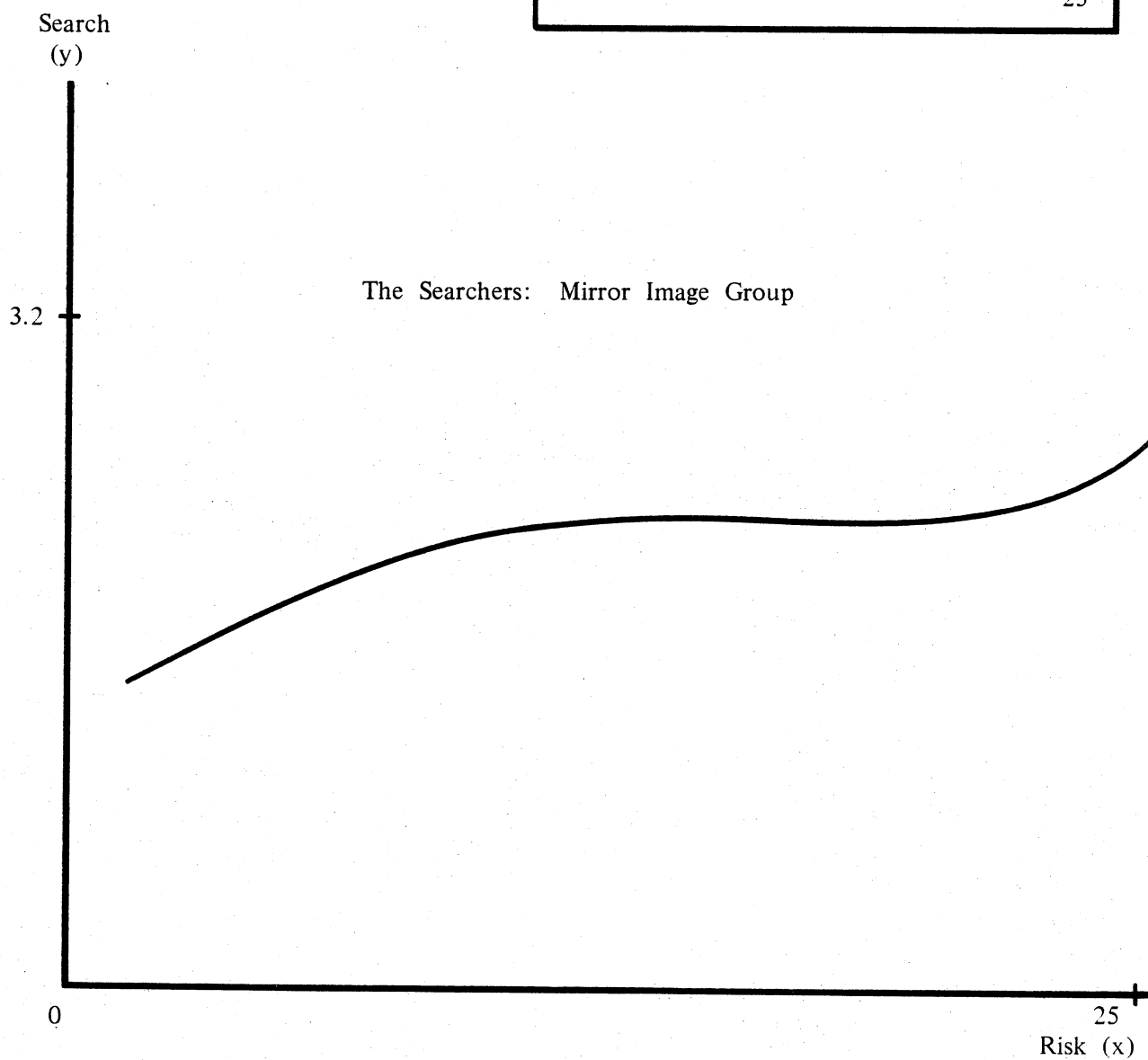
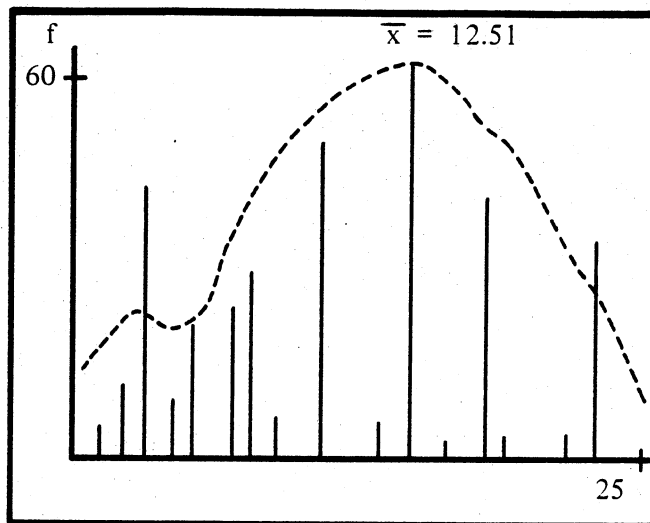
* Correction made for spurious zero values of risk due to no responses.

FIGURE 6E. Least squares cubic fit of group 5 data. The frequency curve for risk is skewed right.

$n = 336$
 $\bar{x} = 12.51$
 $\bar{y} = 2.09$
 $R^2 = .42$

Residual explained variance: 30%.

Figure 6e. Frequency distribution of risk.



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TESTING OF BUYER BEHAVIOR MODELS¹

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Comprehensive models of buyer behavior, such as those proposed by Howard-Sheth and Nicosia, have recently received considerable attention in the marketing literature [1,3]. These models are basically attempts to provide a framework (usually portrayed as a flowchart) which explains the interactions of the psychological, socio-economic, and situational factors at work in consumer decision-making processes. While these models have substantial conceptual appeal, serious problems exist in actually testing them. This paper will attempt to discuss the testing of such models first by summarizing two tests of the Howard-Sheth model, and then by discussing some general problems of buyer behavior model validation and refinement.

Test #1

The first major test of the Howard-Sheth model concerned a branded grocery product [5]. Faced with the problem of testing the model in its entirety, the authors chose to use an econometric approach. Thus variables which both influence and are influenced by other variables are labeled endogenous, while variables which influence but are not influenced by other variables are labeled exogenous. The model can thus be seen as a system of simultaneous equations, with each endogenous variable serving as the dependent variable in one of the equations.

Using this viewpoint, the data from a sample of 693 housewives was analyzed. Both ordinary least squares and two stage least squares regression analysis were performed. The results, though obviously affected by considerable noise, were generally favorable.

Test #2

The second full-model test of the Howard-Sheth Model was in many ways a replication of the first [5,10]. The data was collected in three waves from a special panel of 200 to monitor the test-market introduction of a new frequently-purchased product in two cities in Argentina. The form of the model used is depicted by the flowchart in Figure 1, and the variable definitions are presented in Appendix 1. The analysis of this data proceeded in two basic ways.

The first major portion of the analysis concerned measuring the potential of the new product. In order to do this, changes in the levels of the key variables were studied over the six-week inter-interview periods. As hoped, Attention increased from 0 on wave 1 to 63.2% of the sample on wave 3, and Purchase reached 15.3% on wave 3. Similarly, the percent of the sample who exhibited "brand impact" (positive Attention, Brand Comprehension, or Attitude) reached 74.4% on wave 3. These results proved sufficiently encouraging to recommend further development of the product.

Figure 1
ORIGINAL MODEL

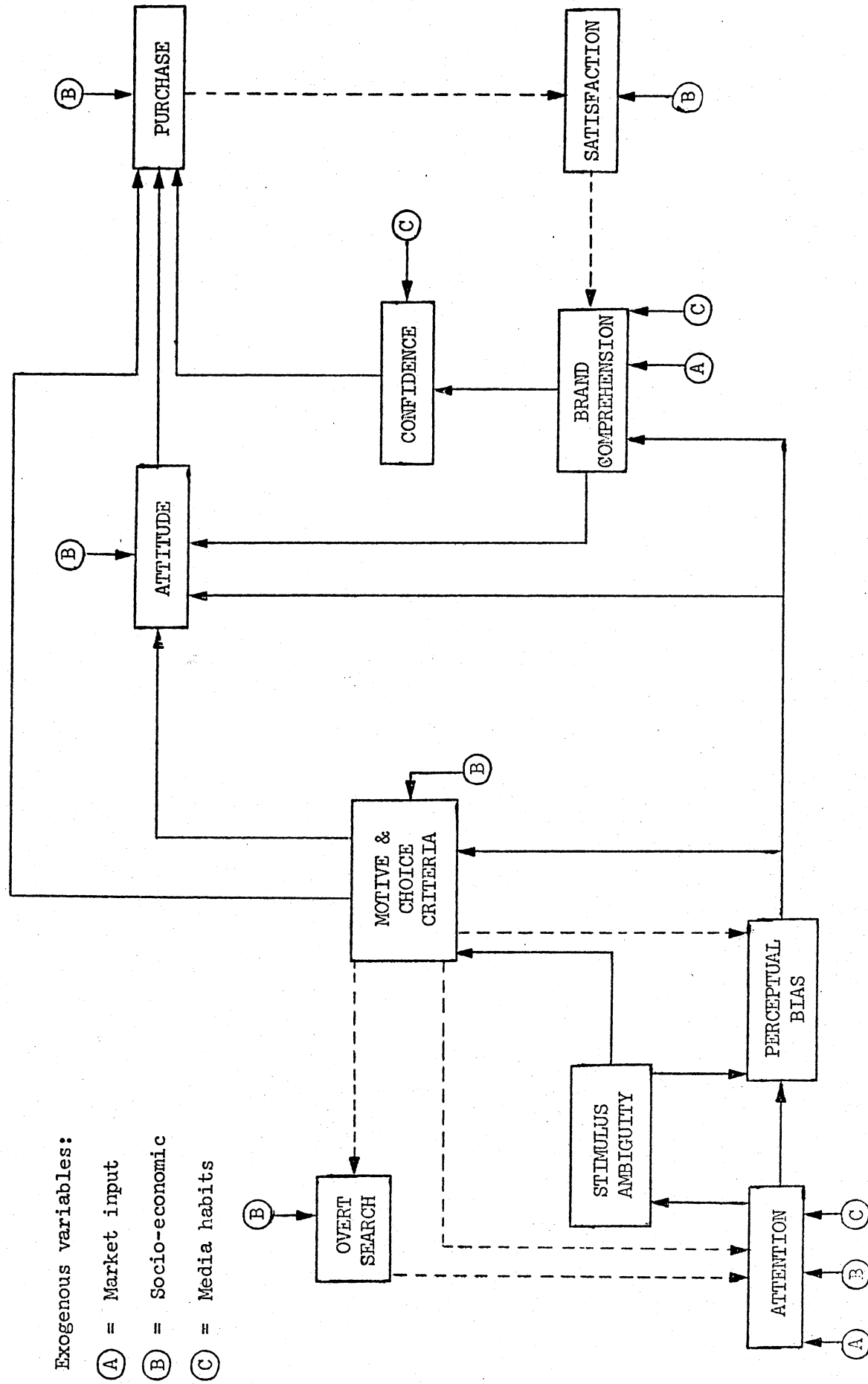


Table 1

SUMMARY OF REGRESSION RESULTS (OLS)

<u>Dependent Variable</u>	<u>Adjusted R²s</u>			
	<u>Wave 2</u>		<u>Wave 3</u>	
	Full (n=178) ^a	Reduced (n=79) ^b	Full (n=163)	Reduced (n=121)
Attention (ATTN)	.761 ^c	.898	.948	.938
	.762 ^d	.899	.969	.960
	.741 ^e	.898	.948	.938
Stimulus Ambiguity (STAM)	-.006	-.011	-.004	-.005
	.070	.077	.081	.124
	.045	.044	.111	.129
Perceptual Bias (PRBS)	.134	.020	-.002	-.018
	.180	.073	.122	.161
	.175	.058	.106	.125
Overt Search (OVSH)	-.003	.017	-.001	-.003
	.091	.159	.012	.019
	.082	.181	.008	.012
Motives and Choice Criteria (MOCC)	.021	.007	.049	.025
	.058	.002	.104	.073
	.053	.002	.106	.073
Brand Comprehension (BCOM)	.665	.599	.531	.465
	.666	.654	.525	.455
	.664	.649	.528	.460
Attitude (ATUD)	.266	.224	.146	.069
	.472	.432	.174	.089
	.475	.443	.170	.099
Confidence (CONF)	-.013	-.036	.006	.016
	.046	.036	.133	.131
	.053	.006	.013	.155
Satisfaction (SATI)	.366	.234	.260	.252
	.368	.263	.251	.256
	.365	.228	.256	.261
Purchase (PURC)	.328	.289	.170	.114
	.352	.292	.383	.340
	.356	.303	.368	.324

^c Original Model^a Full Sample^d Better Fitting Model^b Reduced sample of those respondents exhibiting positive attention, brand comprehension, or attitude.^e Revised Model

The second major portion of the analysis concerned testing of the model itself rather than the product. Proceeding similarly to the first test, the model was structured in terms of ten equations (one in which each of the 10 endogenous variables in Figure 1 was the dependent variable). Analysis consisted of two basic stages.

The first stage of the analysis concerned taking the model as given and examining both ordinary and two-stage least squares cross-sectional regressions. As expected, the β coefficients between endogenous variables were positive. On the other hand, the exogenous variables' effects are less well-defined. This conclusion is supported by reduced-form regressions involving Purchase. Here using all variables resulted in R^2 's of about .3, while using only exogenous variables led to R^2 's on the order of .04. In addition, it was clear that the market input variables were more valuable than demographics as predictors.

In terms of overall predictive power, the results are somewhat mixed. The R^2 's (Table 1) are in general an improvement over the first test, but not the large improvement hoped for. In addition, there is wide disparity in R^2 's between equations. The equations involving the cognitive variables (Attitude, Brand Comprehension, Satisfaction, and Purchase) were reasonably good (R^2 's greater than .25). With the exception of Attention, however, the equations involving the informational variables resulted in low R^2 's (less than .10). Thus further refinement on the informational side of the model is needed.

The second part of the analysis of the model consisted of an attempt to revise the model in order to improve its predictive performance. To do this, variables which seemed likely to improve prediction of the dependent variables because of their pairwise correlations were used to form a "better fitting" model. The variables entered in each equation were constrained by the causal ordering of the model so that Purchase, for example, was not allowed to be an independent variable in the equation involving Attitude.

As expected, the results from this form of the model are better. For example, the R^2 on the Purchase equation increased from .11 to .32 on wave 3 for the sub-sample of brand-aware consumers. Other changes were in general less spectacular. Moreover, the R^2 's involving the informational variables were still noticeably lower than those involving the cognitive variables. Since certain of the equations had little conceptual appeal (for example, Satisfaction is not assumed to affect any of the other variables), a revised model combining the virtues of both models was constructed. This model differed from the original in two main ways: it was more recursive and it allowed more exogenous variables to be used as independent variables (Figure 2).

The conclusions of this study were twofold. First, the product was deemed to be successful. Second, the model itself was maintained to be substantially valid, although still in need of considerable refinement.

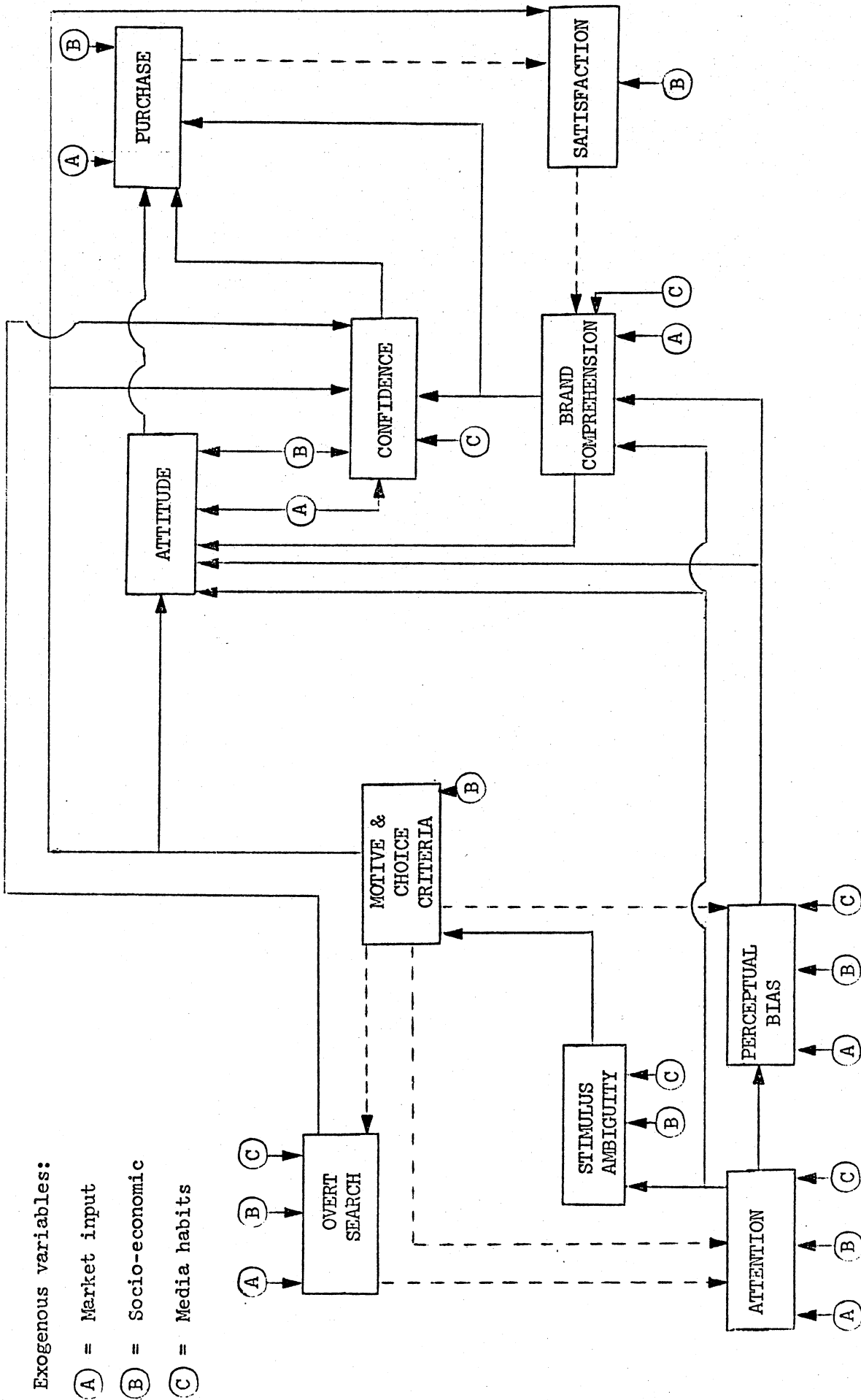
Tentative Conclusions

Analysis of the two previously discussed studies as well as some other work [2,9,12] leads to several conclusions.

1. The model has substantial appeal, but still needs extensive testing. This testing can probably be best performed by testing various segments of the model separately.
2. An information system designed to monitor a new product could be developed on the basis of a reduced set of six endogenous variables: Attention, Brand Comprehension, Attitude, Intention, Purchase, and Satisfaction. Exogenous variables must be determined by experience with the product category in question.

Figure 2

REVISED MODEL



3. Buyer behavior models are more recursive than their present flowchart versions imply. In other words, variables which occur early in the system (Attention, for example) are related to variables that occur late in the system (such as Intention) as well as to intervening variables (such as Brand Comprehension). The intervening variables can thus be considered to be imperfect filters of the information contained in variables earlier in the system.
4. The noise level in the data is a large problem in estimating relationships. Respondents to surveys designed to gather the massive data needed to test the model give noisy data through a combination of low initial commitment and fatigue. Thus fine differences in underlying structures will be extremely difficult to detect.
5. The distinction between endogenous and exogenous variables is not sharp. For example, "advertising exposed to" is assumed to be exogenous. Yet since it is usually measured by direct questioning of the respondent, it is likely to be affected by Attention, Attitude, and other endogenous variables, and thus is itself endogenous. On the other hand, Stimulus Ambiguity could well be considered to be an exogenous variable.
6. Better operational definitions of the variables are needed. Clearly endogenous variables such as Perceptual Bias are difficult to define. Yet even such a "hard" variable as Purchase can be defined many ways: "last brand bought", "brand most frequently purchased", "percent of purchases allocated to each brand", etc. Until operational definitions are agreed upon, it will be very difficult to apply results of one study to another situation.
7. The direction of causation is not clear. The question of which comes first -- a change in behavior or a change in attitude -- can be asked of all relationships postulated by the model.
8. Purely mechanical applications of the model at this stage in its development will not be rewarding. Most of the information gained from testing the model was obtained by "tinkering" with the data and the model rather than from simply running the appropriate regressions. The value of this tinkering seems likely to be substantial for some time to come.

Testing to be Done

A tremendous amount of testing of the Howard-Sheth model remains to be done. At least four areas of investigation seem especially relevant:

1. Trying different operational definitions. For example, it remains to be seen whether objective but limited brand comprehension measures are more appropriate than subjective evaluations provided by the respondent himself.
2. Testing non-linear forms of the model. Largely for convenience, previous tests of the model have assumed that links between the variables are linear. Yet logically there is no reason to assume linear relationships. The poorly explained informational variables seem to be especially good candidates for trying out non-linear relationships.
3. Revising the model so that it is exactly identified. This would allow the use of the β 's to deduce relative strength of influence. However, unless the model in theory is exactly identified, arbitrarily making it so is highly questionable.
4. Trying lagged forms of the analysis. To date, most of the work on the Howard-Sheth model has been centered on cross-sectional analysis.

Specifying or deducing a lagged structure would have the advantage of making the causal priority clear. Unfortunately, the lag between many of the variables may be only seconds or even fractions of seconds, and hence impossible to deduce in data gathered every 4-6 weeks.

Determining the Best Model

As testing proceeds, competing models will appear and the question of which is best will naturally arise. Unfortunately the determination of the best model is extremely difficult. The reason for this difficulty is that there is no single criterion for deciding which is the best model, or even whether a particular model is good or not good. While many criteria exist, they can be grouped into two main categories: subjective and objective. There are 4 widely used subjective criteria:

1. Common Sense (Introspection)

This criterion basically suggests that unless a model has conceptual appeal, it is not good. While easy and inexpensive to apply, this criterion has some obvious shortcomings. The most obvious of these is that common sense is a very ambiguous criterion. It is also a criterion which seems likely to exclude any "new" knowledge: ("The world cannot be round"; "sales cannot be positively related to price", etc.)

2. Agreement with Known Truths (Literature Search)

This criterion, which consists of looking for the results of past studies, appears to be both scholarly and tedious. Like the common sense criterion, however, this criterion is neither unambiguous (because of the numerous conflicting results in the literature) nor amenable to accepting new knowledge.

3. Simplicity

This criterion argues that the less complicated a model is, the better. Unfortunately, what seems simple to one judge may seem complicated to another.

4. Informational Value

This criterion maintains that unless a model has informational value, it is not "good". Obviously a model which cannot be interpreted is of little value. Here again, however, the criterion is ambiguous.

In addition to subjective criteria, there are at least three objective criteria for testing a model:

1. Goodness of Fit

One criterion which appears to be unambiguous is to select the model which has the highest goodness of fit measure, such as an R^2 in regression analysis. This criterion is obviously most applicable when the goal is prediction (forecasting) rather than explanation. Unfortunately, goodness of fit measures are subject to both random influences and innumerable statistical biases. Moreover, if a model consists of multiple equations, it is not clear how to combine the individual goodness of fit measures to form an overall goodness of fit measure. (For

example, is a two-equation model with R^2 's of .5 and .4 better, equal to, or worse than a model with R^2 's of .8 and .1?)

2. Structural Parameters

A very important criterion for testing a model concerns the structural parameters, such as the β 's in regression analysis. This criterion is especially important when the goal is exploration of a certain situation rather than prediction. The structural parameters should be significant, and in addition, the size and signs of these parameters should be "reasonable". Unfortunately it is not clear exactly how to measure the average significance and reasonableness of a set of parameters.

3. Predictive Validity

A very useful criterion for testing a model is to see whether it is predictively valid. This criterion states that conclusions (hopefully surprising) deduced from a model should be tested, and if the conclusions are false, the model is to be rejected. Unfortunately there are often an infinite number of potential conclusions to test. Furthermore, satisfying this criterion is a necessary but not sufficient condition for accepting a model.

Thus it is obvious that complete testing of a model involves multiple criteria. Moreover, it seems unlikely that one model can dominate another on all the criteria. (For example, a simpler model almost by necessity must have less informational value.) Hence choice of a "good" model depends heavily on the relative importance a judge attributes to these or other criteria.

Conclusion

The first two extensive tests of the Howard-Sheth model lead to two very different conclusions. First, the model seems to have substantial validity. Second, the model is still in need of considerable refinement and subsequent testing. It seems obvious that this refinement and testing will be both frustrating and worthwhile. The end result seems likely to be a model with a wide range of applicability.

Footnotes

- 1 Part of the support for this research was provided by the Columbia University Graduate School of Business Research Fund.
- 2 John A. Howard and John U. Farley are professors and Donald R. Lehmann is an assistant professor at Columbia University Graduate School of Business.

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Appendix 1

Argentina Study Variable Definitions

A. Endogenous Variables

- ATTN (Y1): Attention; whether the individual has heard any advertising for the new brand. (100 if yes, 0 otherwise).
- STAM (Y2): Stimulus Ambiguity; Confidence in radio and TV as a source of information about the product. (Scale = (0,200))
- PRBS (Y3): Perceptual Bias; whether the individual knows the use of the new product (100 if yes, 0 otherwise)
- OVSA (Y4): Overt Search; whether the individual initiated a conversation about the product (100 if yes, 0 otherwise)
- MOCC (Y5): Motives and Choice Criteria; summed importance of various product attributes (scale =(0,400))
- BCOM (Y6): Brand Comprehension; whether the individual knows who is making the new brand (100 if they do, 0 otherwise)
- ATUD (Y7): Attitude; scaled opinion of the new brand (Scale = (0,1000))
- CONF (Y8): Confidence; individual's confidence in his ability to judge the product (scale - (0,100))
- SATI (Y9): Satisfaction; satisfaction with last brand purchased (scale = (0,1000))
- PURC (Y10): Purchase; whether the brand last purchased was the new brand (100 if yes, 0 otherwise)

B. Exogenous Variables

1) Market Input Variables

- ISIG (X1): Significant Input; whether they have seen the new brand in the store (100 if yes, 0 otherwise)
- ISYM (X2): Symbolic Input; whether they saw the first ad for the new brand on TV. (100 if yes, 0 otherwise)
- ISOC (X3): Social; whether they have talked about the new brand (100 if yes, 0 otherwise)

2) Socio-Economic Variables

- SOCL (X4): Social Contacts; number of people an individual talks to on the phone or visits with on a typical day (times 10)

- ORGA (X5): Organizational; whether they belong to an informal social group (1.1 if yes, 1 otherwise)
- TIME (X6): Time Pressure; how much time do they spend shopping for the product (Scale - (0,400))
- SELF (X7): Innovativeness; probability of buying a new product (Scale = (0,1000))
- AGES (X8): Age; age group (10 = under 15, 20 = 16-20, ..., 70 = 50)
- SOCS (X9): Social Class; social class category (Scale = (100-A/B to 400-E))
- IMPO (X10): Importance of Purchase; importance of the product (Scale - 0, 18)
- SHOP (X11): Brand Loyalty; individuals estimate at his probability of purchasing the same brand again (0 = no, 100 = perhaps, 200 = yes)
- FINA (X12): Income; income category (100 = <30,000 pesos 200 = 31-40,000, ..., 800 = >100,000)
- FINC (X13): Amount Spent on the product class (Scaled from 1 = <5% of income to 5 = >20%)
- INHI (X14): Inhibitors; summed variable of the importance of such influences as price, friend's opinions, etc.

C. Media Habits

- NEWS (X15): Newspapers; how often they read newspapers (0 = never, 100 = sometimes, 200 = daily)
- TELE (X16): Television; summed viewing of various shows during a week
- MAGS (X17): Magazines; summed reading of the magazines

CONSUMER DECISION-MAKING: ON THE IMPORTANCE OF PRICE¹

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An important aspect of consumer decision-making is the influence additional information has on the ultimate purchase decision. The central thrust of this study was to examine the consumer's reaction to price change, i.e., given a stated decision what sort of price change is required to alter that decision. The study focused on: (1) the relationship between a behavioral intention (willingness-to-buy) and the magnitude of the price change (price threshold) required to alter that intention, (2) the critical nature of price awareness as a mediator in brand switching behavior, (3) attitudinal discriminants of price threshold and price awareness, and (4) methodological refinements in price research. As a prelude to the research the conceptual framework which guided the study will now be articulated.

Conceptual Framework

The Three Brand Willingness-to-buy/Price Model (Figure 1) presents the normative constraints of consumer decision-making as examined in the study. In its present state the model is best suited to branded non-durable (food and non-food) consumer products. Items should be of low unit value, have a distinct brand identity, and be frequently purchased.

The model conforms to the experimental methodology in that only one brand price is allowed to vary at a time. Given that constraint, the model begins with the subject's willingness-to-buy rank and evaluates each brand within a product category in decreasing willingness-to-buy order. In some instances the subject always buys the brand she is most willing-to-buy regardless of price conditions. Others may not always buy the same brand. Certain factors may cause this: (1) random vacillation, (2) a high degree of indifference, or (3) a change in some situational variable. A central situational determinant (in the model) is price change. For the subject to act the price change must be attended. Operationally this has been conceived in terms of a binary choice. If price is not attended, then irrespective of price conditions the subject buys brand one (subject to noise and extra-model determinants). Given an attended price change, the subject then determines whether the change is sufficient to cause a situational reordering of the willingness-to-buy hierarchy. Parenthetically, it should be added that a price change in a real world context is neither necessary nor sufficient for a change in buying behavior. However, within the confines of this normative model it is viewed as the primary determinant.

Actual purchase outcomes depend on the magnitude of the price change. Subjects are viewed as possessing price thresholds. Below the threshold subjects will remain brand loyal and at or beyond the threshold switching will occur. Mediators which affect the magnitude of an individual's thresholds are discussed in the following section.

Stages in the Decision Process

For discussion purposes the model has been divided into three stages (indicated by the capital Roman numerals to the left of Figure 1). Stage I addresses habitual versus non-habitual behavior. Although this phenomenon

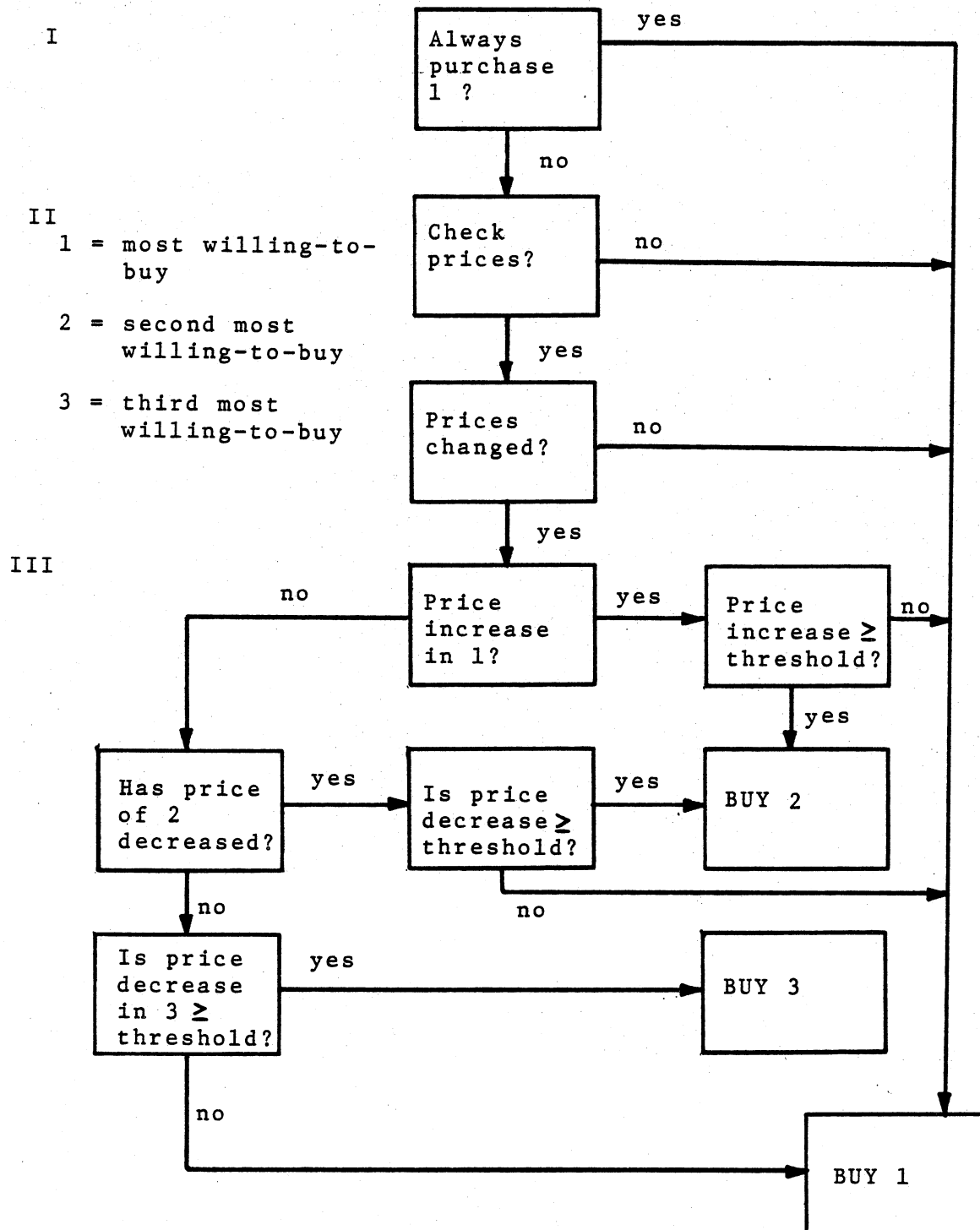


Figure 1. Three Brand Willingness-to-Buy/Price Model

can be attributed to a number of causes, for analytical simplicity it has been relegated to salience of brand in the evaluative criteria. Reasons for brand salience could range from its use as the primary purchase cue to simplify the purchase process to distinct attributes it may possess relative to others.

Stage II reflects the salience of price in the over-all evaluative criteria. Subjects who do not check price are apt to buy brand one, but the probability associated with that outcome is not as high as the "always buy" in stage I.

Stage III of the model examines price thresholds in terms of their derived existence, not in terms of moderators that affect threshold magnitude. Salience of price is the aggregate descriptor for the individual components. Components would include: (1) attitude toward price and price related topics, (2) socio-economic characteristics, (3) behavior, and (4) perceived differences between alternatives. The relationship is shown in Figure 2.

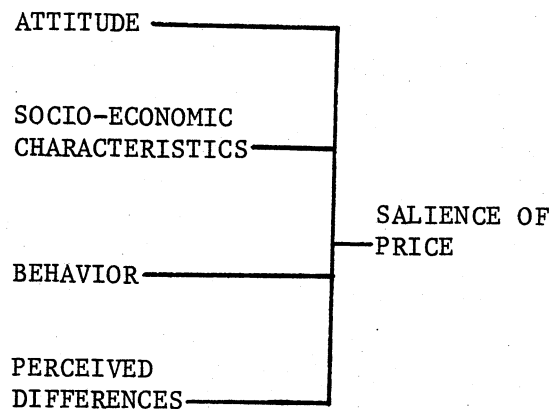


Figure 2. Moderators which Affect Salience of Price

The model (Figure 1) attempts to relate the variables under investigation. It purposely does not include such variables as coupons, specials, or in-store display since they are not manipulated. Alternatives such as postponed purchase or purchase at an alternative store were not modeled since these choices were not allowed in the experimental setting.

Communication of Price Information

In viewing the communication of price information the current research has adapted a model formulated by McGuire.³ Figure 3 (see following page) depicts the four steps in the communication process examined in the study. A fifth, retention, is postulated by McGuire but is not considered here. In a market context consumers are exposed (exposure) to many price changes on any given shopping trip. A consumer may or may not receive (reception) the specific price change. The probability of reception could be increased through attention-getting devices such as package alteration and point-of-purchase display. Reception is also influenced by acceptance (i.e., attitude toward price and price related matters). The acceptance of the stimulus (price change) determines in part what action will be taken by the shopper. Thus, Figure 3 may be viewed stochastically with each step being necessary but not sufficient for the next.

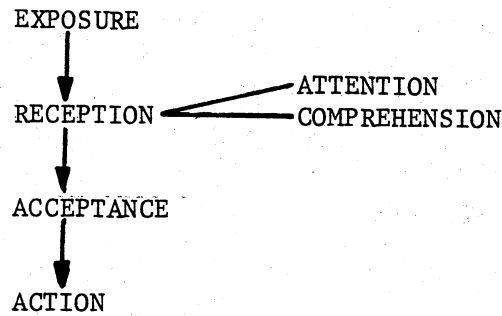


Figure 3. Steps in the Communication of Price Information

Price Research: Behavioral Dimensions

Behavioral research conducted on price appears to fall into four basic paradigms: (1) price-quantity research (Applebaum and Spears, 1950; Hawkins, 1957; Greig, *et al.*, 1958; Stout, 1969), (2) price-quality (Leavitt, 1954; Tull, *et al.*, 1965; Olander, 1967; McConnell, 1968; Stafford and Enis, 1969, (3) price-consciousness research (Wells and LoSciuto, 1966; Gabor and Granger, 1961, 1964), and (4) price-sensitivity research (Pessemier, 1960, 1963; Pessemier *et al.*, 1968; Abrams, 1964; Gabor, Granger and Sowter, 1970). The limitations of the existing literature can best be seen by considering it in light of the communication model. The typical price-quantity paradigm views consumers as faceless units of demand, since only the relationship between exposure and action is considered. Prices are changed and records kept of subsequent sales volume. Exposure and action take place in a natural environment. However, little or nothing is known about the organism making the purchase (reception and acceptance are ignored).

Studies following the price-quality paradigm are plagued with demand characteristics.⁴ Although acceptance is implicitly considered, they force reception and then look at action. Apart from the contrived communication the results are vitiated most by demand characteristics, i.e., the subjects tend to do what they perceive the experimenter wants and the situation dictates them to do.

Price-consciousness research has identified the critical variable of price awareness through observational studies and recall techniques. The major limitation has been that these studies have viewed the phenomenon in isolation. Price-sensitivity research, like price-quality research, views the relationship between forced reception and action. Subjects are informed of price changes and then asked their brand choices. The demand characteristics (i.e., subjects perceive they should switch brand choice and do so even when they would remain brand loyal in the field) and the forced reception confound the findings.

Given the problems associated with prior price research the current study attempts a resolution. The first part of this study in essence follows the price-sensitivity paradigm. With those results established, a new approach is tried to serve as a basis for comparison.

Methodology

The research was conducted using Columbus area housewives in a laboratory setting. Subjects were divided into groups (A and B). Data collected on group A subjects included: shopping behavior information, demog-

raphics, attitudinal information (regarding shopping and price) willingness-to-buy data, and data on experimentally induced brand switching in reaction to price changes.⁵ The same data were collected on group B subjects except for brand switching behavior. Instead, subjects in group B were sent on a simulated shopping trip.

Data on willingness-to-buy (behavioral intention) were collected on the V-scale.⁶ There were three product categories (catsup, cake mix and tooth paste) and three "national" brands in each. After all products (brands within product category) had been rated, subjects were again presented with the brands. This time the prices of the brands were systematically manipulated until a subject (group A only) altered brand choice.

The magnitude of the price change required to induce brand switching (price threshold) was recorded for all three conditions: (1) increase in the price of the brand the subject was most willing-to-buy, (2) decrease in the price of the brand the subject was second most willing-to-buy, and (3) decrease in the price of the brand the subject was third most willing-to-buy.

Group B was sent on a simulated shopping trip. Extreme care was taken not to sensitize this group of subjects to price. The experimental procedure followed for group A was altered. Data were collected for willingness-to-buy alone (no price threshold data were collected). A suitable guise was adopted to insure normal shopping behavior. Subjects were told that the experimenter was interested in the time it took them to shop for certain products. They were instructed to shop as they normally do, taking as little or as much time as usual. On the simulated shopping trip subjects were given real money and a shopping list. They were allowed to keep their purchases and the change.

Results and Discussion

Price Changes and Behavioral Intentions

From the data in Part A, a relationship was found to exist between willingness-to-buy (a behavioral intention) collected on the V-scale and price threshold (magnitude of price change required to induce switching). Data on willingness-to-buy were found to be positively correlated with price threshold (see Table 1).

As the distance between brands on the V-scale increased so did the magnitude of the price change required to induce brand switching. Thus, the more a subject preferred (was willing-to-buy) a brand relative to the other brands, the greater the price change necessary to alter that preference.

Table 1

Canonical Correlations Between Willingness-To-Buy
And Price Threshold For All Product Categories

Product Category	Sample Size	First Canonical ^a Correlation	Percent of the Variance Explained	Level of Significance
Catsup	41	.71	50	p < .005
Cake mix	43	.73	53	p < .005
Toothpaste	28	.78	61	p < .005

^aNone of the second canonical correlations (which were orthogonal to the first) were significant.

Attitude and Price Sensitivity

Knowledge of differential brand switching behavior in reaction to price changes is of little value to the marketer unless consumers possessing these characteristics can be identified. With that problem in mind the analysis focused on a means to identify these consumers.

Subjects were divided into two managerially relevant groups (high and low price sensitive or those who switched brand preference when a one cent difference existed and those who waited until the difference was greater than one cent). Fifteen attitudinal variables were used as predictors of group membership in a multiple discriminant analysis. These variables served as effective discriminators, correctly classifying (range across product categories was 78 to 82 percent correct) the subjects into their respective groups (see Table 2).

Table 2

Classification Matrices Summarizing Results of
Price Sensitivity Discriminant Analysis Using
Fifteen Attitudinal Variables As
Predictors For All Products

Product Category	Actual Group ^a Membership	Predicted Group One	Predicted Group Two	Percent Correctly Classified
Catsup	Group 1	19	6	78
	Group 2	5	19	
Cake mix	Group 1	18	3	82
	Group 2	6	22	
Toothpaste	Group 1	13	1	82
	Group 2	8	27	

^a Group 1 was high price sensitive while Group 2 was low price sensitive.

Demographics and Price Sensitivity

Multiple discriminant analysis was also used with non-attitudinal variables. The same criterion variable was used with demographic and shopping behavior variables as predictors. Subjects were correctly classified (range 80 to 88 percent correct) into their respective groups (see Table 3).

Simulated Shopping Trip

The problems associated with the part A methodology (specifically, forced reception and demand characteristics) prompted part B of the study. Implicit in part A of the study (and prior price studies) was the forced reception of price change information. However, on a shopping trip the consumer may not be aware of price differentials and behave as if there were none. The crux of

the matter then becomes, if a price has been changed to the threshold, will the consumer attend it? Part B of the study attempted to resolve this.

A separate group of subjects was sent on a simulated shopping trip. Without the subjects' knowledge the prices of specific brands were set at their thresholds.⁷ If awareness were not a factor then these subjects could be expected to switch brand choice at least 50 percent of the time. There are, of course, variables other than awareness that could account for the differences. However, given the microcasm constructed awareness appears to be the most tenable.

On the simulated shopping trip subjects purchased the predicted brand (the brand they should have purchased after price manipulations were made) less than 25 percent of the time. The relationship is shown in Table 4.

In part A exposure and reception were both 100 percent. With forced reception at least 50 percent of the subjects altered brand choice when the price change was equal to their V-scale distance. When reception of price change was not assured less than 25 percent of the subjects altered brand choice when the price change was equal to the V-scale distance.

Table 3

Classification Matrices Summarizing the Results of Price Sensitivity Discriminant Analysis Using Nine Demographic and Shopping Behavior Variables As Predictors For All Products

Product Category	Actual Group Membership ^a	Predicted Group One	Predicted Group Two	Percent Correctly Classified
Catsup	Group 1	22	3	85
	Group 2	5	19	
Cake mix	Group 1	17	4	80
	Group 2	6	22	
Toothpaste	Group 1	11	3	88
	Group 2	3	32	

^aGroup 1 was high price sensitive while Group 2 was low price sensitive.

Attitudes and Price Awareness

As with price sensitivity, it comforts the marketer little to know differential price awareness exists unless those consumers can be identified. To address this problem subjects were divided into two groups, price aware and non-price aware (check price--did not check price on the simulated shopping trip). Attitudinal variables served as discriminators between the two types of observed behavior in a multiple discriminant analysis. As shown in Table 5, subjects were correctly classified (range across product categories was 83 to 93 percent correct) into their respective groups.

Table 4

Deterioration in Communication Of Price Information For All Product Categories^a

	Catsup	Cake mix	Toothpaste
Exposed to price change (sent on shopping trip)	100	100	100
Reception (said prices were different immediately after shopping trip)	43	43	23
Acceptance	-- ^b	--	--
Action (purchased predicted brand)	23	20	7

^aAll table values expressed as percentages.

^bNot measured directly.

Implications

Perhaps the positive relationship between willingness-to-buy and price threshold is not too surprising. However, the marketer embarking on a price promotion must be cognizant of differential price thresholds and their magnitude. If his brand is desired appreciably less than the alternatives then the magnitude of the price change required to induce switching may adversely affect profitability even if unit sales increase. By gathering willingness-to-buy data on his brand and competitive brands the marketer gains some indication of the probable effect of a price change. In instances where price promotion appears the least desirable strategy, dollars are better spent increasing the desirability of the brand before attempting price cuts. Thus, willingness-to-buy data can serve as a proxy variable for price threshold.

Price awareness appears to have a moderating effect on price sensitivity. Given a price change of a specific magnitude a certain percentage will alter their purchase accordingly, but if and only if they attend the price. The marketer attempting to increase sales through a price cut must, in addition to reducing prices, foster price awareness in his target market.

The results of the study suggest the utility of using the laboratory to take behavioral measures under controlled conditions and then using those as criterion variables. Any number of non-behavioral measures may then be taken and used as predictors in subsequent analyses. However, the microcasm constructed must be sufficiently realistic so that the behavior taking place is similar (hopefully identical) to real world action. Using this approach the marketer can eliminate much noise from the system and begin to understand the consumer.

The V-scale presents other methodological implications. It is a direct and concrete method for collecting data. Any confusion regarding the brands is avoided and the subject is able to visualize the relationship. Products are presented as they are normally encountered while shopping, thus adding a degree of realism. Closely related to the V-scale is the stated dimension,

willingness-to-buy. Willingness-to-buy seemed more consistent with brand switching behavior than the preference measured used during the initial phases of the pilot study. However, the reader is cautioned that this was not tested directly; thus, only anecdotal support is offered.

Finally, the analysis suggests the utility of using attitude measures as a means of developing customer profiles. A discriminant function would be developed and attitudinal variables used to determine the probable number of consumers who would switch brand choice when prices were changed slightly. Additionally, non-attitudinal variables (demographic and shopping behavior) could serve as discriminators (in a separately developed discriminant function) between high and low price sensitive consumers.

Table 5

Classification Matrices Summarizing Results of Price Awareness Discriminant Analysis Using Fifteen Attitudinal Variables As Predictors For All Products

Product Category	Actual Group Membership ^a	Predicted Group One	Predicted Group Two	Percent Correctly Classified
Catsup	Group 1	16	3	83
	Group 2	2	9	
Cake mix	Group 1	15	0	93
	Group 2	2	13	
Toothpaste	Group 1	5	1	87
	Group 2	3	21	

^aGroup 1 was price aware while Group 2 was non-price aware. Data are for Group B.

Conclusions

Although much more research must be conducted on the influence additional information has on the ultimate purchase decision, certain conclusions relative to the consumer and price changes can be drawn at this time.

1. Willingness-to-buy (a behavioral intention) and price threshold are positively related. The more a subject is willing-to-buy a brand, the greater the magnitude of the price change required to change that decision.

2. Differential price awareness exists (across subjects and product categories) and can have a detrimental effect on price promotion.

3. Attitudinal and non-attitudinal variables served as good discriminators between groups of subjects who were high price sensitive and low price sensitive.

4. Attitudinal variables served as good discriminators between groups of subjects who were price aware and groups of subjects who were non-price aware.

5. Any study of marketing phenomenon ought to consider all stages in the communication process, particularly if an omitted stage will alter the ultimate action.

Exhibit A

List of Variables

Criterion:

1. Price sensitivity (high price sensitive, low price sensitive). The high price sensitive subject was one who switched from one brand to another when the price differential was one cent. The low price sensitive subject was one who would not switch from one brand to another until the price difference was greater than one cent.
2. Price awareness. Price awareness was a dichotomous variable. The price aware subject checked price during the simulated shopping trip and the non-price aware subject did not.

Predictor:

1. Willingness-to-buy rating. Subject's rating of brands on the V-scale.
2. Attitude. Answers to fifteen attitudinal questions. Ranged from 1--Strongly Agree to 5--Strongly Disagree. See Exhibit D for complete listing of the questions.
3. Number of stores shopped at.
4. Number of people regularly shopped for.
5. Number of years married.
6. Age of youngest child.
7. Home ownership.
8. Age of subject.
9. Educational attainment of subject.
10. Family income.

Exhibit B

Rating Instructions

This part of the experiment is a shopping trip. It is very important that you behave as you do when actually shopping. You are going to be shown a number of different products. In each product category there will be a number of brands. On this shopping trip your choice is limited to the brands shown. All brands sell for the same price and are the same size.

Now this is what you are to do. (I'd like you to rate the brands in terms of your willingness to buy them, take them home and have your family use them.) REPEAT I'm interested in what you think--not what you feel others believe or what you think others will expect you to do. Place the brand you would be most willing to buy at the 11 (down at this end). Your placement of the other brands should indicate your willingness-to-buy them in relation to the first. If you are equally willing-to-buy a number of brands place them at the same number. If you are unwilling to buy a brand place it at the 1 (down at this end). When you rate the brands assume that all of them are always available. Take your time rating them as this is a very important part of the experiment. Are these instructions clear? GO OVER IF NOT

Exhibit C

Description of the V-scale

The V-scale consists of a yard long piece of white cardboard calibrated in three-inch intervals (11 intervals numbered consecutively from 11 to 1).

Subjects are handed the actual products and asked to place them on the scale to indicate their relative willingness-to-buy for the various brands within a product category. The appellation for the scale is derived from the fact that everything is visual and concrete.

Exhibit D

Attitude Questions

Scale values range from 1--Strongly Agree to 5--Strongly Disagree.

1. Clipping coupons is a waste of time.
2. I look forward to doing the family grocery shopping.
3. Food prices seem to change every week.
4. When I go grocery shopping I like to take my time.
5. I consider myself price conscious.
6. In general, the quality of brands advertised on TV is about the same.
7. When a store has specials I like to stock up.
8. A store's own brand usually gives you good value for the money.
9. One should try to buy the brand that is on sale.
10. Nationally advertised brands are worth a few pennies more.
11. High quality is more important than a low price.
12. The housewife who goes from store to store looking for bargains wastes a lot of time and energy.
13. A lower price is more important than my regular brand.
14. A higher price generally indicates that a brand is superior in quality.
15. I don't mind paying a little more than others for groceries.

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Footnotes

¹The authors are indebted to Professors Philip Burgess and Lawrence Mayer of the Behavioral Sciences Laboratory for use of their facilities in the execution of this study.

²C.S. Craig is Assistant Professor of Library Administration and Assistant Director of the Mechanized Information Center. James F. Engel is Professor of Marketing and W. Wayne Talarzyk is Assistant Professor of Marketing.

³For a discussion of the communication process, see William J. McGuire, "Personality and Attitude Change: An Information-Processing Theory," in Psychological Foundations of Attitude, ed. by A. Greenwald, T. Brock, and T. Ostrom (New York: Academic Press, 1968), pp. 171-96.

⁴For a discussion of demand characteristics, see E. Aronson and J.M. Carlsmith, "Experimentation in Social Psychology," in The Handbook of Social Psychology, ed. by Gardner Lindzey and E. Aronson, II (2nd ed.; Reading, Mass.: Addison-Wesley, 1968), pp. 61-66.

⁵See Exhibit A for a list of predictor and criterion variables.

⁶See Exhibit B (Rating Instructions) for willingness-to-buy induction. See Exhibit C for description of V-scale.

⁷Thresholds were determined from part A data. Price changes were set equal to the V-scale distances. Thus, if Brand A > Brand B and $\bar{A}B=3$, it was assumed that an increase of three cents in the price of A would result in B > A. Part A data suggest that this would hold in at least 50 percent of the cases (range 50 to 75 percent).

EVALUATION PROCESS MODELS AND THE PREDICTION OF PREFERENCE

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This paper briefly reviews the use of evaluation process (EP) models to predict consumer preferences and, based on research currently underway, discusses some of the problems facing those trying to determine which EP model is best.

Evaluation is the process of determining the (relative) positions of one or more alternatives with respect either to some criterion or to each other. Because evaluation is the step in the decision process which immediately precedes choice, it is of major importance in predicting choice and it may also help to explain a number of post-choice phenomena (e.g., the amount of cognitive dissonance).

EP models are based on the way in which individuals purportedly evaluate alternatives facing them. They assume that an individual's preference among alternatives will be some function of his preference for the various attributes of each alternative and how important these attributes are to him. Thus, these are models of multiple-attribute decision making.

The Models

EP models are numerous in the normative literature (MacCrimmon, 1968). They find some use (often in simulation models) in the descriptive literature; but with few exceptions (Russ, 1971), only one type of model—additive—has been used to predict preferences.

All of the major evaluation process models which have been generated to date are based on one or more of three notions about the way evaluations are made.

1. Alternatives are compared by "collapsing" preferences for individual attributes into a single overall value for each alternative. The function which collapses the attribute values is presumed to be additive.
2. Alternatives are evaluated on the basis of their values for the attribute which is most important to the decision-maker. This is essentially a lexicographic approach.
3. Alternatives are evaluated by comparing their attribute values with a set of goals or standards for these attributes. Any alternative (but usually the first one discovered) which meets or exceeds all (or some prespecified subset) of these standards is chosen. This is basically the "satisficing" approach suggested by Simon (1955).

We shall focus our attention on five models based on these approaches.

Additive Weighting (ADD)

The ADD model is based on the first approach suggested above. A decision maker chooses the alternative which has the best score on some weighted additive evaluation function.

The additive utility model preferred by decision theorists asserts that the utility of an alternative is equal to the sum of the utilities of the attributes of that alternative. (The weights are implicit in the attribute utility judgments.) Adams and Fagot (1959), Dickson (1970), and Tversky (1967) provide good examples of empirical research designed to test this model.

A different additive model is preferred by the clinical judgment theorists

(Einhorn, 1969). It is suggested for use with alternatives described by numerical attributes. Weights for the model are determined by using multiple regression with the overall preference ranking as the dependent variable and the numerical attribute values as the independent variables.

A third model which is rapidly becoming more popular among marketing scholars (Bass and Talarzyk, 1969; Hansen, 1969) is based on attitude theory suggested by Fishbein (1967). This model states that an individual's attitude toward an object (which may be interpreted as a preference for it) will depend on (1) how satisfactorily the object possesses certain attributes and (2) how important these attributes are to that individual. We shall focus our attention on the last of these three ADD models.

Regular Lexicography (LEX)

The LEX model suggests that the decision maker chooses among alternatives on the basis of their values on the attribute most important to him. If more than one alternative exhibits the same value for the most important attribute, the tie is broken by looking at the second most important attribute...and so on until there are either no more ties or no more attributes. LEX seems to be substantiated as an explanatory model in protocols reported by Alexis, Haines, and Simon (1968); Bettman (1969); Clarkson (1963); and Russ (1970).

Lexicographic Semiorder (LSO)

The LS model is a modification of the LEX model. Rather than suggesting that the second most important attribute is considered only if two or more alternatives have equivalent values for the most important attribute, it suggests that the decision maker turns his attention to the second most important attribute so long as the difference between two values of the most important attribute is not significant or not noticeable.

Such a model is obtained by applying a just noticeable difference structure to a lexicographic ordering (Luce, 1956; Tversky, 1969) or by assuming that a decision maker is unwilling to downgrade alternatives when differences are insignificant, even though preferences are defined (Yntema and Torgerson, 1961).

SATISLEX

The SATISLEX model is a combination of the LEX model with the satisficing notion developed by Simon. It suggests that alternatives which fail to meet certain goals or standards will be eliminated from further consideration; those that remain will be ranked lexicographically.

SATISLS

The SATISLS model combines the LS model with satisficing.

Predictive Accuracy of EP Models

Are EP models any good? The answer must depend on the purposes of the researcher. If predicting first preferences correctly is the appropriate measure, the answer would be that all of them are good. For example, Bass and Talarzyk used the Fishbein additive model and correctly predicted first preferences for well known, inexpensive branded products between 54 and 75 percent of the time for over 1100 respondents. Random predictions would have yielded a 20% predictive accuracy. Russ used all five of the models to predict housewives' choices among small appliances. In the eighty choice

situations, the first choice was correctly predicted between 55 and 66 percent of the time (depending upon the model used), when 10% predictive accuracy would have been expected by chance.

First preference accuracy measures are comparable from one study to the next, but such is not the case for measures of preference order accuracy. Measures include a "confusions" matrix used by Bass and Talarzyk, Spearman's Rho, and a Preference Accuracy Index developed by Russ and based on Kendall's Tau. Only the latter index takes into consideration both the order in which the preferences are predicted and the importance of predicting a particular preference correctly. (For example, it is more important to predict the first preference accurately than it is to predict the fourth.) Some standardization needs to occur before models can be compared across the different situations used in various studies. Nevertheless, preferences below the first do seem to be predicted considerably more accurately than would be expected by chance.

Despite the exceptionally good predictive results obtained with all of the evaluation process models, it should be pointed out that the descriptive ability of the popular ADD model must be seriously questioned. There is practically no evidence that decision makers (except, for example, purchasing agents who develop additive formulae for evaluating suppliers) make evaluations in an additive fashion. Instead, most evidence leads to the inference that the satisficing and lexicographic notions - taken together - are extremely accurate indications of what actually transpires during the evaluation of alternatives.

Now we turn to the main issue: which model is best? (And we shall define "best" on the basis of predictive accuracy rather than external validity.) In the only previous comparative study of predictive accuracy (Russ, 1971), four of the five models proved to be comparably accurate, with LEX ranking considerably lower because of its inability to downgrade alternatives on the basis of particularly poor values on attributes of less than maximum importance.

There are at least two possible reasons for the lack of difference among the predictive models: the quality of model inputs may be poor or the models may actually be relatively close in predictive accuracy, at least for the situations in which they were tested.

Exploratory research was conducted to try to determine whether either reason was the proper explanation. The research involved examination of additional data collected during the research previously reported by Russ, re-examination of other reported research, and some new research dealing with toothpaste preferences of college students. This new research is described briefly below.

Seventy-seven college juniors, seniors, and graduate students taking undergraduate marketing courses at UNC were asked to rank their preferences among ten leading brands of toothpaste. Next they were asked to rank each of six attributes of those products according to the attributes' importance to them. Ratings of importance were also obtained on an eleven point scale assumed to be an interval scale. Comparable rankings and ratings were obtained for how much difference the ten brands of toothpaste exhibited on each of these attributes. Finally, the subjects were asked to rate each brand according to how well it possessed each of the six attributes.

Sixty-four usable questionnaires were obtained. These have been used to assess the predictive accuracy of three of the models: ADD, LEX, and SATISLEX. There were no significant differences among the predictions of first preference made by each of the models. SATISLEX, the most accurate,

made 51 correct predictions and there were six ties as well. If ties are randomly allocated, SATISLEX is correct on approximately 84% of its predictions. LEX was the second best predictive model, and ADD was third. Furthermore, it was discovered that using importance and difference ratings multiplicatively as a measure of importance (suggested by Alpert, 1971) significantly lowered the predictive accuracy of all of the models.

From a re-examination of previous research and the new research reported above, a number of tentative conclusions about model input quality may be drawn. (It should be noted that these conclusions are based on relatively small samples which dealt with certain types of people in relatively few situations.)

1. A major problem with model inputs which could lead to smaller differences among models is the practice (except in Russ, 1971) of having subjects rate or rank alternatives on the basis of each attribute rather than rating their preference for attribute values apart from the alternatives. DeSoto (1961) has produced evidence which suggests that a "halo effect" exists in such measurements: preferred alternatives are likely to be rated more highly than dispreferred alternatives on any particular attribute even though objectively they shouldn't be. For example, in the study of toothpastes reported above, 25 of the 64 subjects produced ratings for their most preferred brand which indicated strong or weak dominance over all other brands. Any predictive model based on attribute ratings would have predicted their first preferences correctly.

2. Using the Alpert multiplicative measure of importance may produce an improvement in predictive accuracy when the alternatives in the decision situation presented to the subject are substantially different from those with which he is familiar, but it may also lead to "double counting" of the effect of attribute value differences on the importance of that attribute. The importance rating may implicitly consider differences in attribute values and thus duplicate their explicit consideration in the difference ratings.

3. Although the use of ordinal scale values as if they were interval scale values in the ADD model is a mathematical faux pas, in those studies where predictions could be compared, the use of ordinal data in the ADD model did not significantly reduce its predictive accuracy.

4. Input data can almost always be improved upon, but a more fruitful approach seems to be to try to devise situations where, say, ADD and LEX models cannot - or are unlikely to - lead to the same predictions. If past experience is any indication, creating such situations will be a difficult task.

This leads us to consider the other possible explanation for the lack of differences between the predictive accuracy of the models. Perhaps, in most situations, it really doesn't make much difference which model we use. But how is it possible that different EP models can lead to almost exactly the same predictions?

1. Perhaps a halo effect actually does occur in the individual's mind as he decides - preventing, by anticipation, the existence of postchoice dissonance. That is, perhaps the decision maker looks at alternatives and makes an initial judgment on the basis of only one or a few attributes; then he "molds" his views of the values of other attributes to make them conform. He is forced to change his initial evaluation only when he discovers an attribute value which is clearly unacceptable.

2. Most decisions are based on only a few significant attributes which exhibit only a few values each. The high likelihood of tied values on a given attribute would force the lexicographer to look at several important attributes each of which would get high weights in an ADD model. This would promote the possibility of small or no differences between predictions.

3. Decision making could be construed as a matter of making trade-offs. LEX allows no trade-offs between values on the most important attribute and any other attribute. SATISLEX allows them only when some other attribute exhibits exceptionally poor values. If no such poor values exist, then LEX and SATISLEX will make identical predictions. ADD just makes the trade-off relationships explicit, and it has been shown that an ADD model can be derived which can duplicate the predictions of any LEX model (Russ, 1971).

The upshot of the discussion so far is that in many situations we may reasonably expect no significant differences in predictive accuracy among EP models. But this does not mean that the researcher should flip a coin when making his decision as to which model to use.

This decision is a multiple-attribute decision itself. Because EP models seem essentially equivalent on the most important attribute--predictive accuracy, other attributes should also be considered.

LEX and SATISLEX type models offer a considerable advantage over ADD models because of the requirements placed on the inputs gathered from the subjects. Ordinal scale data on importance, preference, and acceptability are required rather than interval scale data on importance and preference. In the original study conducted by Russ, the ordinal data were considerably more reliable over time. Furthermore, in informal research conducted among subjects it was clear that subjects were more comfortable and less likely to be irritated when required to provide rankings rather than ratings. Finally, to return to a point made earlier, LEX and SATISLEX type models are clearly more descriptive of the evaluation process than is the ADD model.

The implication is clear if we can generalize from these few studies: in predicting consumer preferences it would be very worthwhile if the marketing researcher were to turn his attention from additive models to lexicographically-based models.

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DIFFERENTIAL INVOLVEMENT WITH PRODUCTS
AND ISSUES: AN EXPLORATORY STUDY

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This paper reports findings intended to clarify thinking about an ambiguous variable that is often assumed away or designed into behavioral studies in an arbitrary manner. This troublesome variable, ego-involvement, is often given cavalier treatment because of the difficulty of accurately defining, measuring and, more importantly, recognizing its importance as a critical variable. Ego-involvement as used in this paper is the definition offered by Freedman (1964): "a general level of interest in or concern about an issue without reference to a specific position."

The topic of involvement has not been extensively explored in the literature. An occasional study appears dealing with involvement with issues (e.g., Sherif, Sherif & Nebergall, 1965) and also an occasional study dealing with importance of products (e.g., Sheth & Venkatesan, 1968; Cohen & Goldberg, 1970), but no study has reported combining these two categories to explore the relative involvement of people with issues and products.

Cardozo (1965) in his study on the influence of effort in satisfaction implied that the more valuable or important a product is to a consumer, the more effort he will put forth to acquire it. Likewise, Sherif, Sherif and Nebergall (1965) suggest that involvement with a topic or issue influences how information relating to that particular topic or issue is processed. And, one of the more widely researched issues in the marketing and social psychology literature - cognitive dissonance - has as one of its main tenets that the importance of cognitive elements affects the magnitude of dissonance (e.g., Festinger, 1957). Also, it is a truism that the more central a belief is to a person's view of himself and the world, the more difficult it is to modify that belief.

Yet, surprisingly, there seems to be little hard evidence regarding what issues, topics or products are important or ego-involving and those that are low in importance or ego-involvement. Much of our thinking about ego-involvement is based upon intuition, so perhaps it is time to examine the accuracy of these assumptions.

Muzafer Sherif (1947) has been concerned with involvement as a major component in his approach to attitudes and attitude change. He suggests that "ego" is an unstable constellation of attitudes which can be referred to as ego-attitudes. These attitudes, which are characteristic of the person and a part of him, form with respect to objects, persons, situations, and groups. The contents (objects, persons, etc.) of the ego provide a frame of reference for the individual so that he may adjust his social behavior. Ego-involvement exists, then, when any conscious or unconscious stimulus is related by the individual to the domain of the ego. Ego-involvement affects not only what will be learned and how it will be learned, but also how the individual behaves and makes judgments. Thus, judgments and behavior, which follow from the identification of oneself with certain values and attributes are, to that extent, ego-involved. Accordingly, the degree of ego-involvement can be determined

by the relative importance of attitudes that the individual holds regarding the object or issue. This degree of ego-involvement can also be called the intensity with which an attitude is held.

For Sherif (1951), ego-involvement is an internal factor which operates in a judgmental situation and which has direction. For example, an individual would be positively ego-involved with his spouse and negatively ego-involved with an enemy.

A method for measuring ego-involvement has been developed and tested by Sherif, Sherif and Nebergall (1965). Their procedure measures involvement through a judgmental process in which attitudes are expressed in terms of latitudes of acceptance, rejection and noncommitment. Operationally, they define involvement as being high when the latitude of rejection is large relative to the latitude of acceptance with the latitude of noncommitment being almost non-existent. They have studied such issues as prohibition, desegregation and presidential elections.

The problems and limitations existing in the work of Sherif, Sherif and Nebergall point up the gaping holes in our understanding of ego-involvement. While they have dealt with issues, the issues were probably highly involving to start with. Naturally people would be involved with elections in an election year, so their results probably cannot be extrapolated to less involving issues or products. Likewise, Sherif, Sherif and Nebergall were primarily interested in involvement within a certain situation (i.e., situational involvement). The effects of situational constraints and their influence on an individual's feelings and action tendencies is not to be denied, but the measurement of involvement without respect to the situation has much, if not more, to offer those interested in message-processing by people. This is based on the premise that communications will be differentially processed depending on the level of involvement with the topic of the communication.

Freedman (1964) proposed two definitions of involvement: 1) Involvement is an "interest in, concern about, or commitment to a particular position on an issue," and 2) Involvement is a "general level of interest in or concern about an issue without reference to a specific position."

Hovland's (1959) analysis of the divergence of results between attitude change in the experimental situation and through surveys gives support to this study by stating that deeply involving issues can be used in experiments, which to some extent, was the method of exploration used in this study. Since attitude change, in particular, is not relevant, we do not need to deal with the reasons for discrepancy, but his suggestions with respect to involving issues are useful.

Rokeach's (1968) interpretation of attitudes and values gives insight into the study of involvement. He suggests that individuals have a hierarchy of values along a continuum of importance, which is called the individual's value system. Attitudes and values are interconnected within the individual to form a hierarchical mental organization which is internally consistent. Changes in either attitudes or values affect the entire system, which in turn usually produces a change in behavior. In an actual measurement of values, Rokeach found a relationship between "terminal" values (world at peace, equality of all men, freedom, national security) and involvement. He reports that values transcend the situation and provide a standard for guiding an individual's attitudes, actions, and emotions.

Perspective is given to the understanding of involvement by Krugman (1966), who suggests that involvement with a product or issue is distinctly different from involvement with the channel or media through which a communication about some product or issue is received. Involvement with advertisements is operationally defined as, "the number of connections, conscious bridging experiences or personal references per minute, that the subject makes between the content or the persuasive stimulus and the content of his own life." Krugman demonstrates that by this operational definition people are less involved with television advertising than with advertisements appearing in magazines. Krugman (1970) has also demonstrated this same phenomenon by recorded brain waves of a subject watching television commercials or reading a magazine.

Krugman (1965) argues that most people are rather low-involved with television and with the products advertised on television. Therefore, he argues that what really takes place is not persuasion, but a type of association learning that may not result in any attitude change until (or even after) the person is confronted with a stimulus such as a package in the store.

Reviewing the literature, then, we find that:

1. Involvement refers to ego-involving attitudes.
2. The relative importance of issues to the individual is a measure of involvement.
3. Communications have differing effects depending on the involvement with the topic by the receiver of the communication.

The following study is designed to test empirically the widespread intuitive hypothesis that issues are more important (ego-involving) than products and to give some evidence of product and issue ranking on this variable.

Twenty products and twenty issues were chosen for investigation. In general the products were representative of goods that college students would be knowledgeable about and either have purchased or could reasonably anticipate purchasing in the next few years. Likewise, issues were representative of those about which college students would have some knowledge.

It was not the purpose of this study to investigate a subject's position on an issue or brand, nor the usage rate of a product or the amount of time spent in relationship to an issue.

After extensive pre-testing it was found that the word "importance" most closely approximated the concept of ego-involvement used in this study which is a general level of interest in or concern about an issue or product class without reference to a specific position or brand. This was adapted from Freedman (1964). It also was consistent with the exogenous variable, "importance of purchase" described by Howard and Sheth (1968). Other words tested were 'meaningful', 'central', 'satisfaction', 'involvement' and 'significant.' It is interesting to note that the word 'involvement' could not be used because of its extensive use with the war (i.e., involvement in Viet Nam) and other current issues in the sense of physical participation in various activities such that other meanings seem to have been forgotten.

Subjects were forty-four male students enrolled in an undergraduate consumer behavior course at the University of Illinois-Urbana. Each subject was given a list of ten issues and ten products which he was to

locate on a series of eight concentric circles. (See Figure 1) The use of concentric circles allows the respondent to express more accurately how he perceives the importance (involvement) of the various products and issues than if he were merely asked to rank or rate them. There is no reason to anticipate that results obtained in this manner would be inconsistent with those obtained using a paired-comparison procedure. The paired-comparison procedure is not realistic for this study because of the large number of possible pairs.

Subjects were told that the arrow on the diagram moves from the outer circle which represents things of no importance toward the central point which represents the most important things imaginable. An example used was that of the Christians who on being thrown to the lions would place their religious beliefs right in the middle of the diagram. Subjects were also reminded that their exact beliefs about a product or issue were not what was being measured, but rather how important the issue or product was to them personally.

Results

The space between each circle was assigned a number for the purposes of scoring, 8 being the most important (central point of the circles) and 1 the least important (the outer circle). The data were analyzed using a completely randomized analysis of variance procedure, with each product and issue representing one treatment level. Adjustment was made for unequal n following the procedure of Winer (1962). Following the overall analysis of variance procedure, differences between individual products and issues were explored using Tukey's HSD (honestly significant difference) multiple comparison procedure (e.g., Winer, 1962).

The means for all products and issues are presented in Table 1.

The analysis of variance procedure reported in Table 2 indicates that the difference between products and issues is significant at the .01 confidence level.

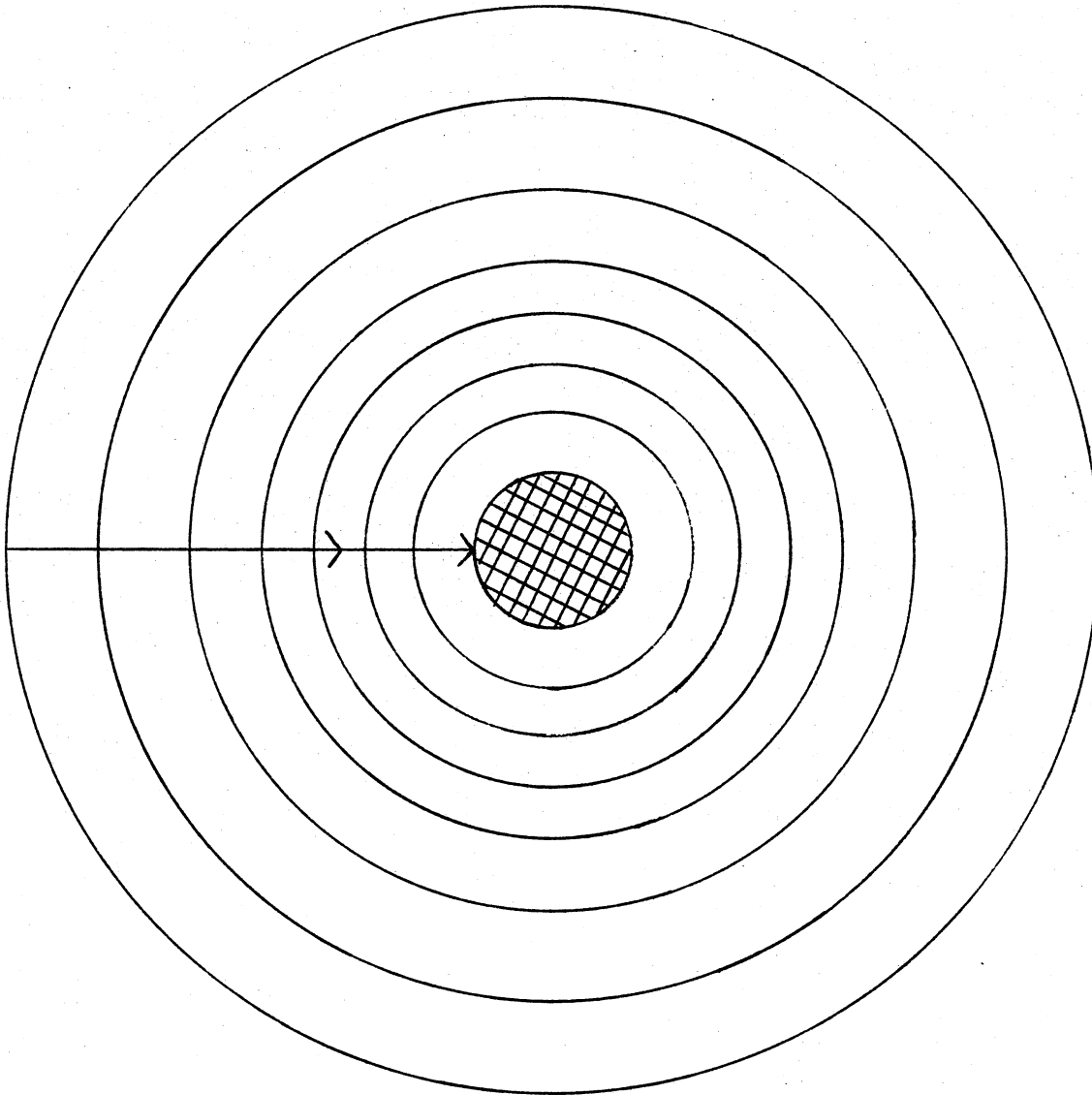
Tukey's HSD multiple comparison test was used to make all pair-wise comparisons. The critical value for these data, which must be exceeded to indicate significant difference at the .01 level, is 1.73. The number of pair-wise comparisons significant at the .01 level of confidence is considerable. The results of Tukey's HSD tests did support our basic assumption that issues are more involving than products, however.

It is easy to see that those products specified by subjects as being of little importance (low level of ego-involvement) are significantly different from those specified as being of high importance. For instance, the product facial tissues is viewed as significantly less important than beer and all higher rated products. Likewise, the product, automobile, is viewed as significantly more important than a movie and all lower rated products.

The same type of analysis can be made for issues and between issues and products. Of course it is obvious that issues as a class are more important than products as a class ($t = 12.72$). Furthermore, we find products viewed as most important are only equivalent to the middle group of issues and are viewed as being significantly less important than the Viet Nam war, future occupational status and the draft.

FIGURE 1

On the circle diagram below, as the arrow moves FROM the outer circle TO the central point, this indicates greater degrees of IMPORTANCE in your life. (KEEP IN MIND: YOU ARE CONSIDERING HOW IMPORTANT EACH ITEM IS TO YOU.)



1. Please place the number of each item somewhere on the circle diagram that is appropriate for you.
2. Cross off each number after you place it on the diagram.
3. Stay within the outer circle.

Table 1

Mean Values for all Products and Issues#
(Ascending Order of Importance)

PRODUCTS	\bar{x}	n	ISSUES	\bar{x}	n
Facial tissues	1.19	21	Fraternity membership	2.38	21
Bicycle	1.39	23	Apollo flights	2.91	23
Soup	1.52	21	Lowering voting age to 18	3.48	23
Comb	1.65	23	Religious beliefs	3.71	21
Cola	1.81	21	Legalization of marijuana	3.76	21
Cigarettes	1.83	23	Censorship	3.95	21
Portable typewriter	1.86	21	Grades	4.17	23
Toothpaste	1.95	21	Legalization of abortion	4.48	23
Transistor radio	2.14	21	Federal aid to education	4.56	23
Coffee	2.61	23	Presidential elections	4.78	23
Movie (in a theater)	2.67	21	Sports	4.81	21
Color television	2.83	23	Cost of living	5.09	23
Pants	2.91	23	Racial equality in work, housing and education	5.17	21
Beer	3.00	21	Birth control	5.57	21
Milk	3.09	23	Freedom of speech	5.62	21
News magazine	3.24	21	Environmental pollution	5.67	21
Bed	3.74	23	World peace	6.17	23
Meat	3.78	23	Viet Nam war	6.28	21
House	4.17	23	Future occupational status	6.43	23
Automobile	4.52	21	The draft	6.71	21

Mean for all products = 2.59

Mean for all issues = 4.79

Range of possible values = 1 to 8
1 = no importance
8 = highest importance

Table 2

Analysis of Variance
All Products and Issues

Source of Variation	S.S.	D.F.	M.S.	F
Between All Products and All Issues	2030.3	39	52.06	26.27
Within Groups	1664.4	840	1.98	

F.01:40, ∞ = 1.59

The data suggests that the products and issues examined in this study fall roughly into three groups, representing three levels of importance or ego-involvement. The first group would include those products and issues which have a mean value falling between 1.19 and 2.91. The second group would include those products and issues having a mean value between 3.00 and 4.81 and the third group would be issues having a mean value above 5.00. Obviously this is an arbitrary classification and open to much conjecture and statistical haggling.

Discussion

The extensive series of investigations in the area of communication and persuasion following from the work of the Yale group has increased our understanding of the communication process. A review of these studies, however, indicates that most issues used by Hovland and others (1953) would probably be considered to be relatively ego-involving or important (i.e., treatment of juvenile delinquents, devaluation of currency, early end of the war with Japan). The frequent extension of these findings to include response to persuasive marketing communications for relatively low-involving products is, however, potentially misleading.

Rather than relying entirely on these findings in the future, advertisers (as well as communicators in general) would be wise to subject their own topic or product to some empirical analysis regarding its importance to their customers. If their products are truly low involving, it means that the problem of selective exposure looms large, but it also means that the cognitive process involved in giving meaning to communications about low involving products is sufficiently different from more involving products or issues to make many assumptions questionable. For instance, Sherif, Sherif and Nebergall (1965) suggest that "evaluations or opinions of the uninvolved or slightly involved individual will vary significantly with changes in the order of arguments, the style and plan of the communication, the identity of the communicator (low or high prestige), and almost any procedure that invests some aspect of himself in support of one stand or another in the situation." On the other hand, they state that people who are highly involved "are less susceptible to attitude change in the first place and less responsive to variations in the immediate communication situation, such as characteristics of the communication designed to sway him."

Depending on future research, there appear to be some possible applications of the findings reported here. Realizing that individuals are probably more involved with most issues than they are with the products they purchase and consume, the first possible application of this idea would be in the development of advertising appeals. For most segments of the market that the creative advertising person is trying to appeal to, he must remember that under most conditions his product does not rank very high in the consumer's hierarchy of things important to him. Level of involvement by topic probably varies across a wide variety of sociodemographic variables. This implies that, for instance, a particular social class may be highly involved with automobiles, but another considerably less involved. Involvement with a product may be a function of purchase experience. Similarly, an individual's knowledge about, interest in, and concern with an issue would influence his involvement. Finally, individuals play a variety of roles, which may influence which products or issues are important when related to a particular role.

This does not suggest that advertisers must incorporate contemporary issues into their advertising appeals, but that they should place the importance of their products in its proper perspective and appeal to the consumer appropriately. On the other hand, when a believable connection can be made between an issue and a product, this might attract more potential consumers (i.e., more individuals would probably perceive this advertisement). Also, once a product has been related in the consumer's mind to an issue, something important to him, the probability of this person's retaining knowledge of the product is increased.

More generally, researchers studying consumer's involvement with products in the future should realize that the continuum of involvement does not range from product A to product Z or from brand 1 to brand 7, but extends to a broader categorization of products and issues. Although more research is needed in the area, it now seems that individuals are more involved with issues. Overlooking this fact could exaggerate what actually exists in the consumer's mind. Clear support is not given to the intuitive feeling that the more expensive a product is, the more important or ego-involving it is to the individual. In fact, based on this study, we would have to say that some other factor is accounting for a large part of the variance.

The results of this study, to a great extent, conform to intuition. Nonetheless, these results point out the absolute necessity of taking into account the actual level of ego-involvement with a product or issue if the investigator believes there will be a differential response to communications based on the level of involvement with the topic of the communication. Further, these results should serve as a call to reevaluate many of the studies on which communication theory is based.

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PSYCHOPHYSICS:
THE KEY TO REAL PRODUCT DIFFERENCES THROUGH THE CONSUMER

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Multidimensional scaling techniques are enjoying increased attention in today's marketing research literature. But the fact is that many decisions in applied marketing -- a majority perhaps -- involve a single product attribute. More and more individual consumers whose spending dollars are being sought are becoming increasingly critical of not getting what they are paying for. And very often this criticism centers on unitary product attributes. The use of unidimensional scaling techniques can provide information for decisions that will provide responsible products in the consumer marketplace. Accompanying the concern with product performance and safety standards has been a developing skepticism toward claims advanced in the advertising of many products. Manufacturers must guard the validity and believability of their advertising and ensure that their products meet the expectations of the consumer.

Along these lines, four general classes of questions typically confront production and marketing executives:

- (a) How can I convincingly demonstrate that my product, with respect to characteristic X, is better than my competitor's product? This question is particularly pertinent to advertising which must meet FTC requirements.
- (b) Given that I can offer a better product with respect to characteristic X, how far do I need to go, or indeed can I go, before diminishing economic and consumer satisfaction returns set in? This question is important from a cost standpoint and may also involve safety considerations.
- (c) At the opposite end of the spectrum, how little of characteristic X do I need to include to be able to provide a low cost product which is still positioned within the boundaries of consumer acceptance? The consumer would thus receive a cheaper product without sacrifice of performance standards.
- (d) Finally, how widely can my product fluctuate with respect to characteristic X and still be located within legally established limits and, more importantly, within the boundaries of performance expectations set by the consumer? This, of course, is the problem of quality control.

Judging from clients with whom the authors have collaborated, many executives are reliant on inefficient trial-and-error procedures for answering these types of questions. Yet the four cases outlined above are easily translatable into classic psychophysical terms. Given a product characteristic or attribute X measurable in physical units, what is the nature of the corresponding perceptual or psychological scale which will enable a determination of: (a) the magnitude of a real difference, observable by the consumer, with respect to various levels of the attribute; (b) the shape of the upper limits of the scale which shows how much of an increase in characteristic X can be tolerated and at what physical and thus monetary cost; (c) the shape of the lower limits of the scale which shows the region of low cost acceptability; and (d) the range of physical variation in characteristic X which is within the range of perceptual or psychological nondetectability. Ignorance or incomplete knowledge of these parameters can result in many missed opportunities in the marketplace, chances to break through with different versions of an established product or to accurately position a new entry.

The purpose of this paper, then, will be to demonstrate how the executive can usefully apply psychophysics to answer questions of the foregoing types.

Assuming that the product attribute of interest is measurable in physical scale units, the first step is to select a method of deriving a correlated perceptual or psychological scale. Several established procedures are available, each being appropriate in certain circumstances. Applications of the three best known procedures are briefly summarized below:

	<u>Ranking</u>	<u>Paired Comparisons</u>	<u>Rating</u>
Number of items to be judged	Small	Small	Large
Nature of attribute	Vague, perhaps multidimensional	Specific, easily understood	Specific, easily understood
Types of judges	Training unnecessary	Training unnecessary	Well trained in evaluating the attribute

Many situations fall into the middle category: the range of product performance on characteristic X can be adequately represented by a dozen or fewer items with different values along the physical scale, the characteristic itself is fairly specific and easily understood by consumers, and the consumers (the ultimate judges) do not require special training in order to evaluate the characteristic. The present illustration will thus utilize the paired comparison procedure. The technically oriented reader concerned about largely hypothetical objections to the method (Blankenship, 1966; Greenberg and Collins, 1966) is referred to an excellent discussion by Day (1966) advocating

the advantages of the systematic probabilistic approach to paired comparison testing followed here. The data reported in this paper are actual; however a different (and fictitious) product is discussed for proprietary reasons. The applied aspects of the analysis could refer to any number of similar products or product attributes.

Methodological Example

As an example of how psychophysical data can be used in marketing decisions, consider a decision making situation for the product manager of a spot remover. Let us assume for purposes of discussion that this is a well established market and one that is dominated by three or four major brands that contain only slightly more or less of a given active ingredient along with only slightly different combinations of carrying agents. Thus, the effectiveness of cleaning constitutes the major basis for product differentiation. This is a market environment that exists for a large number of products and decisions concerning an entry of a new product or even re-positioning of an old product can be made more certain by psychophysical research.

For a spot remover product a typical experimental design would involve the preparation of ten experimental formulas that contained systematic variations in the active ingredient concentration with the current market situation located about midway along this range. The selection of this set of formulas would usually be aided by laboratory analysis and some product performance testing results. Carpet squares that were identical would then be prepared with a stain or soil pattern and then cleaned in a standard fashion. Each square would be cleaned by two of the spot remover formulas, one for each half. Thus, the end result would be 55 carpet squares that were divided in half. Two-hundred consumers would then be asked to judge each patch as to which side was cleaner. The resulting data would indicate the proportion of times a given formula was judged to outperform the others. Thus, a family of ten curves would be produced and represent discriminable differences at each solution concentration by employing the standard 75% point as the difference threshold. Figure 1 represents one of these curves for a middle range concentration as the standard for comparison. Table 1 represents the just noticeable differences (JND) for all ten concentrations. These JNDs are the magnitudes of active ingredient increment that will be reliably reported by the consumer and they are expressed in terms of ounces per gallon.

The blank spots in Table 1 indicate that a JND does not exist at these points, implying that beyond a certain active ingredient concentration any increases are not detectable by the consumer.

A second data analysis that would provide information for product decisions involves the calculation of constant errors for each solution concentration. This would be done by calculating the value for the solution that was reported as equal in performance to the standard and can be determined from the 50% point on each curve. Either a systematic or random bias on the part of the observer will cause equal products to be identified

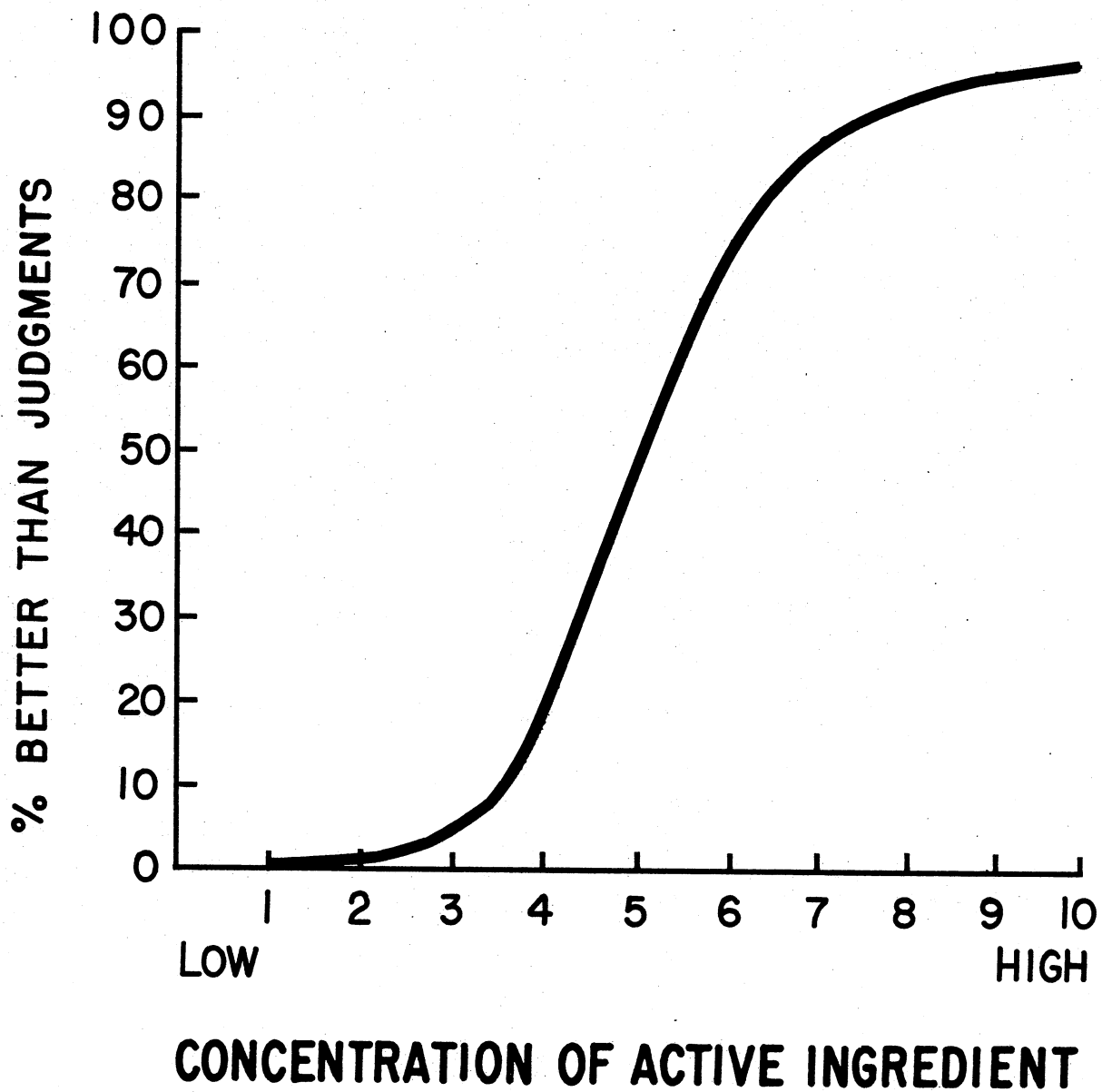


Fig. 1 The proportion of times a middle range formula was judged to out perform other members of the set.

Table 1

The Just Noticeable Differences for The Ten Concentrations
Expressed in Ounces Per Gallon

Concentration	JND
1	.47
2	.52
3	.53
4	.49
5	.52
6	.58
7	.60
8	.61
9	
10	

as different. If the data are systematically biased then the magnitude and direction of this bias can be considered. Table 2 shows the constant error for each of the ten solutions and in this case can be interpreted as random variations of very small magnitude.

Table 2

The Constant Errors for The Ten Concentrations
Expressed in Ounces Per Gallon

Concentration	C E
1	.06
2	-.02
3	.00
4	.01
5	.00
6	.00
7	.02
8	-.01
9	.00
10	.02

Returning to the original four questions that were posed by the product manager, it can be seen that answers are available from a rather simply executed procedure for each of them. By locating the curve that most closely represents the concentrations of the current products, it is possible to determine if a claim of better than can be substantiated. From Table 1

it can be seen that a product with concentration of eight or less could have a better than claim leveled against it by a competitor. That is to say, there is one or more products that could be perceived by the consumer as performing at a higher level on cleaning ability. A product having a concentration of nine or ten has no product that was judged to be superior. Consequently if the current leading brand fell at level eight or below, a new product claim of "better than" could be substantiated.

These same data also provide information for the second class of questions. Having located the maximum concentration at level nine and also positioned the current market status, the product planner has identified the flexible range of product modification. If the current market is located at seven or eight then very little discretion is permitted in selecting a new product.

Conversely, a product that could provide economic relief to the consumer along with minor decreases in performance is a desirable alternative. In making the trade-off decision between economic and performance criteria the product manager would be able to determine the degree of performance loss that would be associated with a reduction in active ingredient. If the current market leader is located at level six then it is possible to determine if level five is a noticeable drop in performance or not.

The final question of quality control is most easily answered by the data. If a product manager selects a product at any point within the range of the ten concentrations, the JND will indicate the outer limits of equality. In practice, the quality control tolerances should be set well inside this limit since the arbitrary definition of the JND is made at the 75% point.

The data from the constant error analysis would also bear on each of these questions; particularly the last. However, in this example there is no systematic CE and the random fluctuations are of such small magnitude that they cannot be interpreted.

Discussion

It should be emphasized that the application of psychological methodology described in this paper is only one of a number that could have been selected. In particular, a variety of procedures exists for deriving a psychological consumer-perception scale to correspond with physical product qualities that can be controlled by the manufacturer. Once the psychological function has been mapped, the determination of product strategy is greatly simplified. Furthermore, the intent has been to show that psychological measurement can be easy to conduct, relatively inexpensive, and capable of producing definitive, readily interpretable information guidelines since the data are obtained directly from the consumer.

The application of such techniques is limited only by practical ingenuity, usually in circumstances where an immediate judgment of product performance is not possible. Nonethe-

less, tests could be designed to investigate more complex phenomena such as the pain-relieving ingredient in headache remedies, or even the engine-boosting qualities of gasoline additives. Too often, it is argued, production and marketing executives guess at the outcome of these factors and pay the toll of failing products or missed opportunity in a competitive market.

Also, the attention of academics in marketing research is drawn to the pervasiveness of decisions involving single product attributes. Not everything is "complex and multidimensional", at least not to the manufacturer and not to the consumer. When many executives' technical statistical backgrounds need far too much polishing to read the average research article, for example, "cook book" descriptions of how to apply psychological methodology to answer basic but paramount questions of product performance should not be by-passed in the quest for more sophisticated but less readily interpretable solutions. Knowledge of the upper and lower limits of acceptable product performance, the magnitude of perceivable and demonstrable differences in performance, and the physical cost function underlying the performance curve can be achieved quite readily with straight forward traditional psychological procedures.

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CONSUMER INFORMATION PROCESSING:
ATTRIBUTING EFFECTS TO CAUSES

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INTRODUCTION

An important part of the marketer's task is to obtain consumer acceptance of a brand or product through the management of information. Considerable attention has been focused on the management of information by the marketer, particularly in the area of promotion and advertising. The "elements" in the promotional mix have been dissected and analyzed, the form and content of the persuasive message have been studied, and the effect of various media and communicators have been explored. These efforts have certainly not proven useless, and it seems quite likely that continued research in this area will provide further insight into the effective use of information.

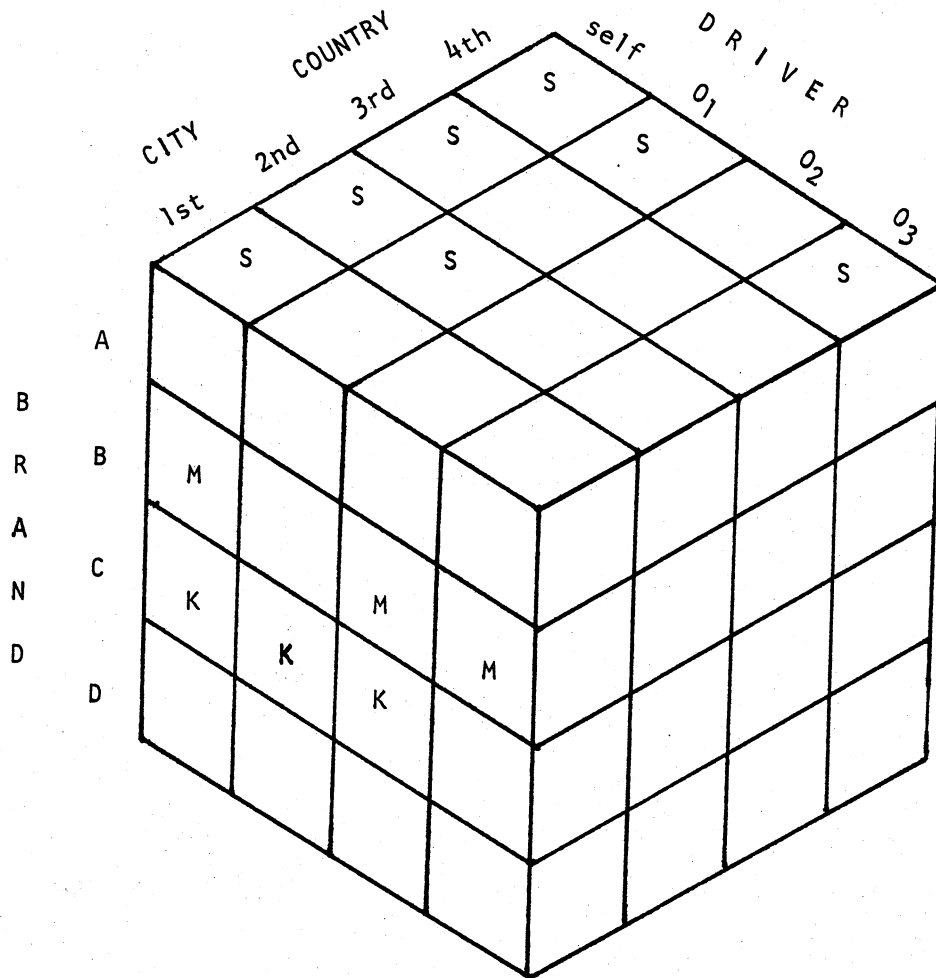
Just as marketers manage information, so do consumers. Just as the communicator has a variety of alternative methods to sort and present information, the receiver has several alternative methods to select, evaluate and use the information. The objectives, alternatives, and methods of consumer information management have been studied to a much lesser extent than have those of marketers because the focus of research has been predominantly on the preparation and "sending" of information.

If the goal of information management is successful communication, it seems likely that both marketer and consumer would benefit from further understanding of the receiver's information processing methods. It is the purpose of this study to investigate one mode of consumer information processing; that suggested by attribution theory.

Attribution Theory

Fritz Heider (1958) first described the attribution process in his book, The Psychology of Interpersonal Relations, as ". . . the linking of an event with its underlying conditions. . ." [p. 89]. He noted, ". . . that man is usually not content simply to register the observables that surround him: he needs to refer them as far as possible to the invariances of his environment" [p. 81]. Heider suggested that the attributions are made on the basis of a ". . . naive factor analysis of action" [p. 123]. He also observed, ". . . correct attributions . . . always serve to build up and support the constancy of our picture of the world" [p. 92]. He does not suggest, however, that the attributions made on the basis of this naive factor analysis will always conform to objective reality. Distortions may result from imperfect knowledge of the conditional antecedents of the action, or from egocentric needs of the individual.

Attribution theory was elaborated and extended by Harold H. Kelley (1967) in an extensive study of the theory in social psychology. Kelley agreed that, basically, the attribution is made on the basis of covariation. The effect is attributed to a causal condition that is present when the effect is observed and absent when the effect is absent. He used a simple three-dimensional cube as an expositional device of the analysis of variance, as depicted in Figure 1.



S = Smooth operation
M = missing of motor
K = knocking of motor

Fig. 1. Data pattern indicating attribution of smooth operation to Brand A gasoline.

Source: Adopted from Kelley (1967, p. 195).

Validation Criteria

Kelley (1967, p. 197) identified four criteria used by the individual to subjectively validate attributions:

1. Distinctiveness: the impression is attributed to the thing if it uniquely occurs when the thing is present and does not occur in its absence.
2. Consistency over time: each time the thing is present, the individual's reactions must be the same or nearly so.
3. Consistency over modality: his reactions must be consistent even though his mode of interaction with the thing varies. (For example, he sees it to have an irregular outline and he feels it to be rough; or first he estimates the answer to the problem and then he calculates it.)

4. Consensus: attributes of external origin are experienced the same way by all observers.

The more perfectly the individual's attributions fulfill the criteria, the more confident he will be that he has a valid picture of the world. An example may clarify the use of the criteria for subjectively validating an attribution.

If an auto owner observed that his car runs smoothly on Brand A gasoline but knocks and misses with all other brands, he may realize that smooth operation is uniquely associated with Brand A. This situation is depicted in Figure 1. The S for smooth operation appears in several cells of the Brand A layer, but in no other layer of the cube. This indicates that smooth operation is distinctive to Brand A, and to that extent the driver will be confident of his attribution of the effect, smooth operation, to the cause, Brand A.

If the driver finds that Brand A is associated with smooth operation every time he uses this brand he will be more confident, since he has achieved consistency over time with the brand. Similarly, he will be more confident if he finds that this effect is present in both city and country driving. This can be seen as consistency over modality. Note that Figure 1 depicts an S in both city and country modes, all four times the gasoline is used.

Lastly, the car owner will be more confident to the extent that other drivers recognize the same association between the brand and the effect, and make similar attributions. If they communicate their attributions to him, he will have achieved consensus. This condition is indicated in Figure 1 by the symbols appearing in the layers labeled 0 for other drivers.

In one respect, assurance reached through consensus is quite different from assurance reached through direct personal experience. When another person communicates his experience to the person making the attribution, the communicator's message is, in itself, an effect. That is, something caused the communicator to express himself. The receiver must make some judgment of the validity of the message in view of the communicator's possible motives and intent. The receiver may make these judgments by using the same naive analysis of action cited earlier. He may cast the problem in terms of whether or not the communicator is consistent over time and modality in presenting such a message, whether he is in agreement or disagreement with others, and whether he makes such statements only in relation to the topic under discussion, or in relation to every topic which is brought to his attention. In such a manner, the receiver may attribute the effect, in this case, the message, to such various factors as a genuine interest in him, an ulterior motive of the communicator, or some irrelevant factor such as the egocentric need of the communicator to influence everyone with whom he comes in contact. The degree to which the receiver achieves assurance through consensus will depend on this attribution concerning the source.

In reference to source factors which affect the attributions of the individual, Kelley (1967, p. 204) comments:

The communicator factors usually considered relevant to [the individual's] acceptance of persuasive communication are [the communicator's] expertness and trustworthiness. These notions are readily reduced to attribution terms. Expertness can be defined as the communicator's contact with or mediation of the relevant external causal factors. . . . Trustworthiness implies the absence of irrelevant causal factors (personal motives, role demands) in the person's statements.

While these communicator factors appear to be amenable to study using an attribution theory framework, the focus of this investigation is on the consumer's mode of information processing. Without denying the distinctive

nature of the consensus method of validating an attribution, it is possible to see consensus as a third form of consistency. One can then speak of consistency over time, consistency over modality, and consistency over people. It should be noted, however, that consistency over people (consensus) involves a double or higher order attribution: first, an attribution of the message as an effect to some causal factor, and then secondly, an attribution of the content of the message to a causal factor.

Causation and Covariation

While Heider and Kelley formed and used attribution theory in the study of interpersonal relations, it is the purpose of this study to apply Kelley's formulation to the consumer's information processing. The theory is premised on the assumption that the individual will attribute an effect to a cause on the basis of covariation. Thus, if a given effect consistently appears in the presence of one possible cause, and never appears when the cause is absent, the individual should be relatively certain that the causal factor is, in fact, the single causal agent. The less consistent the relationship or the more frequently the effect is associated with other possible causal agents, the less certain the individual should be that he has identified the unique cause of the effect.

An example may clarify this critical concept. Assume that the effect to be considered is a remark by another person that a certain movie is very poor. The individual receiving this information must now use some process to evaluate the effect's implications for his behavior. If the process he uses is that of assessing covariance, as attribution theory suggests, he might proceed in the following manner:

Two possible causes for this effect will be considered: the other person dislikes movies of all kinds, or the movie is such that all kinds of people would dislike it. The person making the attribution would then look at the variation in the communicator's remarks about other movies and also look at other people's remarks about this movie. If he finds that this person rates every movie as poor, while some others rate this movie as good or fair, he will attribute the effect, a poor rating for this movie, to the "cause" which is present when the effect is present, namely the other person. If, on the other hand, he finds that this particular communicator rates some movies as good, some as fair, and some poor, and if he finds that all others rate this particular movie as poor, the effect (poor rating for this movie) would be attributed to the movie itself, rather than to the other person.

Attribution theory further stipulates that the degree of confidence of the individual will be a function of the degree of consistency. That is, the more consistent the relationship between cause and effect, the more confident the individual will be that he has, in fact, identified the real cause.

Hypotheses

Two principal hypotheses can be drawn from the example cited above:

- I. The individual will attribute an effect to a cause on the basis of covariance.
- II. The degree of certainty that the attribution is correct is a function of the consistency of the relationship between cause and effect.

METHODOLOGY

The hypotheses are subject to empirical test through experimentation. The method of investigation must present the experimental subjects with a data base and measure the direction of the attribution and the degree of confidence in its correctness.

Experimental Design

The basic design for presenting the data base to the subjects (S's) and obtaining the responses is presented in Table 1. Two sets of cells at the lower and right margins of each data matrix are identified by underscoring, and the S's were asked to indicate both their estimate of the rating and their confidence that the rating was "correct." The estimates were to be made on the basis of the information on the ratings of three movies by three people, as indicated in the body of the table. Table 1, then, depicts the design for both the presentation of a data base and the measurement of response.

All S's in each condition received nine pieces of information concerning how three fictitious people rated three fictitious movies. The S's were then asked to estimate the ratings which a fourth person would assign to the three movies, and the ratings which the three people would assign to a fourth movie. They were asked to indicate their degree of confidence in each of the six estimates, as well.

In Condition I, the three fictitious informants were entirely consistent in their ratings of any one movie.

Table 1
Design for Presentation of the Data Base
and Collection of the Subjects' Response.

Condition I					
Movies	People				
	Alan	Bill	Chet	Dale	Conf.
Karelia	good	good	good	_____	_____
Laconia	fair	fair	fair	_____	_____
Mantula	poor	poor	poor	_____	_____
Namanga	_____	_____	_____	_____	_____
Conf.	_____	_____	_____	_____	_____

Condition II					
Movies	People				
	Alan	Bill	Chet	Dale	Conf.
Karelia	good	fair	poor	_____	_____
Laconia	good	fair	poor	_____	_____
Mantula	good	fair	poor	_____	_____
Namanga	_____	_____	_____	_____	_____
Conf.	_____	_____	_____	_____	_____

All of the variance in the data base matrix is associated with movies. Attribution theory suggests that the subjects will attribute the effect (the ratings) to the causal factors on the basis of covariation. Thus, the subject might assume that this situation contains a good movie, a fair movie, and a poor movie.

In Condition II, the three fictitious movies were all rated exactly the same by any one person. All the variation is associated with people. Attribution of the effect to a cause on the basis of covariation would lead the subject to the conclusion that this situation contains one person who likes movies, one who is rather neutral, and one who dislikes movies. In other words, the effect (the ratings) is attributed to the people, rather than to the movies as in Condition I.

Test Instrument

The objective of the test instrument was to present the S's with the nine pieces of information, and to obtain six responses for each dependent variable, or a total of twelve responses from each subject. The information and the questions were presented in random order to avoid any systematic order bias.

The S's were given an instruction sheet and a pack of standard data processing cards. This pack consisted of nine information cards and six question cards. The information cards were buff colored, and each contained a simple statement, such as:

ALAN rated the movie "Karelia" as Good.

The question cards were white so that they could be distinguished easily by the S's, and each card contained two questions:

How do you think that DALE will rate the movie "Karelia"

	Good	Fair	Poor						
How certain are you that he will rate the movie that way?									
:	:	:	:	:	:	:	:	:	:
90%	80%	70%	60%	50%	40%	30%	20%	10%	:

Statistical Design

Hypothesis I states that the individual will attribute an effect to a cause on the basis of covariance. If this is the case, a given effect (a rating) should be relatively easy to estimate in the presence of the cause and relatively difficult in the absence of the cause. In Condition I, for example, if the effect is attributed to the movies, the S's should be able to estimate the effect (rating) with relative ease if the cause (the movie itself) is a "known" even though the fourth person is not "known" in the sense that the S's have data on him. On the other hand, an estimate of the rating for an "unknown" movie would be difficult even though the S's have data on a "known" person who is making the rating. Of course, the converse is true for Condition II, if the effects (ratings) were attributed to the persons, rather than to the movies.

The relative ease or difficulty in making the estimates should be reflected in the accuracy of the estimates, if row and column means are used as the criteria for correct estimates. Consequently, the frequency of a "correct" estimate in each cell can serve as the dependent variable to test Hypothesis I. The data were submitted to Chi² analysis in a contingency table for proportion of correct and incorrect estimates in high and low consistency modes.

Hypothesis II states that the degree of certainty that the attribution is correct is a function of the consistency of the relationship between cause and effect. The dependent variable relevant to this hypothesis is the rating of confidence in each estimate. A significant difference between mean responses of confidence for high and low consistency treatments would support the hypothesis. The confidence data were submitted to analysis of variance to determine significance of differences in means.

RESULTS

The frequency of "correct" estimates for each one of the marginal cells, together with the mean confidence ratings for the 45 subjects in each condition, are depicted in Table 2. The frequencies are expressed as both absolute value and as a percentage of total response. Each of the 45 subjects in each condition responded to every question. The scale of confidence ranged from zero to nine.

Table 2
Frequency of Correct Estimates
and Mean Confidence Ratings.

Condition I						
Movies	People					
	Alan	Bill	Chet	Dale		
				f	% ^a	Conf.
Karelia	good	good	good	42	93.3	7.22
Laconia	fair	fair	fair	43	95.6	7.20
Mantula	poor	poor	poor	43	95.6	6.91
Namanga	f	34	34	36		
	%	75.6	75.6	80.0		
Conf.		3.76	3.78	3.84		
Condition II						
Movies	People					
	Alan	Bill	Chet	Dale		
				f	%	Conf.
Karelia	good	fair	poor	39	86.7	3.82
Laconia	good	fair	poor	42	93.3	3.80
Mantula	good	fair	poor	40	88.9	3.82
Namanga	f	45	44	45		
	%	100.0	97.8	100.0		
Conf.		7.22	7.33	7.29		

^a N = 45

Frequency of Correct Estimates

The frequency of correct and incorrect estimates of ratings for high and low consistency treatments are shown in Table 3. The high consistency treatment refers to the rows of Condition I and the columns of Condition II, while the low consistency treatment was the columns of Condition I and rows of Condition II. Consequently, each treatment includes both consistency over people (as in Condition I) and consistency over movies (as in Condition II).

The Chi² analysis of the contingency table presented in Table 3 indicates that the differences in the distributions of response between correct and incorrect ratings for high and low consistency is highly significant. It can be concluded from the data that subjects had significantly more difficulty in estimating a rating for an "unknown" entity, whether a person or a movie, when all of the variance in the matrix was associated with that class of entities. Conversely, the extremely high proportion of correct responses indicated that subjects had little difficulty in making the estimates when no variance was associated with the class of entity (whether people or movies).

Hypothesis 1 states that the individual will attribute an effect to a cause on the basis of covariance. The data on estimation of ratings appear to indicate that the subjects are attributing the effects (ratings) which they were given to either the entities being rated (movies) or to the entities doing the rating (people) on the basis of the variance in the information data. As a result, they seem to have exhibited relatively more difficulty in making an estimate of a rating for an unknown entity when that class of entities, whether people or movies, is seen as the "cause" of the effects. The data support Hypothesis 1.

Table 3
Frequency of Correct Estimates for
High and Low Consistency Treatments.^a

	High	Low	Total
Correct	262	225	487
Incorrect	8	45	53
Total	270	270	540

Computed $\chi^2 = 27.8$

$P < .001$ (df = 1)

^aCriteria for correct estimates were row and column means.

Confidence Ratings

The mean confidence ratings for each example of an entity class are depicted in Table 2. The data for each condition were submitted individually to analysis of variance to determine if there were significant difference in mean response for subjects, consistency treatments, and examples within treatments (the three people and movies). The results of the analysis are presented in Tables 4 and 5.

The analysis of variance indicates that there are significant main effects of both subjects and consistency treatments, as well as a significant interaction between these variables. Examples within treatments did not prove to produce significant differences in mean response. The data indicate that confidence ratings are significantly higher for high consistency examples than for low consistency examples, that the ratings are generally higher for some subjects than for others, and that the differences in consistency affects the confidence of some subjects differently than others.

Hypothesis 11 states that the degree of certainty that an attribution is correct is a function of the consistency of the relationship between cause and effect. The significantly higher expressed confidence in the high consistency treatments supports the hypothesis.

CONCLUSIONS

The assumption of attribution theory, that attributions are made on the basis of covariation, has been supported by the study. It appears that both the attribution and the confidence associated with the attribution are functions of the consistency with which an effect is associated with a cause.

It should be noted that the experimental subjects were presented with the information data base in random order, and were questioned in random order, though they were permitted to arrange the information and questions

in any manner they saw fit. During the administration, most could be observed to order the cards in groups of three, and in several cases the subjects actually arranged the cards in matrix form much as it appears in Table 1 for one condition. Their response appears to be very orderly and consistent, even though any such order was entirely their own. They did not appear to have been importantly influenced by the first or last piece of information, or by any single item. Rather, they seem to have regarded at least one column or row of three items, and in many cases the entire set of data.

Table 4
Analysis of Variance:
Confidence Ratings, Condition I

Sources	df	MS	F
Subjects (A)	44	17.60	52.44***
Residual	176	.34	
Treatments (B)	1	743.34	64.75***
A x B	44	11.48	
A x B	44	11.48	34.23***
Residual	176	.34	
Examples ^a	4	.73	2.16
Residual	176	.34	

***p .001

^aNested within treatments.

Table 5
Analysis of Variance:
Confidence Ratings, Condition II

Sources	df	MS	F
Subjects (A)	44	13.12	92.35***
Residual	176	.14	
Treatments (B)	1	811.20	115.04***
A x B	44	7.03	
A x B	44	7.03	49.46***
Residual	176	.14	
Examples ^a	4	.07	.52
Residual	176	.34	

***p .001

^aNested within treatments.

Attribution and Learning Theory

Those familiar with stimulus-response models of learning will recognize the similarity between the association of an observable effect with a probable cause in attribution theory and the association of an act with a reward in learning theory. There are, of course, a variety of distinctions between the two types of theory; many of them fundamental and important. Of note here is the distinction in the role of each theory for the study of information processing.

Learning theory typically deals with the connection between a single stimulus, one particular response, and a single reward. It may not deny reward

value inherent in a variety of other factors in the environment of the subject, however these factors are exogenous to the paradigm. In the complex and multidimensional world in which the consumer must operate, attribution theory offers a mode of connecting a variety of stimuli with a variety of causal factors, assuming that reward value is generalized and inherent in correct and stable attributions. The value of exploration of relatively simple configurations of stimulus-response can not be denied, but it also seems likely that comprehension of complex patterns in a verifiable model has a special value and significance. Attribution theory may constitute such a model.

Implications for Future Research

This study employed a subject population of college juniors and seniors who are relatively familiar with organization techniques and tasks similar to those required of them in this case. Certainly the external validity and generalizability of the experiment would be enhanced by a replication on the general population of adults. Aside from a different population, one might wish to enlarge the data base matrix to determine the degree of incorporation of information in the process and its effect on confidence.

The matrices employed in this experiment represented extreme cases, such that all of the variance was in either a row or a column. Before moving to larger numbers of either examples or dimensions, it seems likely that the most appropriate refinement would be inclusion of a mixed data matrix such that some variance was associated with each entity class. This design would permit assessment of the role of the entire matrix in influencing the confidence in the attribution, as opposed to only single row or column consistency. Thus, it may be possible to measure more accurately the amount of information used by the individual in making and holding an attribution.

Implications for Promotion

If the consumer makes attributions on the basis of covariation, as the theory suggests and the study indicates, the promotion manager may find it useful to tailor the information and communications directed to the consumer to fit the consumer's information processing methods. For example, if all product features and characteristics are lauded with equal intensity, the consumer may be prone to attribute the message to the marketer's desire to sell the product. On the other hand, if the marketer were to single out one or a few particularly strong product features, while recognizing some shortcomings in other areas, the consumer may attribute the effect (the favorable score on the strong feature) to the product and its actual performance.

Similarly, if a TV personality praises every product and brand sponsored, the consumer may conclude that this effect can be attributed to the endorser's paycheck. If, however, the endorser is sometimes critical of a product even though the firm is a sponsor, the consumer would be likely to see the praise which does come forth as varying with the brand or product itself, and therefore attributable to that cause.

These are but two examples of the applicability of attribution theory to marketing information management. The underlying assumption in the study of the consumer information process, and that of the study of all consumer behavior, is the overall value of understanding. It is assumed that marketing, no less than any other profession, will ultimately benefit by a more complete understanding of those being served.

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INNOVATIVE CONSUMERS--HIGH EMPATHICS?¹

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A wide variety of data has been recorded on the traits, attributes, attitudes and behaviors of consumer innovators, tastemakers, or high mobiles who are said to constitute between 2.5% to 10% of the population.³ Robertson has hypothesized that innovative behavior is a function of: 1) predisposing factors of venturesomeness, social integration, cosmopolitanism, social mobility, privilegedness and other personality variables; and 2) exposure and response to the communication flow regarding innovation.⁴

Innovator consumers are presumed to exist on all socioeconomic levels.⁵

This paper is the first, to the best of this author's knowledge, to report a pilot study on the testing of innovative consumers for empathic skills, skills of social cognition or social acuity, or in the vernacular the ability to put oneself in the other fellow's shoes.

This pilot study is a complement to a larger study by the author researching empathic skills in professional advertising communicators and potential professional advertising communicators (college students who elect to take advertising courses at the undergraduate level).⁶

Empathic skill or skill in social cognition or social perception or social acuity as understood in this study is of two major types. These have been defined by Urie Bronfenbrenner as: 1) sensitivity to individual differences (i.e. interpersonal sensitivity); and 2) sensitivity to the generalized other (i.e. awareness of the social norm or the typical response of a large class or group). Accurate judgment of a particular other appeared to Bronfenbrenner to call for both types of skill⁷ though there is debate in the literature on this subject.

The theoretical framework within which all of this author's studies of the above described empathic skills have been conducted is that provided by the conceptualization present in the symbolic interactionist model of human communication conceived by J. Edward Hulett, Jr.⁸

Hulett's model strongly implies that for effective human communication of transactive nature to take place there must be present in both generators and receivers of messages empathic skills necessary for the successful a) identification of self; b) identification of others; c) identification of relationships between self, and others; d) identification by means of "role playing" of messages suitable for use in a given relationship, in a given situation, regarding a given subject; e) identification by means of "role taking" of the probable reception of messages deemed suitable in a given relationship, in a given situation, regarding a given subject.

Hulett's symbolic interactionist interpretation of communication as a transactional event or act derives from the works of George Herbert Mead.⁹ In the Hulett (and Mead) sense, the message generated and "sent" becomes an "object" to the target person. Whatever meaning this object has, for the receiver, is put there by the receiver, not by the sender.¹⁰

As early as 1968, while testing professional advertising communicators for empathic skills, this author became curious to test an hypothesis that innovative consumptive leaders in the fashion area would prove to be as high scorers on tests of empathic skills (i.e. potentially as skilled as communicators, albeit, at the receiving end) as were professional communicators (high empathics) on the sending end of advertising communication. She reasoned that the high em-

pathic consumptive pattern would be a four stage process which would go something like the following: innovative consumptive leaders might 1) be extra active seekers for stimuli in the environment, in the Mead sense; but whether they actually proved to be such or not they would at least have 2) better than average ability in social perception in evaluating stimuli sought; and as a result of 1 and/or 2 they might 3) accumulate extra knowledge which in turn could lead to 4) extra interest in a specific area or areas of innovative consumption which accumulated or "snowballed" as a result of expertise in 1, 2 and 3.

Obviously a first step in such an investigation would be to test a group or groups of innovative consumers for empathic skills.

In the spring of 1970 the midi/maxi/longuette triad of fashion silhouettes --representing the first stage of the first major change in fashion in about four years--seemed to have survived the first crucial stages of fashion diffusion and was--in at least a few large cities--showing signs of viability within several segments of the fashion public or population.

I advertised in May, 1970 that I would pay any respondent who owned a midi, maxi, or longuette fashion who was willing to take a battery of pencil and paper tests on a given date. Data taken from a convenience sample of 146 female undergraduates at Florida State University just two months earlier had showed that 53 respondents owned one or more midi, maxi or longuette fashions.

Twenty self designated innovators presented themselves for the testing--garbed, in a number of cases, in fashion proof of innovativeness.

Tests used in this study were four which had been developed by Guilford and associates within the framework of Guilford's theory of intellect. Guilford's cube model of his unified theory of intellect had been updated in 1959 to contain four instead of three columns across the front or horizontal dimension of the model. These four columns represent kinds of material or content to which operations performed by the intellect may apply. The fourth, or newest column, added to the Guilford model on a purely theoretical basis in 1959, though forecast as early as 1957, was labeled "behavioral" and represented "the kinds of materials generally referred to as 'social perception' "(or empathy), according to Guilford.^{11, 12}

Guilford tests used in this research¹³ had been developed to measure skills (social cognition) represented by six of the total 30 cells or factors within the "behavioral" column of the model of the human intellect.¹⁴

These were:

- a) Missing Cartoons, significantly loaded on factors CBU, CBS, and CBI (cognition of behavioral units, systems and implications, respectively),
- b) Expression Groupings, a factor pure test measures CBC(cognition of behavioral classes),
- c) Social Translations, significantly loaded on factors CBR and CBT (cognition of behavioral relations and transformations, respectively),
- d) Cartoon Predictions, a factor pure test which measures CBI(cognition of behavioral implications).^{15,16, 17}

Social cognition, measured by the above four tests is defined by Guilford as the ability to understand the thoughts, feelings and intentions (psychological dispositions) of other people. This comprehension of other people does not include comprehension of the generalized other(the average college sophomore, the middle-class American housewife). The Bronfenbrenner reference mentioned earlier in this paper is cited as substantiation for the fact that stereotypic understanding is clearly distinguished from social sensitivity involved in knowing the feelings of a given individual.¹⁸

The test of stereotypic understanding utilized in research reported here was that of Ronald Leon Johnson. Johnson had little normative data when he filed his thesis containing his test at Michigan State but he invited further testing of and use of his instrument.¹⁹

The .05 level of significance was set in advance for this study.

The small sample of 20 self designated innovative consumers tested had a mean score on Guilford tests of sensitivity to individual differences as significantly different (.001 level) from the population mean as were the means of the professional sample of 464 advertising communicators and of the potential professional sample of 644 college advertising students tested by the author. In contrast, a control group of 35 business fraternity respondents tested at FSU showed a mean on Guilford test scores not significantly different from the test designers' mean at any level.

Table 1
Mean Guilford Scores of Midi and Three Other Samples
Compared with Test Designers' Norm #

<u>Sample</u>	<u>Ss in Group</u>	<u>Mean</u>	<u>S.D.</u>	<u>Norm#</u>	<u>S.D.</u>	<u>z Score</u>	<u>t Score</u>
Midi	20	85.65	4.75	73.00	13.2	4.29+	4.25+
Total Agency	464	78.31	10.35	73.00	13.2	8.67+	5.85 +
Ad Students 4 Colleges	644	81.28	9.81	73.00	13.2	15.93+	10.10 +
FSU Business Fraternity	35	75.54	11.11	73.00	13.2	1.14	1.08

* Significant at the .05 level of probability (one tailed test).

** Significant at the .01 level of probability (one tailed test).

+ Significant at the .001 level of probability (one tailed test).

z= Standard Normal Deviate

Assumed in this study to be equivalent to the population mean

When individual Guilford test scores of the midi sample were broken out from profile scores, the innovators registered the widest difference from the population norms on Social Translations, the test which loads on factors having to do with cognition of behavioral relations and cognition of behavioral translations.

Professional advertising communicators also register their highest z score on Social Translations (11.52).

The potential professional communicators--college advertising students--register their highest z score on Cartoon Predictions, a factor pure test which measures cognition of behavioral implications.

Step wise regression analysis was used to determine which one or two of the Guilford tests would furnish the best prediction of the profile scores for each sample of the above three mentioned: midi, professional, potential professional.²⁰

For the midi sample, a combination of Expression Groupings and Cartoon Predictions offered the best predictor.

For the professional communicators a combination of Missing Cartoons and Cartoon Predictions offers the best predictor.

For the potential communicators a combination of Missing Cartoons and Social Translations offers the best predictor.

There is no generalized pattern of prediction here. From this one may infer that in order to use a shortened version of the Guilford battery of tests to test various kinds of communicators for empathy the population from which the sample is taken must be identified before the correct tests can be chosen. This suggests the need for further study to justify the feasibility of administration of a partial battery of these tests in the kinds of research described here.

Table 2

Significance of Difference Between Self Designated Midi Owners' Sample Means on Four Guilford Tests of Social Acuity and Test Designers' Norms#

Test	Ss in Gp.	Mean	S.D.	Norm#	S.D.	z Score	t Score
Missing Cartoons	20	21.90	2.00	18.90	5.00	2.68**	2.66**
Expression Groupings	20	21.75	2.19	19.10	3.70	3.20+	3.15**
Social Translations	20	19.25	2.00	14.80	5.10	3.90+	3.86+
Cartoon Predictions	20	22.75	3.08	20.90	3.00	2.76**	2.63**

- * Significant at the .05 level of probability (one tailed test).
- ** Significant at the .01 level of probability (one tailed test).
- + Significant at the .001 level of probability (one tailed test).
- z = Standard Normal Deviate
- # Assumed in this study to be equivalent to the population mean.

Nothing resembling a population mean exists for any test of stereotypic accuracy of which this researcher has knowledge. Data amassed by this author in connection with Johnson's test of stereotypic understanding may well be, therefore, some of the most extensive in existence.

When the midi sample mean on the Johnson test of stereotypic accuracy is compared with those of four other samples the difference is significant on the positive side or in the "right" direction in two cases, but negative or in the "wrong" direction--though not significantly so in two others. Midi owners might be said to belong to the same "population" as graduate psychology students and agency professional when it comes to scoring on skills of stereotypic accuracy, though their mean score is on the low side compared with the mean scores of the other two samples. The midi sample does show a mean score significantly higher (.05 level) than the mean of either the college advertising sample or the high school convenience sample tested by this author.

Table 3

Significance of Difference Between Means of Sample of Self Designated Midi Owners and Four Other Samples Which Have Taken Johnson's Judgment of Interest Test

Comparison Sample	Ss	Mean	Sample of 20 Self Designated Midi Owners	
			Mean 105.90 S.D.	S.D. 10.05 t Score
Total Agency Sample	464	109.65	10.06	-1.63
Total College Sample (Ad Students)	372	104.82	11.15	2.06*
College Sample of Grad. Psychology Students (Johnson)	130	108.70	8.93	-1.27
High School Sample	59	98.70	12.40	2.32*

- (*) Significant at the .05 level of probability (one tailed test) but in the wrong direction
- (**) Significant at the .01 level of probability (one tailed test) but in the wrong direction
- * Significant at the .05 level of probability (one tailed test)
- ** Significant at the .01 level of probability (one tailed test)
- + Significant at the .001 level of probability (one tailed test)
- z = Standard Normal Deviate

The breakout of four parts of the Johnson Judgment of Interest scores adds little to the picture, except to show the probable source of difference between scores of midi and agency samples to be part four of the stereotypic accuracy test (that part having to do with differences in interests of professional and unskilled workers).

Table 4
Significance of Difference Between Self Designated Midi Owners' Sample Means on Four Parts of Johnson's Judgment of Interest Test and Means of Three Other Samples on Such Tests

Test	<u>20 Midi</u> <u>Owners'</u> <u>Mean</u> <u>S.D.</u>	<u>College</u> <u>Sample</u> <u>Mean</u> <u>S.D.</u>	<u>t</u> <u>Score</u>	<u>Agency</u> <u>Sample</u> <u>Mean</u> <u>S.D.</u>	<u>t</u> <u>Score</u>	<u>High</u> <u>School</u> <u>Mean</u> <u>S.D.</u>	<u>t</u> <u>Score</u>
Part 1	20.95 S.D. 2.89	20.60 S.D. 2.87	.53	21.41 S.D. 2.93	-.69	18.80 S.D. 3.10	2.69**
Part 2	20.45 S.D. 3.14	20.24 S.D. 3.30	.28	21.20 S.D. 3.46	-.95	18.40 S.D. 3.40	2.35**
Part 3	34.50 S.D. 2.91	33.47 S.D. 4.42	1.03	33.89 S.D. 4.94	.89	31.20 S.D. 5.30	2.61**
Part 4	30.25 S.D. 6.95	20.99 S.D. 5.67	-.56	33.21 S.D. 5.46	-2.34(*)	30.31 S.D. 5.90	-.04

(*) Significant at the .05 level of probability (one tailed test) but in the wrong direction

(**) Significant at the .01 level of probability (one tailed test) but in the wrong direction

* Significant at the .05 level of probability (one tailed test)

** Significant at the .01 level of probability (one tailed test)

+ Significant at the .001 level of probability (one tailed test)

The midi sample of 20 was asked one question which could yield data related to opinion leadership. This question was: How important is it to you to be considered a person whose opinions on major fashion topics in the news are well founded? Answers possible were: Very important (4), Fairly important (3), Not very important (2), and Not at all important (1). The midi group made an average score of 1.95 on the question. 21

This study showed that a female sample of self identified innovators in the fashion area (midi, maxi, longuette owners) made on a battery of tests designed to measure sensitivity to individual differences a mean score different from that of the population in general not only at the significance level chosen in advance of this study (.05), but at the .001 level as well.

This same sample group registered on a second type of test of empathic skill (a test of stereotypic accuracy) a mean score which showed them not significantly different in possession of this skill from two other samples--one of professional advertising communicators and another of graduate students of psychology. Both professional communicator and graduate psychology student samples had been shown by earlier research to be significantly more empathic (stereotypically accurate) than samples drawn from high school and college advertising student populations.

If one accepts the assumption that empathic skills in judging both individual and stereotypic differences are crucial to success in transactional human communication, then one must infer that the sample of innovative consumers

studied in this exploratory research must be potentially very talented communicators - on a par at least with a group of graduate psychology students and with a sample of professional advertising communicators.

If, additionally, one studies the results of step wise regression analysis applied to scores on tests of sensitivity to individual differences of midi owners, professional communicators and potential professional communicators, the one test predictive of the midi owners high scores not common to the predictive equations of the other two samples in question was Expression Groupings a factor pure test of cognition of behavioral classes.

According to this study, cognition of behavioral classes (the ability to abstract common attributes from various behavioral examples of information derived from behavioral and expressive stimuli)²² is an important criterion of innovative consumer behavior of the kind reported here.

This study shows the need for additional testing for empathic skills of both men and women consumers of innovative products not only in the clothing field, but in the food, car, home furnishings, applicance, drink, and leisure fields as well. Obviously, this study should also be replicated with both men and women consumers who prefer to wait until products in all of the above mentioned categories are widely diffused before they will risk their money on them. This author feels strongly that future research of the kind attempted here should be done by collecting data on the social facts of innovative behavior represented by the consumption of real products, degree of consumer acceptance of which is warranted at the time of each testing or researching. Perhaps the correlation of that kind of data with attitudinal data on self designated opinion leadership would give new insight into those areas of investigation as well.²³

Finally, the results of the research reported here suggest to this author the need for additional research to determine the possibility that empathic skill may turn out to be an antecedent variable to heavy or wide exposure to and response to the communication flow regarding innovation, which Robertson hypothesizes stand in functional relationship to innovative behavior. It might likewise be hypothesized and tested that empathic skill is an antecedent variable to venturesomeness and cosmopolitanism, both predisposing factors to innovativeness in Robertson's model of innovative behavior.

FOOTNOTES

¹Funding for this and related studies by the author was provided by two grants, 1969-1970 and 1970-1971, from the American Association of Advertising Agencies and Academic Research Grant Foundation.

²Emma Auer is an Associate Professor in the School of Business, Florida State University, where she teaches research and consumer behavior at both graduate and undergraduate levels.

³Britt, S.H. Influences of Innovators and Leaders
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⁴Robertson, T.S. Determinates of Consumer Behavior.
Changing Marketing Systems: Consumer, Corporate and Government Interfaces
In R. Moyer (Ed.), Chicago: American Marketing Association, 1967. Winter Conference Proceedings Series, No. 26. 328-332.

⁵Britt, op. cit., 286.

⁶Auer, E. The Function of Empathy as Represented in Transactional Models of Communication: A Test of Professional and Student Advertising Communicators, Journalism Quarterly (forthcoming); first prize winner in 1968 AEJ dissertation contest, Berkeley, 1969. Social Acuity Measurement in Generators and Receivers of Advertising Messages. In R. L. King (Ed.), Abstracts from the 1970 Annual Meetings: Southern Finance Association, Southern Management Association, Southern Marketing Association, Virginia Polytechnic Institute and State University, 1971. Are Professional Communicators Empathic?, Occasional Papers in Advertising, 1971; 4, 39-50.

⁷Bronfenbrenner, U., Harding, J. & Gallwey, M. The Measurement of Skill on Social Perception, In D.C. McClelland (ed.), Talent and Society. Princeton: Van Nostrand, 1958, 39-40.

⁸Hulett, J.E., Hr. Symbolic Interactionist Model of Human Communications, AV Communication Review, Part I, 1966 14, 5-33; Part II, 14, 203-220.

⁹Ibid., 10-11.

¹⁰Ibid., 15.

¹¹Guilford, J.P. Intellectual Resources and Their Values as Seen by Scientists. In C.W. Taylor and F. Barron (Eds.) Scientific Creativity: Its Recognition and Development. New York: Wiley, 1963, 102-105.

¹²Operations performed by the intellect are shown on a dimension from front to back of the cube model developed by Guilford. These are (starting from the front): cognition, memory, divergent thinking, convergent thinking and evaluation. The vertical demension of the Guilford model represents a third class of categories, that of products of the intellect. These are (from top to bottom): units, classes, relations, systems, transformations, and implications. Since each cell represents a unique combination of three category values it is possible to give each cell a three-letter designation representing operation (first letter), content (second letter), and produce (third letter). Idem.

¹³Psychological testing in this study was carried out under the aegis of Dr. J. Hulett, Jr.

¹⁴O'Sullivan, M., Guilford, J.P. & de Mille, R. The Measurement of Social Intelligence. Los Angeles: The University of Southern California, June, 1965, 5.

¹⁵Ibid., p. 30.

¹⁶Given together the four listed Guilford tests yield a social cognition composite score for which norms are available. According to the test manual, this composite score is the best overall score for the measurement of social cognition now available. O'Sullivan & J.P. Guilford. Six Factor Tests of Social Intelligence. Beverly Hills: Sheridan Psychological Services, Inc., 1966, 7.

¹⁷Because in the rigorous testing each Guilford test went through during its creation at the University of Southern California total score distribution was checked for normality of distribution and appropriate scaling techniques applied if data were other than normally distributed (O'Sullivan, et al, op. cit., 17), it was assumed in this study that social acuity or intelligence as measured by Guilford tests is normally distributed in the population as a whole. Guilford test means furnished as normative data were used as population means, and Guilford standard deviations were used as population standard deviations. This assumption was checked with Dr. Nancy Wiggins, of the Psychology Department and of the Institute of Communications Research at the University of Illinois. Dr. Wiggins approved this assumption in a letter to the author, June 14, 1968.

¹⁸O'Sullivan, et. al., op. cit., 5.

¹⁹Johnson, R.L. Correlates of a Test of Group Sensitivity. Unpublished master's thesis, Michigan State University, East Lansing, 1963.

²⁰All computer analysis used in connection with this study was programmed by Dean Allmon, Ph. D. candidate in the School of Business, Florida State University.

²¹This question is one of seven adapted by the author from a questionnaire on public affairs opinion leadership developed by the reported by C. Troidahl and Van Dam. A New Scale for Identifying Public-Affairs Opinion Leaders, Journalism Quarterly, 1965, 42, 655-657.

²²O'Sullivan and Guilford, op. cit., 2.

²³In at least one study on peer designated "fashion leader" semi-finalists in Glamour Magazine contests held on two campuses, the author found that there was a strong likelihood that the contestants were "popular" girls rather than those who exhibited fashion leadership behavior in terms of innovative fashion products.

THE EFFECT OF PRODUCT ARRANGEMENT AND
PRICE DIFFERENTIAL ON THE CHOICE OF
FAMILY - BRANDED PRODUCTS

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Marketing texts have suggested that under certain circumstances it is to the seller's advantage to family brand his merchandise. Due to the phenomenon of stimulus generalization or similar psychological theories, buyers will tend to transfer through the brand name, a favorable (or unfavorable) image for one product to other products bearing the family brand name. This family branding effect has been empirically verified by other researchers.

The purpose of this research was to investigate several variables which could influence this family branding effect. The study examined the difference in effect of grouping family branded products together on a supermarket shelf versus grouping together competing brands of a single product classification (Del Monte products exclusively versus Del Monte, A&P, and other brands of corn or peas). The former situation was called family brand arrangement; the latter, product class arrangement.

Also researched was the effect on the dependent variable of changes in price differentials between brands. Finally, concern was directed to the issue of whether the level of family branding effect might differ with the product category (soups, cakes, canned fruit) under consideration.

The following hypotheses were tested:

- (1) The family branding effect will be stronger in the family brand arrangement condition than in the product class arrangement condition.
- (2) The family branding effect will be stronger when the price differential between competing brands remains constant across products.
- (3) The strength of the family branding effect will vary among product categories.
- (4) The combined effects for all combinations of the arrangement, price, and product treatments will be additive.

The study utilized the experimental technique in which ninety housewives were asked to select four specified grocery products in each of six product categories in a simulated supermarket setting. Monetary inducements were used to create a normal atmosphere for purchase decisions.

A 3x2x6 split-plot factorial design was employed. Treatment A (arrangement) included the family brand and product class arrangements plus another condition identical to the product class arrangement but with signs or labels on the display identifying the product classification. Treatment B involved the two price conditions. Subjects were exposed to one of the six (3x2) treatment combinations which were replicated over the six product categories yielding the split-plot design.

The data from the experiment supported all of the above hypotheses. In addition, the product class with labels arrangement was stated to facilitate the purchase decision process and both product class arrangements stimulated a slightly greater amount of brand comparison. A difference was noted in the degree of brand comparison for the various product categories which coincide with the amount of brand switching noted for these products. A reduction was observed in total purchase expenditures as a result of the price changes instituted during the experiment. Product arrangement had no effect on these expenditures.

The following conclusions were reached:

- (1) The family brand arrangement encourages family brand loyalty; the product class arrangements stimulate comparison of alternative brands which results in greater brand switching.
- (2) Constant price differentials between competing brands yield greater family brand loyalty than do varying differentials; however, for the changes instituted in this experiment, the interruption of the family branding effect by changes in price differentials produced lower total purchase expenditures.
- (3) The strength of the family branding effect, as well as the degree of brand comparison, varied among product categories. A high degree of brand comparison was accompanied by a high rate of brand switching (low family branding scores).
- (4) The combined effects for all combinations of treatments was additive.

PERCEIVED RISK, INDIVIDUAL DIFFERENCES, AND SHOPPING ORIENTATIONS¹

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Perceived risk is a relatively new dimension in marketing. Bauer introduced the concept in 1960 by pointing out that consumers characteristically develop decision strategies and ways of reducing risk that enable them to act with relative confidence and ease in situations where their information is inadequate and the consequences of their actions may be drastic.

The perception of risk in a purchase situation is a function of the possible consequences and the uncertainty involved. Consequences reflect the amount at stake in the purchase situation and uncertainty represents the consumer's feeling of subjective probabilities that she will win or lose all or some of the amount at stake (Cox and Rich, 1964).

For the consumer to be in a quandary, one of two or more alternative courses of action must offer greater perceived risk and at the same time greater potential benefits in its selection. Otherwise, little problem exists for the consumer; she would select the less risky, more potentially rewarding alternative.

Individual buyers may not perceive the same amount of risk in the purchase of a given product. This perception may vary according to a number of factors, such as prior product experience, general self-confidence in buying, and self-involvement in buying (Robertson, 1970). Does the concept of perceived risk relate to individual differences in personality traits and shopping involvement enough to warrant the assumption that there is a more or less general factor of perceived risk? The present research is focused on this question using shopping orientation, consumer goods, and personality variable as dependent variables.

Definition of Variables

Shopping Involvement and Orientation

In an article by Stone (1954), he explicates three caricatures of shopping orientation. The apathetic oriented shopper is not interested in shopping and seeks to minimize her effort. The personalizing shopper seeks to individualize the consumer's role in the store and is concerned with maintaining a close relationship with store personnel. Consequently, these shoppers are not as concerned with criteria such as price or quality selection of merchandise as the "economic shopper." Stone indicates that attitudes towards shopping are pursuers of consumer behavior.

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Based on Stone's description of shopper orientations, 18 questions using a modified Likert type scale were developed to measure shopping orientation (Table 1). A factor analysis program using principle component analysis and an orthogonal varimax rotation was performed. Three key factors were identified: personalizing, economic and apathetic orientations. The independent items used to identify shopper orientations are indicated in Table 1.

Typology of Consumer Goods

Data pertaining to which good(s) is acceptable to buy with credit according to social class and income have been reported by Slocum and Mathews (1970). Of the twenty consumer goods identified, the researchers attempted to categorize the goods into superordinate categories. The factors and cluster analysis program which was used to categorize consumer shopping orientation was employed. Following this procedure, three factors of goods were identified: clothing and small gifts, luxury goods, and travel and entertainment. A determinant of the correlation matrix indicated values ranging from .886 to .994. Thus, there is relatively little multicollinearity between the three types of consumer goods.

Jackson Personality Inventory

The Jackson Personality Inventory (1967) is designed to yield a set of scores for personality traits broadly relevant to the function of normal individuals. Of the total of 22 scales developed, factor analytic procedures and theoretical considerations by Jackson have suggested a convenience basis for organizing the categories into seven superordinate categories. Of the seven categories, the researchers chose category A, which measures impulsivity and readiness to accept change. The individual characteristics found within this category include impulsivity, change, order, and cognitive structure. The relationship between risk taking and these personality dimensions have been reported by Kogan and Wallach (1964), Scodel, et al. (1959), and Bergler (1957). However, little research has been conducted that attempted to integrate these personality dimensions with consumer risk-taking or risk-avoiding behavior (Brody and Cunningham, 1968, and Mathews and Slocum, 1970).

Perceived Risk Instrument

The perceived risk instrument tests the consumer's willingness to choose the riskier brand in two brand choice situations. There are four brand choice situations in the instrument for the following product categories: steam irons, woman's coats, electric food mixers, and cameras. The information provided in the situations was not sufficient to allow for explicit calculation of expected value.

The following example is taken from the test:

Mrs. Brown has decided she needs a new steam iron. She was thinking of purchasing an iron similar to the one she has

Table 1

Shopper Orientation Items*

Item	Consumer Orientation Category
1. Delivery Service	Apathetic
2. Places to eat lunch ¹	Personalizing
3. Variety and range of prices & quality ¹	Economic
4. Return & exchange of goods bought ¹	Apathetic
5. Time to get there	Apathetic
6. Convenient hours	Personalizing
7. Dependable guarantees ¹	Economic
8. Facilities for children	Personalizing
9. Variety of styles and sizes ¹	Economic
10. Walking between stores	Apathetic
11. Right people shop there ¹	Personalizing
12. Bargains	Economic
13. Convenient public transportation ¹	Apathetic
14. Place to meet friends	Personalizing
15. Quality of goods ¹	Economic
16. Cost of transportation to shop ¹	Economic
17. Chance to get away from home for a while	Personalizing
18. Merchandise easy to find ¹	Apathetic

* Factor Loading are available from the authors upon request.

¹ Final item

used for the past 12 years. This iron has served her well and she especially likes its handling comfort. It is made by Company X and has a one-year guarantee. The price of Company X iron is \$19.98. Recently, Mrs. Brown has seen a television commercial showing a different iron having a Teflon-coated soleplate. She especially likes the amount of steam this iron produces. It is made by Company Y and has a six-month guarantee (excluding Teflon coating). The Company Y iron is priced at \$23.95.

Exhibit 1 presents a summary of the other test items in the instrument.

Exhibit 1

Summary of Three Perceived Risk Test Items

1. A house wife is choosing between buying a good wool coat from a reputable, local department store or an artificial fur coat from her brother-in-law for 30 per cent off list price.
2. A housewife is about to decide whether to purchase Brand R electric food mixer which is recommended by friends and has a one year guarantee or Brand N which the housewife likes somewhat better and has a 30 day guarantee.
3. A man is choosing between Camera G which is recommended by a friend known to be a camera bug and Camera H which is more versatile but made by a small company and selling for a higher price.

Housewives completing the test instrument picked one of six possible answers for each situation. The housewives are asked to choose the lowest probability of potential benefit acceptable before taking the riskier choice. The probabilities listed were 1, 3, 5, 7 and 9 chances in 10 of an excellent product, and a final category in which the respondent could refuse the more risky product no matter how certain that it was an excellent product. This final category was scored as 10. Low scores signify high willingness to choose to take the riskier alternative.

The total scores for respondents could range from 4 to 40 with 40 implying unwillingness to choose the riskier action under any circumstances.

Validity of the test was measured using a number of criteria. The instrument was compared with the Kogan-Wallach life dilemma test (1964) using 22 female students which yielded a Spearman rank correlation of .64 ($p < .01$). 79 housewives were divided into three age groups: under

35, 35-50 and over 50. A median test of risk scores produced a chi-square value of 7.89 (2d.f, $p < .02$). As age increased, willingness to take more risky consumer decisions decreased.

Test-retest Pearson product-moment coefficient was .75 for 18 subjects using a one week interval between administrations (Woodside, 1968).

Methodology

Data were collected from personal interviews conducted by a market research house in a large eastern metropolitan area. The data were gathered as part of a larger study on consumer behavior currently being conducted by the researchers. The sample consumers were based on a design involving a random selection of 526 consumers actively involved in using a commercial bank credit card.

Findings

Table 2 presents the results of cross classifying the respondents by shopping orientations and willingness to take risk. The data were divided as close to the median as possible from the test instruments. Data were also divided into quartiles with analyses producing the same conclusions. Housewives scoring low in the perceived risk scale were more willing to take the riskier brand choice compared to those with high scores. The economic oriented shopper scored higher than expected on the perceived risk scale. In other words, the economic shopper was significantly less willing to choose the riskier brand when compared to those not economically oriented. The apathetic and personalizing oriented shoppers were not shown to be significantly related to willingness to take risk.

The data in Table 3 indicate the personality dimensions distinguishing between the risk taker and the risk avoider. Consumers willing to take high risks were more impulsive than consumers who were less willing to take risks. Jackson (1967) describes a highly impulsive individual as one who "tends to act on the spur of the moment without deliberation." Similarly, the data indicate that these consumers tend to score lower in their need for order and cognitive structure. That is, high risk takers make decisions based on incomplete information rather than definitive knowledge and without methodically organizing their decision matrix. Similar results have been reported by Brody and Cunningham (1968) and Kogan and Wallach (1964). Individuals who avoid making risky consumer decisions tend to describe themselves as liking orderly decisions based on a stable set of values. Thus, the effect of personality characteristics on matters of consumer risk decisions should not be overlooked. The study of selected personality dimensions is likely to provide insight into studying the consumer decision-making process in the area of perceived risk.

As Table 4 indicates, individuals who are risk avoiders report an unwillingness to use credit to purchase luxury goods and for travel and entertainment. Brody and Cunningham (1968) have found that individuals who score low on "perceived social risk," tend to purchase goods based on purchase convenience and relative price. That is, risk avoiders tend to make consumer decisions based upon more definitive knowledge of product usefulness. As previously noted in Table 2, this finding is consistent with an economic oriented shopper.

Table 2
Perceived Risk and Shopping Orientations

Risk Perceivers	Shopping Orientation											
	<u>Apathetic</u>		<u>Personalizing</u>		<u>Economic</u>		Low	High				
	Low	High	Low	High	Low	High	Low	High				
	Number	Per-centage	Number	Per-centage	Number	Per-centage	Number	Per-centage				
Low	136	50	137	50	130	48	143	52	155	57	118	43
High	120	48	133	52	124	49	129	51	117	46	136	54

$X^2 = .211, p < .65$

$X^2 = .054, p < .82$

$X^2 = 5.418, p < .02$

Table 3

Perceived Risk And Personality Variables, Expressed As A Percentage

Risk Perceivers	Personality Variables							
	Order Low	Order High	Impulsiveness Low	Impulsiveness High	Cognitive Structure Low	Cognitive Structure High	Change Low	Change High
Low N = 273	53	47	38	62	54	46	48	52
High N = 253	38	62	50	50	44	56	63	37

$X^2 = 11.23, p < .001$ $X^2 = 7.12, p < .01$ $X^2 = 3.91, p < .05$ $X^2 = 12.15, p < .001$

Table 4

Perceived Risk And Attitudes Toward Purchasing Consumer Goods On Credit,
Expressed As A Percentage

Risk Perceivers	Attitudes Toward Purchasing Consumer Goods On Credit					
	Clothing And Small Gifts Low	Clothing And Small Gifts High	Luxury Goods Low	Luxury Goods High	Travel And Entertainment Low	Travel And Entertainment High
Low N = 273	50	60	47	53	48	52
High N = 253	48	52	56	44	57	43

$X^2 = 3.135, p < .08$ $X^2 = 3.98, p < .05$ $X^2 = 4.08, p < .05$

Conclusion

The perceived risk taker may be meaningfully differentiated from the risk avoider across a number of personality variables. Since willingness to take risk is an inherent factor in consumer decision making, the consumer's pattern of responses to risk taking may offer a satisfactory predictive variable for consumer actions. Heretofore, the majority of studies of personality factors affecting consumer behavior have produced negative and sometimes contradictory findings. The lack of meaningful relationship may be due to the use of standardized personality tests generally developed for measuring social or antisocial behavioral tendencies which are not closely related to purchase behavior.

The significant relationship between attitude toward purchasing on credit and willingness to take risk supports the concept of perceived risk as a personality factor affecting consumer decision patterns.

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THE *CAD* INSTRUMENT IN BEHAVIORAL DIAGNOSIS

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One of the more relevant criticisms of empirical research in consumer behavior centers about the contention that we sometimes play a "hit-and-run game" in an effort to develop a body of behavioral knowledge. Generally, this takes one of two forms. First, we fail to adequately replicate studies--we fail in what Kollat, Engel, and Blackwell (1970) have dubbed the "replication tradition"--and generalize on the strength of isolated studies. And second, we too commonly use unproved, unvalidated instruments to generate data--we "lift" standard personality tests to measure *consumer* behavior, for example.

Cohen (1967) has recently offered some potential relief from the latter criticism by publishing his *CAD* instrument. Its unique feature among personality tests is that it was designed specifically to diagnose consumer behavior. Accordingly, it deserves especial attention by marketing researchers. It is the purpose of this paper to relate some empirical experiences using the *CAD* instrument in an effort to suggest its usefulness and limitations.

The *CAD* instrument consists of three scales, measuring a person's *compliance*, *aggressiveness*, and *detachment*. A thirty-five item, self-administered Likert-type battery, the instrument is derived from Karen Horney's (1945) tripartite interpersonal model. It suggests that individuals can be placed into three groups, which reflect their predominant mode of response to others: (1) those who move *toward* other people (*compliant*); (2) those who move *against* people (*aggressive*); and those who move *away from* people (*detached*).

Since Cohen's exposition of the *CAD* instrument includes the actual scales and certain psychometric data attendant to them, this paper does not dwell on these points. Rather, we wish to relate some hands-on experience in using the instrument in the hope that others whose research counsels the use of a response-tendency instrument might better be able to judge the *CAD*'s efficacy. Instrument statistics for these *CAD* applications appear in the Appendix.

Five *CAD* Applications

Five unpublished studies are considered here. Each of these is noted only briefly, the emphasis being on those elements of the study particularly germane to *CAD*.

Message Advocacy

Using an ex post facto design, a probability sample of 87 University-of-Cincinnati student *Ss* was examined relative to whether their self-reported behavior was consistent with anti-smoking TV commercials. *CAD* scores for *Ss* were obtained and analyzed categorically: scores at or above the *empirical* median were counted as "high;" below the median as "low."³ Among smokers, χ^2 analysis showed that *high compliance* and "cutting down or stopping smoking as a result of the commercials" was significant at the .20 level. Neither aggressiveness nor detachment was indicated to be related to this phenomenon. Among the same *Ss*, *high compliance* was also significantly associated ($p = .09$) with *persuading others* to reduce or stop smoking. Aggressiveness and detachment again proved unrelated. These findings are interesting in their own right, but perhaps especially so since smokers' initial reaction to the commercials proved to be *independent* of their compliance scores. Apparently, then, message advocacy is to some extent a function of one's compliance, but the advocated behavior does not occur immediately. Moreover, affective forecasts of it (initial reactions to the message) *might* be very misleading.

Group Influence

The comparison-shopping department of a large department store was analyzed, using the *CAD*, for group influence. *Ss* comprised ten women, age 22-51. Five of these, whose group average on compliance was 40.6, were designated as the low-compliance group. The remaining five, whose group average on compliance was 47.8, served as the high-compliance group. Group differences on both aggressiveness and detachment were insignificant. "Information" was then transmitted through the (consensually designated) opinion leader--with her collaboration⁴--to both groups. The information was to the effect that "values" on certain items were greater at competitive stores than at the employing store, in spite of the 10% employee discount. Purchasing behavior was measured both before and (two weeks) after the message receipt in both groups. In the low-compliance group, no one's behavior changed. In the high-compliance group, four of five women changed their purchasing behavior in the direction of the advocated behavior--i.e., to competitive stores. The difference in mean compliance scores between these two groups is significant at the .05 level (2-tailed). The more compliant, then, the more susceptible to group norms a person appears to be.

Fashion Possession and Approval

A convenience sample of 57 seventh- and eighth-grade girls was examined for possession and approval of 16 items of clothing and cosmetics fashion. The mean number of items possessed was 7.39; $\sigma = 2.53$; range = 1-12 items. Those *Ss* who

possessed at least 10 of the items were found to be *uniformly "high" in compliance*; these 11 girls were *all* above the theoretic median of 36 on this scale, whereas the sample as a whole (all 57 *Ss*) showed a highly-compliant proportion of 91 percent. The "high-possession" group showed a mean compliance score of 53.18; the "low-possession" group (fewer than 10 items possessed), however, had a mean compliance score of 47.27. The *t* statistic of 2.51 indicates these group means to be significantly different at the .05 level (2-tailed test). Differences in aggressiveness and detachment means between these same groups proved insignificant.

After a principal-components analysis failed to materially reduce the 16-item set, a canonical analysis was performed, using the *CAD* as predictor variables and approval scores for the 16 items as the criterion set (all variables standardized because of the skewed distributions). The canonical correlation was .69 ($p = .03$); and the canonical index was .48.⁵ The predictor coefficients were: *C* = .94; *A* = .32; and *D* = .08. Criterion coefficients ranged from a high of .62 for face makeup to a low of .01 for costume rings. In general, the greatest contributions in this latter set were made by cosmetic items. Thus, approval of fashion (especially cosmetic) items appears strongly associated with high compliance.

New-Product Information Sources

A convenience sample of 332 housewives was queried as regards their primary information source (product samples, coupons, price deals, friends' recommendation, or TV advertising) for new products (detergents and presoaks, instant coffees, and foods) they had tried. Using empirical medians as input to χ^2 analysis,⁶ and pooling data across product categories, it is clear that the use of *product samples* is associated with *high aggressiveness* ($p < .01$), and that compliance and detachment are insignificant; and that reliance on *TV advertising* is associated with *high detachment* ($p < .01$), with compliance and aggressiveness being insignificant. Reliance on coupons and/or price dealings seems to be totally independent of *CAD*. It would appear, then, that in securing information about these new products, the compliant person is vulnerable to peer influence while the aggressive person "goes it alone" with a product sample. The detached person, consistent with a priori notions, seems to prefer the "impersonal" source of TV advertising.

Brand Loyalty

A probability sample of 172 households was examined for brand loyalty (in an admittedly simplistic sense). "Loyalty" was a self-designated notion of "whether you have a brand preference" in a variety of product categories. It should be noted that neither the nature nor the degree of this "loyalty" was analyzed. Using *Ss*' standardized *CAD* scores, multiple

discriminant analyses were run to determine the extent to which loyalty (or no loyalty) can be accounted for by *CAD*. The results suggest that it *can* for mouthwashes ($p = .01$), hairsprays and air fresheners ($p = .05$), deodorants, headache remedies, and razors ($p = .10$); *almost can* for cigarettes and cigars ($p = .25$); and *cannot* for bath soaps, soft drinks, shampoos, teas, pipe tobaccos, coffees, and toothpastes (all not significant). *Compliance* was the largest contributor to the discrimination of the mouthwash, air-freshener, razor, and cigar preference functions; *aggressiveness* contributed most to partitioning the hairspray, deodorant, headache remedy, and cigarette categories; *detachment* was the largest contributor in none of the significant discriminant functions.

These findings, while hardly identical to Cohen's, tend more to support his earlier results than to refute them.

Discussion

The empirical studies briefly noted each show encouraging results with the *CAD* instrument. This is not to argue that the instrument, in toto or any one of its scales, will necessarily *explain* behavior. The evidence seems reasonably compelling, however, that *CAD* is a highly useful way to "first-cut" a data batch, so long as the behavior under analysis is likely to be a function of interpersonal disposition.

For those consumer researchers who choose to follow an interpersonal orientation to behavior (and this may be a minority) Cohen's instrument appears to offer much. It is easily administered (neither adolescents nor adults seem to have any problems understanding it), short, and contains no socially-taboo statements. And if the studies cited are any indication, it appears that it possesses a most desirable, albeit pragmatic, of instrument attributes: It works. Of course only extensive use of the instrument can truly prove its efficacy. Its prognosis even at this incipient stage, however, would surely seem to be good.

Footnotes

¹ These studies were supported by a grant from the Educational Foundation of the American Association of Advertising Agencies. The assistance of graduate students Dan Daily, Thomas Elliott, Richard Findlay, John Geers, Jeffrey Levenberg, Judith Moneyhon, George Robb, Donald Taplits, and Leonard Walke, who collected the data reported here, is gratefully acknowledged.

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³ Median scores were: for C, 41; for A, 48; and for D, 29. The theoretic medians for the CAD are: for C, 36; for A, 53; and for D, 36.

⁴ The opinion leaders' aggressiveness score was 60. This was not only the highest in the department but also significantly different from the department's average on aggressiveness of 45.3, at the .001 level.

⁵ Successive roots were not significant, even at the .10 level.

⁶ Median scores were: for C, 44; for A, 47; and for C, 30.

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Appendix
Instrument Summary on CAD Applications

Variable	Study					Pooled Data
	Message Advocacy	Group Influence	Fashion Approval	Information Sources	Brand Loyalty	
Sample size	87	10	57	332	172	658
Compliance:						
Mean	40.15	44.20	48.33	43.50	44.64	43.79
Standard deviation	7.10	5.35	7.44	6.61	7.08	6.85
Aggressiveness:						
Mean	53.82	45.30	42.37	46.67	44.56	46.67
Standard deviation	8.11	7.99	9.35	7.82	9.89	8.53
Detachment:						
Mean	30.29	27.20	28.95	29.33	31.60	29.98
Standard deviation	6.96	3.91	8.71	5.16	7.42	6.28
Correlations:						
C with A	-.04	-.12	-.07	-.14	-.11	-.11
C with D	-.07	-.16	-.03	-.23	-.17	-.17
A with D	.16	.14	.13	.20	.16	.18
Internal consistency:*						
Compliance	.70	.81	.64	.79	.70	.74
Aggressiveness	.64	.72	.67	.73	.73	.71
Detachment	.63	.91	.67	.81	.61	.72

* For an explanation of internal-consistency coefficients, see Cronbach (1951). For purposes of comparison, Cohen (1966) reports coefficients as follows: for compliance, .82; for aggressiveness, .69; and for detachment, .66.

A COGNITIVE MODEL OF INNOVATIVE BEHAVIOR: ¹
THE INTERACTION OF PRODUCT AND SELF-ATTITUDES

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Past research in the area of new product innovation (for example: Pessemier, Burger & Tigert, 1967; Robertson, 1967; Robertson & Meyers, 1969) has shown marketers that individuals who are younger, better educated, wealthier and more cosmopolitan tend to buy more new products earlier. Unfortunately, these rather general guidelines are often of limited value. The manufacturer who, for example, introduces a new skin care cream for teenagers, or a new spray hair coloring for men, is concerned largely with specific segments of the market, and cannot base his decisions upon such general demographic guidelines as "more cosmopolitan".

One direction research can take is to focus each time anew upon the specific segment of the market perceived to be relevant to the product of immediate concern. Any company (with a large enough research budget) is capable of taking this approach. What is learned probably enables a company to market each such new product more effectively than had it proceeded by mere intuition.

The cost paid for this precision, however, extends beyond the financial cost of each separate study. Another "cost" is the limited ability to generalize findings either from one product or product category to the next, or from one market segment to the next. The resulting inefficiency and repetitive outlay of research dollars seem to warrant efforts at establishing an alternative approach which would allow for generalization.

One such alternative would be to seek a general understanding of consumer purchase behavior vis-a-vis new products. Beyond the parsimony and efficiency of such an approach, it seems appropriate for marketing theoreticians to adopt such a strategy in order to develop a cumulative, theoretically integrated body of knowledge.

In order to do so, marketers must work with a concept (or concepts) common to all consumers. One such concept which may prove useful is personality. It has recently been suggested (Marlow & Gergen, 1969) that general statements concerning social behavior perhaps ought not be developed without personality constructs serving as important and essential qualifiers:

. . . general laws [may be]. . . entirely misleading in that they reflect only the ways in which groups of persons sharing similar personality characteristics react to a given situation. In this sense, personality constructs might be used to replace all other intervening variables . . . personality comes to play an important part in understanding almost all aspects of social processes.

With respect to any one specific object or situation, there are several other important variables besides personality that help explain an individual's behavior. These include: externally, strong instigation from the situation itself; and internally, states of deprivation, and momentary sets. These other factors notwithstanding, an individual's basic orientations towards his environment are so pervasive it would be unusual if they failed to exert an influence upon the general pattern of his purchase decisions.

Need for a Theoretical Framework

Recent attempts in marketing to use personality as a common unit of analysis (Evans, 1959; Kaponen, 1960; Massy, Frank, Lodahl, 1968; Robertson & Meyers, 1969) have not been very successful. This is due at least in part, to the failure of researchers to apply a formal theoretical framework.³ The goal of this project is to develop and empirically validate a theoretical model wherein personality variables are linked to particular new product attributes.

Failure of past studies using personality to predict purchase behavior is partially attributable to the inappropriate nature of the tests used. Tests such as the Edwards Personal Preference Schedule (Edwards, 1957), frequently used by marketers, and the California Psychological Inventory (Gough, 1957) have a number of distinct limitations insofar as their application to marketing is concerned.

First, use of these multiple factor tests has encouraged an unstructured atheoretical approach. Of the numerous personality traits that compose these test batteries, many are theoretically irrelevant with respect to the product or products involved. These traits should not be expected to correlate significantly with purchase behavior, and in fact they usually do not. Such significant findings as are revealed are likely to be rather disjointed pieces of information. For example, it is difficult to draw any meaningful conclusions when Robertson and Meyers (1969) note that:

Appliance innovators may be somewhat more self-accepting, with a greater sense of personal worth and they may also be more dependable, moderate and tactful. They seem to be somewhat less socially mature, modest and serious.

Precisely why these traits are linked to each other and to appliance innovation, and by what underlying construct they are linked, are questions left unanswered. As Jacoby (1970) notes:

. . . if . . . investigators were to select specific personality traits for study on the basis of theoretically derived hypotheses, were to make specific predictions as to how these traits ought to interact with, or affect specific aspects of consumer behavior, and were to utilize experimental rather than correlational paradigms, the likelihood of obtaining significant and usable findings should be enhanced.

The test batteries commonly employed are composed of about twenty different scales, each assumed to be independent. If scores on each of the twenty scales are compared with one or more criterion variables such as purchase behavior, or attitude, one or two out of twenty comparisons ought to be significant on the basis of chance alone (depending upon the level of confidence adopted). If three or four are revealed, which ones are mere artifacts? The lack of theoretical guidelines makes it difficult both to interpret the meaning of the findings and to relate these findings to a larger body of knowledge.

A second limitation of personality tests such as the Edwards Personal Preference Schedule or the California Psychological Inventory, relates to the nature of some of the needs they measure. Needs can be conceptualized at various levels ranging from those deep within the individual, to the "quasi-needs" to which Lewin (1951) refers, that arise as a consequence of the individual's interaction with his environment.

Some of the factors in tests such as the California Psychological Inventory attempt to measure deeper level needs (such as "self-acceptance", "sense of well-being", "self-control"). The problem is that the individual can act out and fulfill these needs in a variety of ways or situations, often as a result of interaction with other less central needs and important environmental stimuli.

Not only may it be difficult, it may not be entirely relevant for marketers to assess deeper level needs in order to predict purchase behavior. The lack of success in working with deeper level needs suggests two directions for future research: first, use of tests that stress the relationship between the consumer and relevant people and objects in his environment; and secondly, the importance of considering products and product attributes as particularly critical stimuli within that environment.

Inappropriate application of personality tests has not been the only reason for the lack of success in relating personality to purchasing behavior. It is also likely that failure to properly define the relevant stimuli, that is, product and product attributes, has contributed to the problem. As Blake et al. (1970) recently hypothesized, the inconsistent results of past studies linking personality characteristics and the acceptance of new products ". . . is partially due to the fact that the relationship is mediated by the type of new product analyzed".

In most studies of new product purchasing, the dependent measure has been created in one of two ways: either 1) the study limits itself to a single product, or 2) it summates across a number of products or even product categories. Both approaches assume that the purchase of new products is an undifferentiated phenomenon.

The Single Product Study

A typical example of the first approach is the Lafayette Consumer Behavior Research Project (Pessemier, Burger, & Tigert, 1967). In this study, hypotheses predicting the purchase (or non-purchase) of a new detergent by a group of housewives are acknowledged to have been derived from the diffusion of innovations literature, including studies dealing with farmers' purchases of new farm equipment, and doctors' prescriptions of new drugs. While both the nature of the product as well as the class of consumers shifts radically from study to study, these differences are largely overlooked. But can one deny that the consequences

for a venturesome doctor who prescribes a new drug may differ considerably from the consequences for a venturesome housewife who buys a new detergent? The relative importance of venturesomeness, or of any personality variable, as a determinant of purchase behavior is likely to vary considerably as a function of such factors as the nature of the product and the constraints inherent in the consumer's role.⁴

The Summation Approach

In the "summative" approach, individuals are categorized as innovators or non-innovators on the basis of how many of a list of new products they have purchased. Such an approach fails to take into account specific subclasses of products. This is an important shortcoming, for a Robertson and Meyers (1969) note, the inter-relationship of innovativeness with respect to the three broad product categories they studied (electrical appliances, clothing, and food) ". . . are pragmatically low and seriously dispute [the notion that] innovativeness is a general trait possessed by the individual".

If there is no ready equivalence between all new products, and if the undifferentiated concept of innovativeness is incorrect, then some means of discriminating among products or groups of products is imperative. There are a practically infinite number of ways⁵ to categorize products and product attributes, but probably the most relevant way to do so is according to the way consumers categorize them. Since individuals tend to perceive and categorize their environment in part on the basis of their needs and values (Bruner, 1958) salient product categories are most likely to be identified by defining both consumer needs and product attributes interdependently. As Massey *et al.* (1968) note:

. . . one of the most fruitful directions for future research is the study of characteristics that are idiosyncratic to both the consumer and the product, and not to the customer alone as in the case of general personality characteristics.

Consumer purchase behavior is not simply a function of consumer needs considered by themselves, nor merely of perceived product attributes, but rather of the interaction between these two factors. Ideally, the same theoretical model should identify the relevant (and interactive) dimensions of both consumer needs and perceived product attributes.

Theoretical Model

Anyone concerned with presenting a model interactively linking consumers and products would find several methods of categorizing consumer needs and product attributes discussed in the literature. Kassarian (1965) has used Reisman's (1961) "inner" and "other" directed social character types to predict differential responses to advertisements that may be categorized in the same manner. Cohen (1967) has linked Horney's (1937) "compliant", "aggressive", and "detached" personality types to products whose functions are likely to make them more appealing to one or another of these personality types. Wilding and Bauer (1968) have suggested "problem-solving" and "psycho-socializing" as two different games people play in making purchase decisions, or in reacting to persuasive communications which may be similarly differentiated. Brody and Cunningham (1968) have differentiated between a product's "performance" and "social" risk and have related this dimension to the consumer's level of self-confidence and to the likelihood of brand loyal behavior. Bourne (1957) has

posited a product's social conspicuousness as a determinant of the extent to which reference groups are taken into account in purchasing decisions. In light of these varied approaches, how might consumer needs with regard to new products and new product attributes best be categorized? The model outlined here begins by positing four product dimensions.

Product Dimensions

Two questions may be asked of any new product. First, how new is the product? How novel is it perceived to be? Secondly, how is the product new? What attributes does it have so that it is perceived as being new?

Product dimension I: novelty. The question "how new is the product" suggests that not all new products should be treated as equally new. Nor should newness be measured as a function of the length of time the product has been on the market. A product recently introduced may involve little that is unique or novel, while a product of a few years standing may still be perceived as relatively novel.

Of the various conceptualizations of novelty, one version seems especially relevant to the measurement of novel products: that of the perceived discrepancy between a novel and a familiar stimulus.

A novel object is often surprising. i.e. it differs from what was expected . . . (Berlyne, 1960)

There is a discrepancy between information embodied in expectations and information embodied in what is perceived. (Berlyne, 1965)

Novelty is conceptualized here as the perceived discrepancy between new and familiar versions of a product.⁶

With regard to the second question, "how is the product new?", one may ask: "Regardless of how new the product actually is, in what way is it changed so that it is perceived as being new? In the model developed here, two attributes - the product's appearance and performance features - are considered critical. Products are perceived and labelled as new, either because they have novel appearance features, novel performance features, or both.⁷

Product dimension II: appearance. Products new in terms of appearance, appeal to consumers because they are perceived as more attractive, becoming or esthetically pleasing than their older, more familiar counterparts.

Product dimension III: performance. Products new in terms of performance, appeal to consumers because they embody the latest product advances or improvements. They enable the consumer to perform some task more easily, efficiently or thoroughly.⁸

Product dimension IV: social conspicuousness. The appearance or performance features of a new product may be more or less socially conspicuous; that is, visible to and discussed by one's friends and acquaintances. Products that are socially conspicuous help the consumer relate to others by enabling him to create a desired impression upon them. In other words, by allowing the consumer to demonstrate something unique or novel about himself, the socially conspicuous product changes the nature of the product's novelty into an "expressed novelty".

Consumer Dimensions

In Lewinian Field Theory, objects in our psychological environment have either positive or negative value for us, depending upon our needs. The value of an object, in coordination with our needs, creates a force acting upon us. Objects that possess positive value attract us; those with negative value, repel us.

A product's appearance, performance, and social conspicuousness all represent potentially positive forces. Just as food appeals more to a hungry person, products new in terms of their appearance should appeal more to consumers with a relatively high "esthetic" orientation.⁹ Products with improved performance capabilities should appeal more to consumers with a relatively high "practical" orientation. New products that are socially conspicuous should attract consumers with a relatively high interaction orientation. Highly novel products ought to be more appealing to the more venturesome consumer.¹⁰

In our interactive model, we are guided to the relevant consumer dimensions by the four product attributes:

<u>Product Attribute</u>	<u>Consumer Dimensions</u>
Total Novelty . . . . .	.Venturesomeness
Appearance. . . . .	.Estheticism
Performance . . . . .	.Practicality
Social Conspicuousness. . . . .	.Interaction orientation

Consumer dimension I: venturesomeness. This attribute refers to a general predisposition to evaluate new products favorably. Berlyne (1960), referring to a curiosity need, or a need for novelty, indicates that "the actual level of novelty to which an individual is geared will vary within relatively wide limits depending . . . on differences in personality".

In the diffusion of innovations literature, much the same concept has been termed "venturesomeness". Rogers (1962) defines venturesomeness as "the major value of the innovator. He must desire the hazardous, the rash, the daring and the risky".

Similarly, in the marketing literature, Robertson and Kennedy (1968) have defined venturesomeness as willingness to take risks in the purchase of new products. The definition of venturesomeness used in this study is intended to be more general, in that it includes a predisposition to evaluate a new product favorably and is not limited to overt purchase behavior.

Consumer dimension II: esthetic orientation. The esthetic individual is interested in products that are attractive and decorative. He/she is more attracted by those products that have a new shape, color, scent or sound than is the individual who is less esthetic.

Consumer dimension III: practical orientation.¹¹ The practical individual is interested in products that help him/her in their day-to-day tasks. He/she is relatively more attracted by new products that help complete a job quickly, efficiently and thoroughly than is the less practical individual.

Although some consumers may be either high or low on both dimensions, the constraints faced in daily purchase behavior often necessitate a choice between products of a more esthetic nature and those of a more practical nature. Decisions in this regard are likely to be, at least in part, reflections of basic

needs or predispositions. It is on this basis that the dichotomy is made between the practical and the esthetically-oriented individual.¹²

Consumer dimension IV: interaction orientation. The interaction-orientated individual is interested in being with people. He/she seeks social activities and gains satisfaction from them. As Cohen points out (1968):

There is very little behavioral or attitudinal response made by a consumer that is not a response to significant "others" present either physically or referentially, at the time . . . The things which we own, just as the opinions we hold fit the image we have of ourselves in relation to others.

To the extent an individual is interaction-oriented these "significant others" will be taken into account in purchasing behavior.

Hypotheses Generated by the Model

In general, the model hypothesizes that where there is a "matching" or compatibility between product attributes as perceived by the consumer and consumer needs, the product will be evaluated more favorably than where there is a "mismatching" or incompatibility.

Of the four product dimensions, appearance and performance novelty are focused upon generating the following more specific hypotheses:

- A product, new in terms of its appearance attributes will be evaluated more favorably by consumers who are esthetically-oriented than by consumers who are practically-oriented.
- A product, new in terms of its performance attributes will be evaluated more favorably by consumers who are practically-oriented than by consumers who are esthetically-oriented.

Considering all four product dimensions, the following broader hypotheses are generated:

- For any given consumer, products that match his/her needs more closely (on all four dimensions) will tend to be evaluated more favorably than products that match his/her needs less accurately.
- For any given consumer, groups of similar products (representing a potential "lifestyle"), will tend to be evaluated more favorably where this lifestyle more accurately reflects the consumer's needs than where it reflects his/her needs less accurately.

Method

Subjects

The sample consists of 192 English-speaking Montreal women drawn from nine voluntary associations. The mean age of the sample is thirty-eight. The mean household income is almost \$14,000. About half the sample had at least some college education. In general, the group represents the middle and upper-middle socio-economic strata.

Instruments

Venturesomeness is measured by a sixteen item Likert instrument, developed specially for this study in a series of pilot tests. One form of the instrument has been demonstrated to correlate .53 with the Change scale of the Adjective Check List (Gough, 1952). The venturesomeness scale achieved a reliability of .83 (Kuder-Richardson Coefficient Alpha (see Nunnally, 1967).

Estheticism versus Practicality is measured by a twenty-three item Likert instrument. The items were selected on the basis of face-validity and their demonstrated predictive validity in pilot studies.¹³ The Kuder-Richardson coefficient alpha for the scale is .62.

In his study of the role played by compliant, aggressive and detached personality types in purchasing behavior, Cohen (1968) suggests that "the aggressive person should desire more distinctive brands Acceptance by others is not enough He wants to establish his separate identity and style of behavior". This conception of an interaction orientation may be linked directly with the concept of the socially conspicuous product. Consequently, this study uses the fifteen item "aggressiveness" scale of Cohen's C.A.D. instrument (1967).¹⁴

Procedure

The model outlined above was tested using three distinct and independent criterion.

Criterion I: verbal product alternatives. Eighteen pairs of alternative versions of new products were presented to the S's. In each pair, one version was "performance-oriented" and one version was "appearance-oriented" (for example, a portable T.V.; version "a": ten pounds lighter; version "b": with a walnut cabinet). S's were asked which version they preferred and whether they preferred it strongly or only somewhat.

These are two advantages to this criterion:

- 1) it attempts to eliminate all variance other than the variance relevant to the appearance - performance dichotomy;
- 2) it groups individual products along meaningful dimensions, creating a more reliable criterion.

Criterion II: selection of alternative gifts. S's were asked to select two products as gifts: either Ultra Brite Toothpaste or Colgate Fluoride Toothpaste; and either Florient pine-scented air freshener or a new disinfectant air freshener. In both cases, theoretically, the S was choosing between a "practical" alternative (Colgate; disinfectant) and a more esthetically or sense-oriented alternative (Ultra-Brite; Florient).

The advantage of this second criterion is evident. It permits prediction of actual behavior vis-a-vis the relevant dimensions.

Criterion III: evaluation of product clusters (lifestyles). S's were shown slides (with verbal descriptions) of twenty new products. These ranged from a glass-top stove to frozen pudding. Products were selected in pre-tests to provide variation with respect to each of the four product dimensions outlined in the model. S's were first asked to describe each product in terms of its newness along the four product dimensions and then to evaluate the product in terms of the extent to which the product was perceived as an improvement over its older counterpart.

This third criterion affords maximum flexibility by including products that vary along each of the four product dimensions. Since these dimensions are defined on the basis of consumer needs and perceptions, the chance of interaction between product and personality measures is maximized and the predictive power of the model should be enhanced.

Moreover, as with criterion I, it is possible to group the products along a particular dimension into meaningful clusters. Each cluster of similar products may be regarded as presenting a potential "life-style". This approach removes the restrictive assumption that personality need predict behavior vis-a-vis a single stimulus. As is the case with attitudes (Fishbein,1966), personality is more likely to be predictive of a cluster of related behaviors (products), rather than any single specific act (product).

Results

Criterion I: Verbal Product Alternatives

The criterion score in a multiple regression analysis consists of a simple index: the number of performance alternatives selected minus the number of appearance alternatives selected (weighting each alternative checked "prefer strongly" by two).

The general paradigm is as follows:

$$Y_1 = a + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5$$

where Y_1 = the criterion index; X_2 = Venturesomeness; X_3 = Estheticism-Practicality; X_4 = Interaction orientation; X_5 = Age.

The adjusted multiple correlation coefficient ($R_{1.2345}$) is .44 ($F = 11.32$, $p < .05$, 4, 187 d.f.). As is revealed in Table 1, the four predictor variables, three of them personality measures, explain one-fifth of the variance ($R^2 = .195$).

Table 1

Criterion I: Verbal Product Alternatives

Variable	Regression Coefficient	Partial Correlation Coefficient	Proportion of Variance Explained
Venturesomeness (X_2)	-.08	-.10	.056
Estheticism-Practicality (X_3)	-.21	-.25	.058
Interaction Orientation (X_4)	-.13	-.13	.036
Age (X_5)	1.40	.23	<u>.046</u> .196

Criterion II: Selection of Alternative Gifts

The attempts to discriminate among selectors of two toothpastes and two air fresheners were not very successful.

Two variables, Venturesomeness and Estheticism-Practicality were statistically significant discriminants of Ultra Brite and Colgate Selectors (Mahalanobis $D^2 = 20.16$; $p < .001$) (see Table 2). However, only two percent (.016) of the variability in discriminant space is relevant to group differentiation (Tatsuoka, 1970). Additionally, (although this criterion is not without ambiguity; see Morrison, 1969) only 63% of the cases were correctly classified.

Results of the discriminant analysis in the case of the two air fresheners (Floriant and the disinfectant) were equally poor. Here too, only two percent (.020) of the total variability of the total variability of the discriminant function is attributable to group differences. Fifty-seven percent of the cases were correctly classified. Mean scores of the predictor variables for each group were not statistically significant.

Criterion III: Evaluation of Product Clusters (Lifestyles)

Each product is clustered into low, medium and high levels of each of the four product dimensions, (i.e. 12 clusters in all). This is accomplished using the mean score provided by the sample in describing each dimension of each product.

The model predicting each S's evaluation of the product cluster is as follows:

$$Y_1 = a + b_2X_2 + b_3X_3 + b_4X_4$$

where Y_1 = the score obtained for each S by standardizing (across all S's) the ratings¹ for each product; and for each S, summing her standardized scores for all products in the given cluster; X_2 = Estheticism-Practicality; X_3 = Interaction Orientation; X_4 = Venturesomeness.

Table 2-a

Criterion II: Mean Values of Characteristics: a) Toothpastes

Characteristic	Ultra Brite Selectors' mean (n = 47)	Colgate Selectors' mean (n = 117)	Difference	Conventionalized Discriminant Function Weights
Venturesomeness	61.53	52.49	9.04*	1.0000
Estheticism-Practicality	80.00	76.62	3.38**	-0.6645

*p<.001, 163 d.f., one-tailed test

**p<.05, 163 d.f., one tailed test

Table 2-b

Criterion II: Mean Values of Characteristics: b) Air Fresheners

Characteristic	Florient Selectors' mean (n = 45)	Disinfectant Selectors' mean (n = 116)	Difference	Conventionalized Discriminant Function Weights
Venturesomeness	57.20	54.40	2.80	1.0000
Estheticism-Practicality	75.93	78.02	-2.08	-0.9646

Table 3 indicates the adjusted multiple correlation coefficient for each cluster of products. As is revealed in the table, the proportion of variance ($R^2_{1.234}$) accounted for ranges from three percent to fifteen percent. Better prediction is obtained with the product clusters that are clearly appearance-oriented (high appearance cluster: $R^2 = .13$; low performance cluster: $R^2 = .15$).¹⁵ R's in nine of the twelve clusters are significant at or beyond the .01 level.

Table 3
Criterion III: Evaluation of Product Clusters (Lifestyles)

Product Dimension	Perceived Level (mean score)	No. of Products in Cluster	Adjusted $R^2_{1.234}$	$R^2_{1.234}$	F
Appearance	Low	6	.19	.04	1.73
	Medium	7	.31	.09	4.84*
	High	7	.36	.13	6.75**
Performance	Low	8	.38	.15	7.93**
	Medium	6	.18	.03	1.53
	High	6	.21	.04	2.18
Social Conspicuousness	Low	7	.27	.07	3.66*
	Medium	6	.30	.09	4.64*
	High	7	.32	.11	5.49**
Novelty	Low	7	.27	.07	3.63*
	Medium	6	.30	.09	4.77**
	High	7	.30	.09	4.60*

*significant at .01 level; 4, 187 d.f.

**significant at .001 level; 4, 187 d.f.

On the average, the three predictor variables account for 8.4 percent of the variance. By contrast, when predicting with respect to each of the twenty products individually, the same three variables account for an average of only three percent of the variance.

Discussion

It has been noted (Kassarjian, 1970) that most personality studies in consumer behavior have accounted for no more than five to ten percent of the variance. Several of the reasons how prediction might have been improved were noted above. It is important to recognize, however, that the multiple influences upon a purchasing decision constrain any single predictor from explaining much more of the variance. In addition to the S's personality traits, factors such as the momentary needs and enduring personality traits of others in the family, past experience with various brands in the product category, and various marketing variables such as price and advertising are all likely to be at least

equally powerful predictors. Ten percent of the variance is likely to prove an accurate estimate of the role the consumer's personality traits play in the overall decision process.

For the researcher attempting to achieve a general understanding of consumer behavior as one of the many facets of human behavior, personality is potentially an important theoretical construct. It should facilitate our comprehension of the ties between consumer decision processes and decision processes in other spheres of life. On the other hand, it is probably illusory for the marketer searching for a single predictor with regard to individual products to expect general personality measures alone to hold the key. In part for this reason, it has often been suggested (Brody & Cunningham, 1968; Massy, Frank, & Lodahl, 1968; Kassarian, 1970) that consumption-specific instruments ought to be developed. Perhaps the answer for the marketer does lie in this direction. It is important to take note, however, of the potential disadvantages inherent in such an approach.

First, there is a danger that this strategy, if followed to the exclusion of others, might foster an unwanted and unnecessary schism between consumer behavior and the general body of personality research.

More important, however, is the questionable reliability and validity of many consumption-specific instruments, especially those of a psychographic nature. (Low reliability of the instruments is often almost assured by the very small number of items used to measure each trait.) Moreover, the number of "factors" one might invent in the absence of a systematic program of convergent and discriminant validation (Campbell & Fiske, 1959) seems almost endless. To trade what reliability and validity there is in general personality batteries for the usually lower standards of consumption-specific tests would hardly seem to represent a step forward.¹⁶ In the interests of parsimony alone, it should be incumbent upon the researcher to first demonstrate the absence of an appropriate scale among general personality instruments. In the event a consumption-specific instrument is developed, at least some minimal standards of reliability and validity ought to be maintained.

Just as the nature of the predictor variables are likely to affect prediction in a given study, so too is the nature of the criterion variables. It has been noted that an atheoretical-shotgun approach has not been limited to the selection of predictor variables. Selection of the products incorporated as criterion variables has also been rather haphazard.

When the differences between product alternatives are at least clearly perceived by the consumer there is a reasonable chance of discriminating between buyers of each product.¹⁷ In this study, where the criterion successfully isolates the variance along a specific dimension, as with the verbal product alternatives (criterion I), personality variables alone account for fifteen percent of the variance.

Criterion I and III highlight the advantages of working with groups of products clustered along relevant dimensions. Operationally, these prove to be more reliable criterion than are those consisting of individual products. Theoretically, as indicated above, we are far more likely to predict clusters of related behaviors than we are to predict any single behavioral act.

The two product alternatives offered as gifts (criterion II) demonstrate the difficulty in obtaining powerful personality instruments that discriminate amongst buyers of individual products. In both cases, only two percent of the variability in the discriminant space is attributable to group differences. Nevertheless, two personality characteristics are statistically significant discriminants in the case of the toothpastes, but not in the case of the air fresheners. This difference in itself might offer some insight as to the nature of these two criterion.

The toothpastes offered a clearly perceived choice: Ultra Brite with its emphasis on appearance ("sex-appeal") and Colgate's emphasis on the practical advantages of decay prevention (MFP Fluoride). The choice between air fresheners was less clear. Some women seemed to select the disinfectant for its practical disinfecting qualities, but some apparently selected it because of its milder aroma (a sense-oriented quality). In terms of the model, at least some S's selected the different alternatives for the same reason. When this proves to be the case it is highly likely that efforts at discriminating between selectors of one or the other product will be most difficult.

Clearly, the nature of the criterion does make a difference. When clearly perceived product advantages can be linked directly to well defined lifestyles, personality variables may be used to advantage. Where product advantages are more ambiguously perceived, however, or cannot be unambiguously linked to a potential lifestyle, personality variables will be of considerably less value.

This difference may also be noted among the various product clusters (criterion III). Prediction is better vis-a-vis appearance-oriented product clusters. This is probably because "appearance" is a more narrowly defined dimension than is "performance" (which may include product advantages as varied as speed, cleanliness, efficiency and convenience).

Lastly, a post-hoc remark with respect to the adequacy of the theoretical framework; there is strong reason to suspect that the results of this study were negatively affected by the increasingly important "consumerism" factor. From observation this appears to have been a rather salient dimension in the evaluation of the new products included in this study, especially those of a non-functional nature. Often, products that were once perceived and appreciated as colorful are now seen as "colorful but polluting". In other words, the paradigm may have failed to specify and measure an important dimension.

It is the more educated, higher income groups that have been more vocal in this regard. Inasmuch as they are the critical market segment that tends to adopt new products early and often,¹⁸ this is likely to pose a major new challenge to the successful introduction of a large range of new products.

Footnotes

¹This research study was a part of a doctoral dissertation completed at the University of Illinois, 1971. The author is grateful to Professor Joel B. Cohen, the University of Illinois, for his considerable help in all aspects of this study. The assistance of the Colgate Palmolive Company, Canada Ltd., is also acknowledged.

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³In two recent papers both Kassarian (1970) and Jacoby (1970) have noted the "atheoretical-shotgun" approach taken in studies attempting to link personality variables and purchasing behavior.

⁴Kegerris et al. (1970) recently studied the introduction of a rather performance oriented new product, the automotive diagnostic center. They concluded ". . . innovators, far from being reckless or impulsive consumers, appear to be more careful planners than the population in general." By contrast, Robertson and Kennedy (1968), studying the touchtone (pushbutton) telephone found that venturesomeness, operationally defined as "willingness to take risks in the purchase of new products . . . [is one of two variables to] account for most of the innovative behavior difference between innovators and non-innovators . . ." It is highly likely that it is the nature of the product in each study is responsible for these contrary conclusions.

⁵One way is to use the manufacturer's standard classifications as do Robertson and Meyers (1969) in the study noted above.

⁶Blake et al. (1970) differentiate between a product new in terms of its "recency" or its "novelty". They define the former as those products that are "incongruous with expectations of the typical product in that class". They argue that the two dimensions are independent: "A product's recency should not affect its associated uncertainty". While "recency" and "novelty" may not be perfectly correlated, it seems reasonable to assume that however "novel" a product is, the less "recent" it is, the less it will be perceived as incongruous or discrepant. With the passage of time the novel product is likely to be perceived as less and less novel. At least for the purpose of the model outlined herein, it would seem advantageous to treat novelty as a unidimensional concept.

⁷The dichotomy between appearance and performance has appeared previously in various related forms, most recently (Jacoby, 1970) as "fashion" versus "function". The above definition of "appearance" is intended to broaden the scope of "non-functional" product changes to include any appearance-oriented change, regardless of whether or not it is part of a general fashion. Moreover, the term "fashion" has often been unduly restricted to articles of clothing.

⁸Conceptually, the extent to which a product is novel (our first question) is a function of the extent to which both its appearance and its performance features are novel. Operationally, the product's total (gestalt) novelty value is measured independently so that the relative contribution of novel performance and appearance attributes may be functionally linked to the product's total novelty value.

⁹This and the other consumer orientations are defined presently.

¹⁰While novelty has been conceptualized by Berlyne (1960, 1965) and others as having both positive and negative valence, the paradigm outlined here simply specifies that novelty will be less positive for those who are less venturesome and more positive for those who are more venturesome.

¹¹The salience of this concept has been noted by Harrison Gough (1970), author of several personality batteries including The California Psychological Inventory (Gough, 1957) and the Adjective Check List (Gough, 1952):

Practicality [as outlined above] is something that ought to be measured and measureable, although I know of no scales directly targeted on the concept . . . Perhaps you could construct a new scale for practicality . . . I'd urge you to think of this possibility.

¹²To take advantage of this market segmentation strategy, marketers might establish: 1) the distribution of esthetically and practically-oriented consumers in the target market; 2) the extent to which the addition of appearance or performance attributes would increase the product's appeal (or intention to purchase) for each of these market segments; and 3) weigh the potential increase in market share against the increase in unit costs.

¹³For further information regarding the development of this and the Venturesomeness scale see (Goldberg, 1971).

¹⁴For criterion III (below), the Detached scale was used instead; see (Goldberg, 1971).

¹⁵Although a few products are both "appearance-oriented" and "performance-oriented", in general, those that are highly appearance-oriented are low in terms of performance orientation and vice-versa. Consequently, the clusters: "low-performance" and "high-appearance" consist of almost identical sets of products.

¹⁶This is not to ignore the many serious questions involving the validity of general personality tests. For example, in one study (Mitchell, 1963) where the Sixteen Personality Factor Test (Cattell & Eber, 1957) and the California Psychological Inventory (Gough, 1957) were administered to the same set of subjects, the factors labelled "Dominance" on each test were correlated only .32; see also (Goldberg, 1971).

¹⁷This is probably why convertible buyers and standard car buyers can more readily be discriminated between (Westfall, 1962) than can Ford and Chevrolet owners (Evans, 1959).

¹⁸Our sample was selected in part to reflect this fact.

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INTENTIONS TO BUY AS PREDICTORS OF BUYING BEHAVIOR

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The use of attitudes as predictors of purchase behavior has long been a source of some dispute. Several reviews of the literature on attitudes and behavior (Wicker, 1969; McGuire, 1966) have concluded that attitudes are unrelated or only slightly related to overt behavior. Others, however, have contended that certain types of measures of attitudes, and particularly purchase intentions, may effectively be used as predictors of buying behavior.

Fishbein (1971), for example, suggests that although attitudes toward an object (e.g. attitudes toward a brand), may not be good predictors of specific acts, attitudes toward performing a given behavior with regard to an object (e.g. attitudes toward buying a particular brand in a given situation) will usually be related to the particular behavior in question. More specifically, modifying Dulany's theory of propositional control, Fishbein (1967), proposed a model for predicting behavior based on expressed behavioral intentions which reflect the attitude toward the act rather than the object.

The utility of measures of behavioral intentions as predictors of behavior has been empirically verified in a study by Ajzen and Fishbein (1970) and in a number of studies of the Survey Research Center of the University of Michigan (Mueller, 1957). Indeed, many firms who use intentions to buy in evaluating new product concepts, claim that these measures provide a useful predictor of actual purchases at the aggregate level.

Although these findings suggest that there is a relationship between purchase intentions and behavior, this link is based on the assumption that carrying out intentions is under the individual's control, and that expressed intentions are related to the individual's subsequent behavior. Furthermore, the strength of the relationship and thus the predictive accuracy of the purchase intentions may vary depending on the a) specificity of the purchase intention, i.e., an intention to purchase a generic product vs. a particular item, b) the novelty of the item, c) the particular measure of purchase intentions, and d) the time between the measure of intentions and behavior. The specificity of the measure may be a critical factor. Fishbein (1971) has postulated that "The more specific the measure of intention is to the behavior that is to be predicted, the higher the intention-behavior correlation will be." In operational terms this implies that the correlation between a general measure and general behavior, i.e., intention to buy a product --- purchase of a product, will be higher than between a specific measure and specific behavior, i.e., intentions to buy a specific style of a product --- purchase of this style. The novelty of the item may affect the reliability of the measure. In this context it is hypothesized that the more novel the item, the higher the predictive efficacy of the purchase intentions. Different measures of purchase intentions may also be expected to vary in relative efficiency. Finally, the time interval between the measurement of the purchase intentions and the measurement of behavior may affect the level of correlation between the two measures.

Although various studies have been conducted to test the reliability of purchase intentions as predictors of behavior, little attention has been devoted to comparing the reliability and relative efficiency of different measures of purchase intentions.

The purpose of this paper is, thus, to examine the impact of each of these four factors on the predictive efficacy of purchase intentions, based on a longitudinal study of women's attitudes and behavior toward fashion items.

The Data

A study of attitudes and behavior toward fashion items was conducted in the Philadelphia area for an eight week period during the fall of 1970. The sample consisted of 82 women from different socio-economic backgrounds, and with different physical builds and included both married and single, working and non-working women.

At the beginning of the study period a questionnaire was administered by personal interview covering attitudes toward and intentions to buy items of clothing. Respondents also provided data on their socio-economic, demographic and life-style characteristics.

Intentions to buy were assessed using a variety of measures. Respondents were asked to rank order eleven fashion sketches which included coats, dresses, skirts and pant suits in above knee, knee length and midi lengths according to their overall preference, intentions to buy, girl friends' preference, male friend's preference, and suitability for everyday and special occasion.

Respondents were also asked to indicate the number of items in each category of clothing (coats, suits, dresses, skirts, pant suits, etc.) they intended to buy during the fall season, the specific lengths (above knee, knee length, mid calf, and ankle length) and occasion (everyday or special occasion) for each category and the total amount they planned to spend. Purchase intentions, specifically, with regard to midis were measured on a five point intentions to buy scale, and attitudes of both girl friends and male friends toward midis were also examined.

During the eight week study period the panel kept records of all shopping trips relating to fashion clothing items. For each shopping trip the number, length, occasion and price of items tried on and purchased in each category was recorded. Half of the sample also filled in prior to each trip, specific purchase intentions for that trip. These diaries were collected on a bi-weekly basis.

At the end of the study period respondents again rank ordered the eleven fashion sketches on the six preference scales. In addition, intentions to buy a midi-coat, dress or skirt in the forthcoming season were measured using a five point intentions to buy scale.

These data are subject to a number of limitations.

1. The size of the sample is small, from a single geographic area and does not cover the whole range of socioeconomic, demographic and psychographic variables which may be expected to influence purchase behavior.
2. The length of the study period is short, particularly in view of the nature of the item considered - clothing.
3. The diary data probably underestimates the number of shopping trips actually made and possibly the number of items tried on. There was also no control over whether purchase intentions for each trip were in fact filled in prior to the trip or afterwards.

Data Analysis

The relationship between the set of intentions to buy and the set of actual purchase behavior was assessed using three related analytical procedures: a) cross tabulations, b) regression analysis and c) canonical correlation.

The cross tabulations provided an initial understanding of the nature of the relationships between each of the intentions to buy measures and the various purchase measures. More rigorous analysis of the nature of this relationship was then conducted using multivariate statistical techniques. A regression analysis was undertaken to assess the statistical association between each of

eleven measures of midi purchase intentions (the independent variables) and the purchase of a midi (a dummy dependent variable). Separate regressions were run for each of the independent variables as well as a multiple regression with all eleven independent variables.

The eleven measures included: a behavioral measure -- the proportion of midis of the number of items tried on; two projective measures -- attitude of girlfriends and of male friends toward midis; two direct intentions to buy measures -- a five point intentions to buy scale and a four point index based on intentions to buy a midi in each category; and six relative measures -- the average ranking of the four midi fashion sketches on the six preference scales -- overall preference, probability of purchase, girlfriends' preference, male friends' preference, everyday suitability and special occasion suitability.

A canonical analysis was then used to examine the relationship between the two sets of purchase intentions and behavior. The predictor and criterion variables included dollar amount, number of items, length, and occasion planned and actually purchased across product categories.

Results

The results of the study confirm the findings of previous research that measures of purchase intentions do provide reasonably good predictors of behavior. There was, however, considerable variation in predictive efficacy among the various measures. In particular, each of the four factors examined, the specificity of the measure, the novelty of the item, the type of measure, and the time interval between measurements appeared to affect the efficiency of the measure.

The Specificity of the Measure

The findings of the comparison of general and specific measures of purchase intentions for the five product categories is shown in Figure 1. This shows that while the predictive efficacy of general measures (i.e. intention to buy a product such as a skirt or coat) is slightly greater than the predictive efficacy of specific measures (intentions to buy a specific product style (such as a midi skirt), it varies with the particular product. For three out of five product lines (pant suits, skirts, dresses) the percentage of those intending to buy who actually bought the product was slightly higher than the percentage of those who intended to buy a specific item (product x for special occasion or everyday use or in an above knee, knee or midi length) who actually bought it. For suits and coats the reverse was generally true.

There is also considerable variation in the predictive efficacy of various specific measures depending on the nature of the predictive scenario.

With the exception of suits, purchase intentions for everyday occasions were more accurate than the ones for special occasions, again probably reflecting a higher degree of selectiveness or uncertainty with regard to less commonly purchased items.

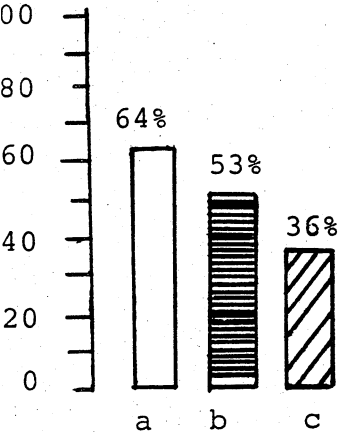
The findings also show a considerable variation in predictive efficacy between the various clothing categories for both general and specific measures. In the case of the general measures, the proportion of those who intended to buy a particular item who actually bought it ranged from 14% for suits to 64% for dresses. This variation across categories appears to be related to frequency of purchasing, cost of the item and other situational factors such as climate and the trend of the fashion cycle.

Figure 1

Proportion of Those Intending to Buy Various Fashion Items Who Actually Bought Them: A Comparison of General and Specific Intention Measures

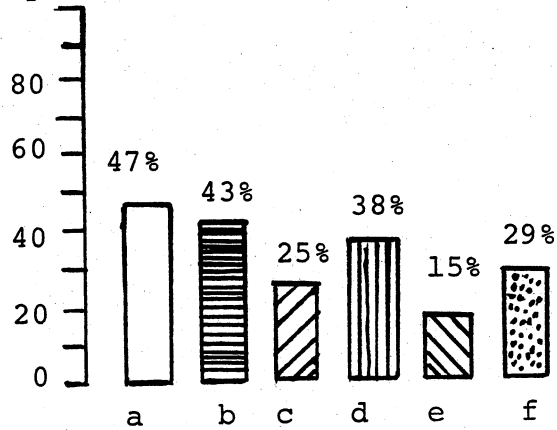
Pant Suits

(84% intend to buy)



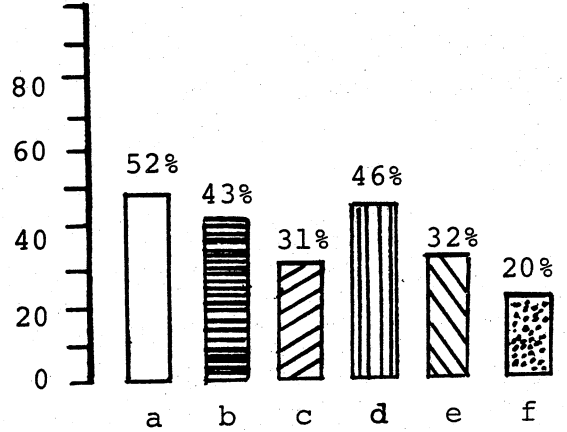
Skirts

(66% intend to buy)



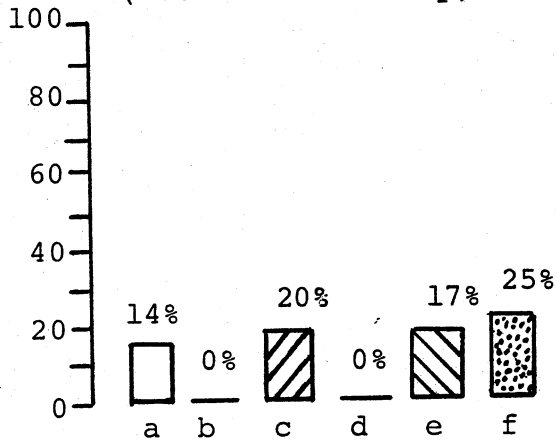
Dresses

(91% intend to buy)



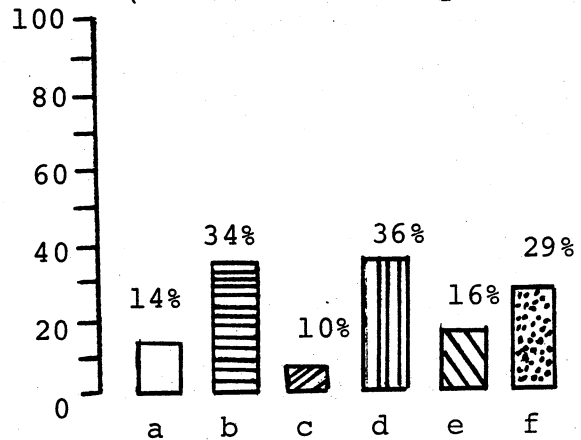
Suits

(26% intend to buy)



Coats

(66% intend to buy)



Key

- a = General
- b = Everyday
- c = Special occasion
- d = Above knee
- e = Knee length
- f = Midi

The frequently purchase lower unit cost items, such as skirts and dresses, had a high percentage of subjects who followed their intentions. For coats, on the other hand, which are higher cost, less frequently purchased items, only one fifth of the 66% of the sample who intended to buy a coat had actually bought one by the end of the study period.

This may be due in part to uncertainty about fashion lengths, and in part to the Season. Since the last diary was collected at the end of November, those intending to buy a heavy coat for the winter may not yet have purchased it. Alternatively, uncertainty with regard to what styles would be fashionable may have caused some hesitation. Since the purchase of a midicoat is often viewed as a prerequisite to the purchase of a midi skirt or dress, and in addition the purchase of a coat is typically a relatively expensive item, more conservative purchasers might tend to wait and see what lengths were adopted.

The same dependency on product line is also evident in the specific measures of purchase intentions with regard to length and style. In the case of intentions to buy specific lengths, for example, purchase intentions tended to be more accurate for skirts and dresses than for coats and suits, though in all cases these were quite low.

The Novelty of the Item

One factor which may account for some of the variability in intentions to buy across different product lines is the novelty of the item or style.

The results of this study suggest that while purchase intentions for the most commonly purchased length -- above knee -- were more reliable than for the new midi-length or for the in-between knee length, purchase intentions for novel items -- pant suits and midis -- were more accurate than more common items such as dresses and skirts.

Figure 2 compares the statistical association between intentions to buy and purchase behavior for the novel items with the more common items.

Figure 2

The Predictive Efficacy of Intentions to Buy "Novel" and "Commonly Purchased" Items

<u>Dependent Variable</u>	<u>Independent Variable</u>	<u>R</u>	<u>F</u>
1. Purchase of a midi	Intention to buy a midi	.55	33.3
2. Purchase of a pant suit	Intention to buy a pant suit	.39	14.5
3. Purchase of a skirt	Intention to buy a skirt	.26	5.7
4. Purchase of a dress	Intention to buy a dress	.34	10.1

In the case of the midi, the R is substantially higher than for the skirt or the dress. In the case of the pant suit it is only slightly higher. This is somewhat surprising since Figure 1 showed that a substantially higher proportion of those planning to buy pant suits actually bought them compared with the other categories. This may, however, be a function of ambivalence with regard to lengths rather than the novelty of the item. A purchase of a pant suit avoided the problem of choosing a specific length. It thus provided a compromise solution for those who were uncertain which lengths would be fashionable, avoiding both the risk of having purchased a midi if the fashion did not catch on, or alternatively if the midi did become fashionable, of having an item which would be out of fashion by the following year.

The Type of Measure

One of the key research issues in the use of "intentions to buy" as a predictor of purchase behavior is the appropriate or most effective way of measuring intentions to buy. In this study four different types of measures were used to predict purchase of the midis.

- (a) A behavioral measure -- the proportion of midis tried on
- (b) Two measures of intentions to buy a midi -- five point intentions to buy scale, and a simple statement of intentions to buy or not buy a midi
- (c) Six preference measures -- the average rank of 4 midi sketches compared to the position of other fashion items
- (d) A projective attitude measure -- a girlfriend's and male friend's attitude toward the midi

A composite measure using ten of the single measures to predict purchase of a midi was also developed.

The results of the study show substantial differences in the predictive efficacy of the eleven single measures. The results of the simple regression analyses using each of these measures singly as a predictor of purchase or non-purchase of a midi are shown in the first two columns of Figure 3 and reveal a substantial range in R^2 . The behavioral measure -- the proportion of midis tried on -- provided the best predictor of purchase behavior with a R^2 of .72. The two direct measures, the five point scale and the intentions to buy across categories also provided relatively good predictors of behavior with R^2 of .55 and .54 respectively. All of the six relative attitude measures were less efficient with R^2 ranging from .25 for girl friends' preference to .41 for probability of purchase. The least efficient predictors were the two projective attitude measures with R^2 of .20 each.

This suggests that simple direct measures of purchase intentions can provide relatively reliable indicators of behavior and at least in this context are more effective than relative or projective measures. The relatively poor predictive efficacy of the relative measures -- rank ordered data -- may be due to the fact that respondents typically bought more than one item, and thus a rank order of items from different categories did not necessarily reflect the desired purchase assortment nor the purchase priority. Another possible reason for this relatively poor performance is the averaging procedure used here. Utilizing the complete rank order data may lead to better predictive efficacy.

A somewhat more surprising finding is the low R^2 for the two measures of girl and male friend's attitudes. Since acceptance by the peer group is generally considered an important factor in fashion adoption, one might have expected a stronger relationship between perception of friends' preference and the respondent's behavior. As, however, the study was undertaken at the beginning of the midi fashion cycle, those who bought midis might be classified as "innovators" or "early adopters". Given some earlier evidence that the early adopters tend to be fairly independent, they may be less affected by attitudes of their friends toward fashions.

The composite measure using 10 of the predictor variables proved superior to any single measure. The R^2 of .83 only represented, however, a slight improvement over the best single variable -- the behavioral measure -- with an R^2 of .72.

Comparing the standardized β coefficients for the multiple regression with the R^2 for the independent regression runs in Figure 3 shows some differences in relative importance of the various measures, particularly the six relative preference measures. While based on the multiple regression both the behavioral measure and the 5 point scale remained the most effective predictors,

Figure 3

Results of the Regression Analysis of
Purchase/Non Purchase of a Midi

	<u>R²</u>	<u>F</u>	<u>β*</u>
1. Proportion of midis of items tried on	.72	81.9	.48
2. Intention to buy midi (5 point scale)	.55	33.3	-.38
3. Intention to buy a midi in each category (Yes - No)	.54	22.1	.12
4. Average rank of midis on overall preference	.37	12.4	-.16
5. Average rank of midis on probability of purchase	.41	15.4	.05
6. Average rank of midis on girl friend preference	.25	5.0	-.02
7. Average rank of midis on male friend preference	.30	7.7	.20
8. Average rank of midis on every day occasions	.27	6.1	-.08
9. Average rank of midis on special occasions	.28	6.3	-
10. Girl friends like midi	.20	3.1	.08
11. Male friends like midi	.20	3.1	.03
All variables	.83	14.4	

*Standardized β coefficient for the regression equation with all independent variables.

the intention to buy a midi in each category decreased in importance. Similarly, the relative importance of the six preference measures tended to shift. In the independent runs, probability of purchase followed overall preference, had the highest R^2 of the relative measure while in the multiple regression, male preference had the highest β coefficient. In both sets of analysis, however, the two projective measures were the least effective measures.

While the preceding analysis has been concerned with the use of different measures to predict a single dependent variable -- purchase or no purchase of midi -- the canonical correlation analysis provides insight into the association between the set of intention measures and a set (not a single measure) of actual purchase behavior. This enables the researcher to assess whether the two sets (of purchase intentions and behavior) are independent and which variables in each of the two sets contribute most to the between set association.

The correlation matrix for the selected eight intentions and eight purchase measures is shown in Figure 4. In looking at the correlation matrix we note a low degree of intra-set correlation. This is particularly marked among the predictor variables. The only exception being intentions to purchase items for special and for everyday occasions that are correlated with an overall summary measure of intentions to buy any of the five product lines. Only five of the criterion variables show any degree of intercorrelation. The number of items purchased is correlated with two other correlated variables -- purchases of items with above knee length and with items for everyday usage. Similarly, purchase of above knee length items is correlated with total amount spent on clothing during the study period. This suggests, therefore, that composite measures are not likely to be more effective than simple measures.

The overall correlation between the two sets of variables is presented in Figure 5. This shows a fairly high degree of overall correlation between the two sets of variables with a first canonical correlation of .753 (Wilks Lambda of .14). The first (maximally correlated)

associated with the first linear compound are shown in Figure 6. With respect to the predictor set we note that the highest coefficient (.861) is associated with intention to buy a midi length item followed by intentions to buy items at above knee length and total amount planned to be spent on clothing. The highest criterion variable is actual purchase of a midi item followed by number of product lines purchased. These findings to a large extent confirm the results of the earlier analysis that purchase intentions for specific items and for novel items have a higher predictive efficacy.

Figure 5

Canonical Correlation for the First Three Linear Compounds

<u>Latent Root Number</u>	<u>Canonical Correlation</u>	<u>Wilks Lambda</u>	<u>Chi Square</u>	<u>D.F.</u>
1	0.753	0.1468	135.291	64
2	0.561	0.3389	76.281	49
3	0.511	0.4943	49.670	36

Figure 4

Correlation Matrix of 8 Intentions to Buy and 8 Purchase Measures

Variable	11	12	13	14	15	16	17	18	21	22	23	24	25	26	27
11 Total \$ plan to spend	1.00														
12 Number of items intend to buy	0.49	1.00													
13 Intend to buy above knee	0.14	0.49	1.00												
14 Intend to buy knee	0.15	0.08	-0.61	1.00											
15 Intend to buy mid calf	0.16	0.38	0.08	0.13	1.00										
16 Intend to buy ankle length	0.04	0.22	0.23	-0.11	0.01	1.00									
17 Intend to buy everyday	0.21	0.49	0.31	0.14	0.24	0.29	1.00								
18 Intend to buy spec. occasions	0.44	0.62	0.32	0.04	0.16	0.09	-0.13	1.00							
21 Total \$ spend	0.21	0.01	-0.14	0.07	-0.01	-0.05	-0.10	0.11	1.00						
22 No. of items purchased	0.40	0.35	0.14	0.01	0.01	-0.02	0.07	0.21	0.26	1.00					
23 Purchased above knee	0.09	0.09	0.23	-0.19	-0.18	-0.06	-0.03	0.06	-0.03	0.58	1.00				
24 Purchased knee length	0.19	0.12	-0.20	0.35	0.09	-0.11	0.09	0.09	0.48	0.38	-0.05	1.00			
25 Purchased mid calf	0.35	0.26	0.11	0.11	0.60	0.19	0.14	0.18	0.29	0.13	-0.14	0.15	1.00		
26 Purchased ankle length	0.21	0.01	-0.02	0.11	0.02	-0.03	-0.01	0.07	0.06	0.25	-0.06	0.23	0.10	1.00	
27 Purchased everyday	0.29	0.25	0.18	-0.08	-0.02	0.13	0.24	0.02	0.20	0.78	0.60	0.24	0.20	0.09	1.00
28 Purchased spec. occasion	0.20	0.24	0.07	0.03	0.10	-0.16	-0.19	0.36	0.14	0.38	0.18	0.25	0.11	0.08	-0.04

Figure 6

Standardized Canonical Coefficients for Criteria and
 Predictor Variables Associated with the First
 Linear Compound

Weights of Linear Compound 1

11 Total \$ plan to spend	0.490	21 Total \$ spent	-0.077
12 No. of items intend to buy	-0.186	22 No. of items purchased	0.357
13 Intend to buy above knee	0.494	23 Purchased above knee	-0.019
14 Intend to buy knee length	0.442	24 Purchased knee length	0.081
15 Intend to buy mid calf	0.861	25 Purchased mid calf	1.032
16 Intend to buy ankle length	0.351	26 Purchased ankle length	0.017
17 Intend to buy everyday	-0.371	27 Purchased everyday	-0.299
18 Intend to buy spec. occasion	-0.221	28 Purchased spec. occasion	-0.077

The Time Between the Measure of Intentions and Behavior

In general one may anticipate that the longer the time interval between the measure of intentions and the measure of behavior the lower the correlation between the two will be. Clearly, the longer the time interval the greater the probability that additional factors will change the intentions. However, in the case of clothing items, where several items within a given product category may be purchased during a given time period, the longer time interval, the higher the probability that an item in a particular category will be purchased.

An analysis of the link between purchase intentions and behavior over two different time intervals suggests that this may depend on the specificity of the measure. Figure 7 compares the relation between purchase intentions at the beginning of the study period and behavior throughout the 8 week period with that between purchase intentions prior to a shopping trip, and purchase behavior on that trip.

In the case of general purchase intentions, the percentage of those intending to buy a given product line who actually bought, aggregated across all product items, was slightly higher for the longer than the shorter time period. When broken down by individual categories, pant suits and dresses were substantially higher, for skirts slightly lower, and for suits and coats significantly lower.

In the case of specific purchase intentions, i.e., to buy a specific length or for a particular occasion, the measures for the shorter time period were invariably more effective.

Figure 7

Purchase Intentions and Behavior Under Short
and Long Time Intervals

	% of persons who intended to buy who actually bought for	
	Intentions measured at the beginning of period and purchase throughout the period	Intentions measured before each shopping trip and purchase at this given trip
Across all product lines	48%	45%
Pant suits	68%	43%
Skirts	47%	53%
Dresses	52%	27%
Suits	14%	55%
Coats	19%	68%
Above knee (for all products)	37%	61%
Knee length	21%	31%
Mid calf	29%	40%
Ankle	28%	40%
Everyday (for all products)	45%	45%
Special occasion (for all products)	27%	40%

Conclusions

Despite the limitations of this study, in particular the small sample and relatively short period of observation, a number of conclusions may be drawn:

1. Even in the highly uncertain fashion climate of fall 1970, purchase intentions provided a relatively efficient predictor of behavior.² In particular, a simple measure -- a 5 point scale -- had relatively high predictive ability. There was considerable variability in the predictive efficacy for different product categories and in relative efficiency of various measures of purchase intentions.
2. Measures of specific intentions were less accurate than measures of general intentions as predictors of behavior over an extended period of time, but more accurate than general measures as predictors of immediately subsequent behavior (i.e., a specific act)
3. Purchase intentions for novel fashion items were more accurate than purchase intentions for more common items.
4. Behavioral measures, such as trying on items, appear to have significantly better predictive power than verbal measures (i.e., stated purchase intentions or attitudes).
5. As might be expected, composite measures appear to be superior to single measures, though the difference between the best single measure was not substantial. Furthermore, there was little evidence of interrelation between various measures suggesting that more complex measures may not necessarily provide improved results.

In brief, therefore, the results of the study tend to confirm previous findings that behavioral intentions may effectively be used to predict purchase intentions. In addition, they suggest that simple measures, such as the 5 or 7 point scales currently used by various firms, and behavioral measures of intention to buy, may be the most appropriate types of measures. Further research on a larger sample under more controlled conditions is, however, needed before more definite conclusions can be reached.

Footnotes

¹

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²

This is particularly significant in view of the possibility of underestimation of the number of shopping trips which would tend to reduce the predictive efficacy of behavior.

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AN EXPECTANCY X VALUE ANALYSIS
OF THE RELATIONSHIP BETWEEN
CONSUMER ATTITUDES AND BEHAVIOR

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The field of consumer behavior has lived with a sort of "split personality" for some time; Dr. Jekyll, of course, being interested in basic research on consumer decision making and Mr. Hyde insisting on "successful applications" of behavioral theory to marketing practice. One of the results of this "marketplace schizophrenia" has been a conflict of purposes. For some, possibly those least committed to consumer behavior as an applied behavioral science, there has been a tendency to reject whole areas of research or sets of variables (e.g. personality, small group influence and basic psychological processes in general) and to search for variables exhibiting covariance with purchases, readership and the like. The most pragmatic would work with such predictors for their own sake, while others would try to relate these systematically to hypotheses specifying more general sets of conditions and relationships.

A strong behavioral science tradition in consumer behavior, however, has been emerging. As distinct from the thoroughly pragmatic point of view, the remarkably fertile laboratory of the marketplace is also being used to study the consumer for his own sake -- consumer behavior as a subset of human behavior -- rather than as an actual or potential purchaser or subscriber vis a vis a particular firm. Purchase of a product, in this framework, has value to the extent it is an adequate test of a hypothesis, and the extent of covariation between predictor and criterion variables is important as a guide to theoretical significance rather than market significance.

Though a certain tension results from the often conflicting goals of the two orientations, not only is some conflict inevitable, it may indeed be useful (as in a dialectic process) to the long run development of the field. Both orientations are legitimate and might best be seen as complementary to each other; permitting an analysis at different levels of aggregation and under various conditions. Evidence of a common ground may be seen in the generally favorable response to recent attempts to pull together and integrate much of the subject matter of consumer behavior. These models or "theories" of consumer behavior have helped to organize the field, to point out problems in need of further study, to provide common languages and frames of reference, and most importantly to spark the interest of many practitioners and students alike in more complete description and understanding of consumer behavior. It is, after all, in the realization of the great complexity of the phenomena under study and the knowledge that these preliminary models and theories are inadequate in dealing with this complexity that interest and enthusiasm for further work is engendered.

Truly comprehensive theories of motivated behavior must interrelate basic psychological processes (e.g. motivation, learning, perception) within goal-directed action sequences, these occurring in a dynamic and interactive environmental setting. An inclusive yet cohesive theory of consumer behavior, therefore, should detail the nature of the total process and particularly the functional relationships among interactive elements. To be adequate, such a theory must be more than a checklist of factors found to be

important in previous research and must be more, still, than a flowchart specifying for the list the usual temporal order of variables. It is necessary that the theoretical system from which deductions are to be made so specify the rules of symbolic manipulation that unequivocal tests of the theory are possible. Much has been written concerning the lack of specificity among theories in the behavioral sciences (e.g. in assumptions, definitions, scope), the conclusion of many being simply that the field is still too young to expect comprehensive theories to emerge from the data at hand.

This state of affairs has, in part, forged another link between the researcher interested in psychological functioning and the practitioner interested in predicting and modifying purchase behavior. For both, there was great reluctance to wait until all the theoretical "pieces" fit neatly together or to treat the consumer as a black box (or in the aggregate as a convenient probability distribution). For both, a key mediating variable, attitude, became a focal point. If we are unable to adequately trace the process of motive arousal, through the forming of expectancies as to goal satisfactions from among potential alternatives, assess revisions of these as a function of direct and indirect learning experiences, specify subsequent decision-making (1) across alternative motives and goals and (2) within a subset of object choices for a given motive; we can only hope to "short-circuit" the process in some way. One approach is to "tap in" to the decision process by measuring attitudes presumed to have a subsequent relationship to behavior. If this is the goal, then the orientation taken to the concept of "attitude" and the means of measurement and analysis used must be consistent with the goal.

An Expectancy X Value Orientation

Recent consumer research has featured the application of two somewhat similar models of cognitive structure (Fishbein, 1963, 1967a; Rosenberg, 1956, 1960). The first has its origins more in the behavioristic tradition (learned, mediating responses) following upon the work of Doob (1947), Osgood and his associates (1957, 1965), Staats & Staats (1958), and Rhine (1958), while the second is more in accord with the Michigan "functional" approach (Smith, 1949; Katz, 1960). Though a number of potentially important differences exist in the specification of variables making up the two models (Cohen & Houston, 1970), the application of either two-factor model to the study of consumer attitudes meets many of the requirements and purposes to be discussed.

The Fishbein model has benefited from increased development and extension in recent years enabling a sophisticated specification of the attitude-behavior relationship. Fishbein (1971) summarizes his adaptation of Dulany's (1967) theory of propositional control as follows:

The theory essentially leads to the prediction that an individual's intention to perform any behavior in a given situation...is a function of (1) his attitude toward performing the behavior in the situation and (2) his perception of the norms governing that behavior in that situation and his motivation to comply with those norms.

There are several aspects of this theory which differ considerably from those of previous formulations. First, the theory focuses on an attitude toward performing a specific behavior (e.g. purchase, product use) in a

particular situation rather than with an attitude toward a given person or object.² Behavior must, of course, occur under specific conditions at a specific time and place. Hence, if behavioral prediction is the goal, the researcher should specify the action(s) and the context in which the action is to take place. Public versus private use of a product may be more fundamental than conditions of purchase, the act of purchase itself often being incidental to the act of use.

A number of objections might be raised regarding this approach including the difficulty of specifying the exact context in which, say, consumers are likely to find themselves when using a product. To the extent this is true we should not expect to make predictions with especially high degrees of accuracy. It may, however, be the case that a small number of situational contexts, each thought to be probable, might be specified in advance for a given behavior. These could then be incorporated into the attitude measurement procedure and used in prediction (after assigning appropriate probabilities of occurrence).

Substantial variation among behavioral acts and across people is to be expected relative to the importance of normative considerations. Some work on the development of an interactive consumer-product typology incorporating perceived social conspicuousness is now under way and may prove useful in this regard (Cohen & Barban, 1970). To the extent that normative considerations are not likely to influence behavior they may simply be ignored (or weighted appropriately) in making predictions from the theory.

Attitudes, as considered above, should be expected to (and do in fact) predict behavioral intentions more accurately than they do purchase behavior itself. Part of this discrepancy results from operational factors. For example, behavioral intentions are generally measured at a closer point in time to the attitudinal measure than is behavior.³ Hence there is a greater opportunity for attitudes to change over the longer interval. This may be a particular problem in consumer research, since attitudes toward many products and brands, (1) may not be strongly held and (2) are subject to constant influence attempts through advertising and other information sources. In fact, it is certainly reasonable to expect many consumers to deliberately seek out information which, if accepted, would likely produce some restructuring of beliefs and attitudes and to do so at an increasing rate as they approach the time of decision. To the extent that either genuine attitudinal changes or disturbance factors (e.g. changes in economic conditions, special promotions, out of stocks) intervene between intentions and behavior, one should expect attitudes to predict the latter to a lesser degree.

At the heart of both the Fishbein and Rosenberg approaches is a structural model of similar algebraic form. Since our research utilizes a model of exactly similar form, we shall not present a formal statement of the other two models, but rather call attention to the essential characteristics of this class of models.

The model we have used is as follows:

$$A_b = \sum_{j=1}^n P_j I_j$$

where: A_b = a consumer's attitude toward a brand
 P_j = the brand's possession score on attribute j ,
 i.e. the extent to which a consumer believes
 that the brand possesses the j th product
 attribute or want satisfying property
 I_j = the importance of the j th product attribute
 and n = the number of salient product attributes

Rosenberg (1956), in a similar fashion, describes an attitude score, "as a function of the algebraic sum of the products obtained by multiplying the rated importance of each value associated with that object by the rated potency of the object for achieving or blocking the realization of that value [p. 367]."

Our model thus generates predictions according to an expectancy x value formulation. A brand is viewed favorably to the extent that it satisfies more important goals better than alternative brands. Were we to begin with a more basic model of motivated behavior (Atkinson, 1964) we might express this same notion as: $B_t = M \times E \times I$ where behavioral tendency (B_t) is a multiplicative function of: (M) the strength of motivation toward a goal, (E) the expectancy of attaining the goal through some action toward an object, and (I) the incentive potential of the goal object. For any M a number of alternative object choices are possible. Alternatives may be thought of as constituting a hierarchy based on their relative expected values ($E \times I$), thus generating a set of behavioral tendencies for a given motive. Since a number of competing motives exist at any given time, a single motive model of behavior is not adequate to predict that a specified action toward an object will occur, regardless of the object's standing in a given hierarchy. A more adequate conceptualization is needed, possibly specifying a system of behavioral tendencies within and across motives and a mechanism whereby the value of resulting tendencies could be compared to one's tendency to continue in his present activity (Cohen, 1971). The dynamic character of such a model is a further source of complication since both internal states and changing conditions tend to produce considerable variance around the estimates of B_t .

The attitudinal model thus is a surrogate for a more complete model of motivated behavior. Typically the attitude researcher ignores variability in the level of motive strength and degrees of conflict among motives. He, then, is interested in specifying the relationship between behavioral tendencies or intentions and ($E \times I$). Our version of this type of attitude model does this (1) by specifying the incentive potential of a brand in terms of the importance of each of a set of attributes or want satisfying properties generally thought to be salient, and (2) by equating perceived possession of each attribute with the expectancy of attaining that particular want or goal.

Summed over product attributes, then, the importance term represents the relative attractiveness of the product as a goal object. Summed beliefs regarding the extent of attribute possession represent the expectancy that behavior toward a particular brand will lead to attainment of desired states. The interaction of the two components serves, then, to weight a brand's possession of desired attributes by the relative importance of each attribute. We will shortly consider alternative (and, we feel, less satisfactory) ways of working with this type of data, such as by directly measuring only attribute possession and developing "importance" weights statistically on a post hoc basis.

This model approaches the difficult question of the content of motives, values and goals in an indirect manner. There is no effort made to trace the complex and often circuitous path through which a given motive (e.g. achievement, self-actualization) becomes manifest in behavior. Rather, respondents generate a set of want-satisfying properties (i.e. product attributes) perceived to be most important for the object in question. In a sense, the work load is shifted to respondents who, following an expectancy theory formulation, are thought to relate valued states to object choices during the process of product evaluation. It is, in fact, this evaluation process that we wish to "tap into" with our attitude measure.

We are of course dealing, then, with the "echo" of a motive rather than the motive itself, our knowledge of buying motives being entirely inferential (at best) through working backwards from product attributes. We clearly see this as a weakness of this approach as regards a more systematic view of motivation.⁴

To date, two research topics seem to have benefited the most from this type of approach: the study of attitude structure or components and the study of attitude-behavior relationships.⁵ In the context of the latter purpose, it is possible to regard investigations of attitude structure (i.e. the extent to which the models actually portray the interrelationships among attitude components) as tests of their validity. If, in this way, it may be established that a valid measure of consumer attitudes has been generated, one may then study the relationship between attitude and behavior with some confidence. In the absence of established validity, a researcher runs the risk that negative findings, especially, are ambiguous (i.e. is the relationship or the method "at fault?").

A growing number of studies by Fishbein and his associates provides impressive evidence regarding the relationship between scores on the Dulaney-Fishbein Model and behavioral intentions (an average multiple correlation of about .85; Fishbein, 1971). This may be interpreted as strong evidence regarding validity, at least over the range of attitudes and behavioral intentions studied. In addition, encouraging research has begun to appear using overt behavioral criteria, although many of the experimental settings used to date (e.g. Prisoner's Dilemma Game) may not be comparable to those generally studied in consumer behavior (Ajzen, 1969; Ajzen & Fishbein, 1970).

Applications of the Models in Consumer Behavior

Sheth & Talarzyk (1970) and Sheth (1970) have applied the basic Rosenberg-Fishbein approach to the area of consumer behavior. Their research has raised some interesting issues relative to the roles of (using our terminology) P and I components in determining "attitude" and to some extent behavioral intention and behavior.

Sheth & Talarzyk (1970) sought "to determine the relative contribution of perceived instrumentality and value importance factors" by running three types of regressions on a measure of affect ("attitude") for each of 30 brands of various products including toothpaste, mouthwash, frozen orange juice, toilet tissue, lipstick, and brassieres. Data came from 1,272 members of the Consumer Mail Panel of Market Facts, Inc. The first regression predicted variance in "attitude" as a function of the sum of the products of the two attitude components. The second and third regressions utilized one of the two summed components ("perceived instrumentality" and "value importance" respectively) by itself for the same purpose.

The authors found that the "perceived instrumentality" component model was superior to not only the "value importance" component model but also the combined model. The former result is not surprising, since "value importance" relates to product class attributes (e.g. for toothpaste: taste/flavor, decay prevention, etc.) and should not be an effective predictor of brand preference apart from some estimate of possession scores ("perceived instrumentality") for each brand. That is, it is not enough to know how important certain product benefits are unless we also know to what extent the consumer believes a given brand will provide those benefits.

The second result, however, is quite interesting. The authors express this well by stating that, "There is a clear implication that value importance not only does not have any strong correlation with attitude, but also that it suppresses the prediction of perceived instrumentality [p. 9]."

Is there any other explanation for this unexpected finding? A clue may come from the magnitudes of the r^2 's presented for each brand. Even with the "best" model, a substantial number of these (12 out of 30) indicate that less than 10% of the variance in "attitude" is being explained. While practically all of the r 's are statistically significant (when compared to the null hypothesis), in retrospect they seem unusually low for what should be a correlation between two measures of the same attitude. The criterion variable, "affect measured by the preference scale" (ranked), and the attitude measure derived from the Rosenberg model for some reason do not seem to vary together to the degree they should. Correlations between attitude scores generated by the Fishbein model and those of a measure of behavioral intention developed by Triandis, for example, have averaged .70 thus producing an $r^2 = .49$ (Fishbein 1967b). It is not unreasonable, then, to expect two measures of the same attitude to do about as well. In fact, not one of the thirty r^2 's in the "perceived instrumentality" regression was nearly this high. When we look at the r^2 's resulting from the regression using the Rosenberg equation, the lack of relationship is even more remarkable. Only three out of 30 r^2 's exceed .10, and a substantial number are practically 0!

To the extent that the criterion measure does not correlate highly with an established measure of attitude, it may be inappropriate to use it to evaluate modifications of the established measure. Not only may the criterion measure not be sensitive enough for this purpose, it may in fact lead to errors in evaluation if the lack of commonality reflects a systematic bias rather than random error.

One possible contributing factor to the lack of success Sheth and Talarzyk had with the two-component model is their decision to measure value importance by asking respondents to rate importance as "if you were designing an ideal brand for the category [p. 6]." Though they do not report means and variances for their data, one cannot help but wonder if an "ideal brand" could be anything other than more satisfying on the attributes deemed important. Hence under ideal conditions, relatively high mean importance scores and smaller variance on these would be expected. This is important since the magnitude of the correlation coefficient varies with the degree of heterogeneity of the traits being correlated (McNemar, 1969).

We must conclude, therefore, that though the Sheth-Talarzyk notion regarding the relative contribution of "value importance" warrants serious consideration, the data provided in support of this contention are not yet convincing. In addition, generally supportive evidence that both components add significantly to predictability is available from a set of four experiments conducted by Hansen (1969). We shall shortly introduce more data relevant to this issue.

In another paper, Sheth (1970) argues for a disaggregative analysis of evaluative beliefs as separate elements (rather than a summed attitude score). Essentially, this is the approach used by Banks (1950) in his multiple attribute analysis of brand preference and purchase of scouring cleanser and coffee. Banks suggests that the empirical determination of crucial product attributes may be quite valuable as a diagnostic tool in marketing management. Aggregating beliefs is likely to result in a loss of information, possibly even a canceling out of effects.⁶

We would also suggest that not only for the sake of more accurate behavioral prediction but especially for the analysis of attitude change, insight to be gained by studying the underlying belief structure is likely to be quite substantial (DiVesta & Merwin, 1960). For one thing, individual P and I elements should be more sensitive to changes in product perception (Krugman, 1965) which define the nature of the product. For example, the nutritional value of breakfast cereal may come to assume a greater importance (I) for many people as a result of recent nutritional evidence.

Individual brands' possession scores (P) on this product attribute should also change with greater knowledge.

In Sheth's disaggregative approach, evaluative beliefs underlying consumers' attitudes toward three brands of "instant breakfast" were measured directly. Regression weights were then calculated for each of these. Sheth reports that this procedure increased predictive power relative to prior summation of beliefs. The average R^2 varied from approximately .60 for affect, to .27 for buying intention, and to less than .05 for behavior. The substantial reduction between buying intentions and behavior is, of course, somewhat discouraging, though several possible explanations for this are discussed.

One way of looking at Sheth's approach is that rather than specifying importance weightings (I_j 's) through direct measurement, he prefers to determine these from the data in the form of beta weights as did Banks (1950). While this procedure may provide a good fit for the sample upon which the weights were calculated, the real test of this approach may be its ability to predict an appropriate criterion variable for a new sample. We shall return to this later. A second point to consider in evaluating the contribution of the I_j terms (or any predictor variable) is that a lack of sample variation (e.g. too high agreement on the relative importance of each product benefit) will greatly dampen the potential effect of that variable. Thus Sheth's work raises the very interesting question as to whether attribute importance is likely to explain as much of the variance in purchase behavior (at least for established products on which substantial consensus regarding product benefits exists) as it should for more idiosyncratic behavioral choices.

Research Plan and Procedures

The purpose of our research was to evaluate several alternative ways of treating data from a Fishbein-Rosenberg type of model, namely:

$$A_b = \sum_{j=1}^n P_j I_j$$

The following alternatives were to be evaluated:

- (1) Both components multiplied together and summed
- (2) Both components multiplied together but not summed
- (3) Possession scores by themselves and not summed
- (4) Importance scores by themselves and not summed
- (5) Possession scores and importance scores by themselves and not summed

The first three appear to be the more meaningful approaches. The first represents the traditional method of handling the data, while the third has been suggested by research reviewed in this paper. The second approach seemed to us to be the most appealing of all. This model has the advantages of a disaggregative approach to determining the underlying belief structure without giving up the unit of analysis ($P_j I_j$) which seems the heart of the Fishbein-Rosenberg approach. That is, $P_j I_j$ represents (in a single score) the extent to which a consumer believes that a brand possesses a product attribute weighted by the perceived importance of that attribute. Approaches four and five are used to provide a more complete analysis of alternatives, although the meaning of a weighted importance score (bI_j) is not altogether clear.

Accordingly, a product comparable to those used in related studies (toothpaste) was selected. Interviews with a convenience sample of approximately 40 consumers indicated that essentially the same five attributes or product benefits (appearance, decay-cavity prevention, breath freshness,

low price, and taste) as those used by Sheth & Talarzyk (1970) were probably most salient. A questionnaire was developed to establish scores for each of these attributes on the six leading brands of toothpaste sold in the area as well as importance scores on these attributes. Several criterion variables were measured, however our analysis has been confined to "frequency of purchase." Although this variable has the drawback of referring to past behavior (hence it does not seem appropriate to speak of behavioral prediction), it was felt to be the most meaningful criterion available on which to evaluate the five alternative models. Although based upon recall of past behavior, the criterion represents a pattern rather than an isolated incident (and, therefore, may be more reliable). Some bias may be present, however, to the extent recall of behavior is influenced by current attitudes. By the same token, of course, same-time measures of anticipated behavior or behavioral intention are likely to be biased so as to be consistent with attitudes. Frequency of purchase was measured along a five-point scale from "never" to "most of the time."

Attribute possession and importance scores were measured along nine-point scales specially developed for this purpose (Cohen & Houston, 1970). Both scales were tied to visual frames of reference and emphasized comparative bases for evaluation (i.e. P scores by attribute across brands and I scores across attributes).

Data were obtained from a probability sample of 192 people (more specifically, the person in the household who usually purchased toothpaste) in the Champaign-Urbana area.

Results and Discussion

Table 1 presents a summary of the coefficients of determination for frequency of purchase by model.⁸ Each of the R^2 's has been adjusted downward to provide unbiased estimates (McNemar, 1969). If one is willing to accept

Table 1
Coefficients of Determination for
Frequency of Purchase

Brand	Model 1	Model 2	Model 3	Model 4	Model 5
Pepsodent	.24	.24	.23	.01	.22
Macleans	.22	.25	.25	.00	.25
Gleem	.24	.23	.24	.00	.22
Ultra Brite	.37	.37	.39	.07	.41
Colgate	.14	.25	.24	.10	.31
Crest	.10	.31	.31	.08	.31

Note.--Adjusted R^2 values are presented for models 2 through 5.

the contention that the criterion variable is somewhat closer to being an index of behavior than it is to being a cognitive variable, the magnitude of the relationships is reasonably encouraging. The R^2 's are substantially higher than those found by Sheth (1970) for the attitude-behavior relationship. In fact they come quite close to the R^2 's he reports between evaluative beliefs and behavioral intention, both measured during the same telephone interviews.

As expected, Model Four shows very little association with behavior toward brands. Information concerning the importance of an attribute by itself (i.e. in the absence of perceptions regarding attribute possession) seems of little value for predictive purposes.

There is little to choose among the other four models in terms of the R^2 criterion. The only substantial difference among them is Model One's relatively poor performance for Crest and Colgate. In aggregating evaluations of the two leading brands, a somewhat curtailed and skewed distribution of scores on both predictor and criterion variables resulted, thus almost certainly reducing the effectiveness of Model One.

For reasons discussed earlier, however, we feel that the disaggregative models are to be preferred for the insight they provide into the underlying belief structure of consumer attitudes. The reader may wish to examine the beta weights provided in Table 2 in this regard though far more penetrating analyses of this same data are possible such as by first breaking the sample down according to brand usage patterns. Relatively little variance in beta weights was found for Models Two and Three, although for example, Colgate seems to be treated somewhat differently. Such weightings may prove to be particularly sensitive indicants of changes in brand perception as a result of modifications in the product itself or in advertising themes.

There is little chance of being carried away by the "success" of the attitudinal model. Over 70% of the variance in behavior (and these data may not be as "hard" as would be desirable) is unexplained by the models. A good deal has been written as to why we should not expect to be able to predict behavior "perfectly" using attitudinal or any other kind of information. Still, we are very far from being perfect.

There are a number of explanations for the consistent "failure" (in terms of magnitude) of attitude-behavior relationships to live up to expectations. For one thing, of course, we simply may have overrated the extent of the relationship between any single intervening variable and subsequent behavior. As Doob (1947) pointed out, not only must attitudes be learned, but responses to the attitude as well. Perfect correspondence, then, may not be present at a single point in time; the further removed are the measures of both, the greater the opportunity for subsequent learning and genuine yet unmeasured changes. Put another way, both overt behavior (e.g. purchase) and responses to attitude scales are acts of behavior, each having a set of non-overlapping or unique elements. To the extent that the two are responses to somewhat different stimuli and conditions, something less than perfect correspondence must be expected (Rokeach, 1968).

Secondly, problems of unreliability plague measurement in this area attenuating the extent of whatever underlying or "true" relationship exists between attitude and behavior. Though statistical means of correcting for attenuation are available (McNemar, 1969) they are of limited practical value. As Fishbein (1972) has pointed out, it is ironic that careful attention is commonly paid to attitude scale construction, while researchers are often content with a single act, single observation behavioral criterion measure. The latter, of course, is analogous to a single item attitude scale administered once under uncertain testing conditions, a procedure few would defend as leading to reliable estimates. The use of multiple criterion

Table 2

Beta Weights for Attributes

	Pepsodent		MacLeans		Gleem		Ultra Brite		Colgate		Crest	
	Model 2	Model 3	Model 2	Model 3	Model 2	Model 3	Model 2	Model 3	Model 2	Model 3	Model 2	Model 3
Appearance	.040	.056	.293**	.180	.108	.068	.224*	.144	-.028	.103	-.168*	-.113
Decay prevention	.208*	.226*	-.052	-.020	.191*	.113	.141	.184*	.064	.113	.534***	.459***
Breath freshness	.105	.028	.037	.076	-.023	.148	.033	.055	.260*	.261*	-.134	-.109
Low price	.192*	.145	.040	.093	.087	.027	.038	.026	.071	.066	.154	.082
Taste	.080	.111	.265**	.255*	.235*	.215	.281**	.295**	.245**	.035	.223**	.277**

Note.--Model 2 incorporates both components (P_{1j}) while Model 3 uses the (P_j) component by itself.
T ratios are used in tests of significance.

*p < .05

**p < .01

***p < .001

measures (Campbell & Fiske, 1959; Rokeach, 1968; Fishbein, 1972) would be a substantial improvement. Those holding favorable attitudes toward a product, for example, should manifest this preference in a variety of ways including: favorable comments, positive evaluation of advertising appeals, and greater recall of advertising appeals, in addition to patterns of purchase.

A third reason why relationships between attitudes and behavior typically fall short of expectations, we shall argue, is due to the customary method of analyzing such data for predictive purposes. Probably the most frequently used technique is regression analysis. One of the assumptions of models of this form (e.g. regression, correlation, canonical correlation) is not only that specifying the predictor(s) variable(s) reduces the variance of possible criterion values, but in addition that the rate of change -- unit change in the predictor set per unit change in the criterion set -- is systematic and continuous (e.g. linear, curvilinear). Regression coefficients specify these rates of change. How reasonable is this assumption?

A single act of behavior has certain unique characteristics as well as those common to the set from which it was sampled. Situational characteristics, moods, and unpredictable variations in necessary and sufficient conditions for the behavior combine to make any single act of behavior a potentially unreliable indicant of "true behavior." To the extent that unreliability (beyond that of isolated and random fluctuations) is a prevailing characteristic of the phenomena under study the pattern of behavior taken as a set or whole may constitute a far more meaningful test of prediction. To what extent is single-trial purchase behavior subject to factors likely to bring about systematic unreliability?

Though not all marketing activities may be successful, a common purpose may be seen in them: to keep one's customers and to attract new ones, usually from competitors. Looking at this from the standpoint of a particular customer; great sums of money, years of experience and marketing expertise culminate in attempts to woo, cajole, interest, and induce him to behave in alternative directions (i.e. toward various brands) at the same time. It is as if our proverbial consumer were being seduced from all sides, each firm making itself particularly attractive and the act itself as easy and pleasurable as possible! And what about our consumer's willpower, his determination to keep to the straight and narrow, to be loyal to one brand? What are the costs, the implications of (in this case) brand switching? What is the magnitude of the mistake he might make by buying that other brand of soap, margarine or cola? We submit that variability in behavior is not only a logical outcome of market forces but of the consumer's own desire to satisfy his own needs by obtaining continually more desirable assortments of products (not to mention the value of novelty itself). The norm, then, should be trial and error learning, and the picture that emerges is one of starts and stops, now "on," now "off." The frequency of purchase for any given brand should be characterized by marked deviations in a consumer's behavior, not necessarily preceded by changes in attitude but possibly followed by changes in attitude (Krugman, 1965).

And what about sheer quantity of brand purchased as a criterion measure? Are we not to expect that the more favorable the attitude the more the consumer will purchase of a specific brand? As Banks (1950) points out, quantity is affected by many things in addition to preference (e.g. size of family, consumption habits, shopping habits, income).

Finally, what is it we want to predict; purchase on the next trial, number of units to be purchased over the next several trials or months, or which brand a consumer will customarily purchase? If the first, the influence of unique and situational factors is likely to be great, and our measures must be quite specific to these and as close in time to the behavior as possible. If the second, a broader model (attitude being only one of the dimensions)

incorporating additional factors thought to vary with quantity must be used. Only in the case of the latter prediction does a generalized measure of attitude (of the type outlined in this paper) seem to hold promise for strong relationships. In the latter case, regression is not the appropriate method of analysis. More meaningful and significant results should be obtained using discriminant analysis, which has as its purpose the classification of a set of objects -- in this case consumers having different brand purchase patterns -- by a set of predictor variables -- in this case attribute possession and importance scores.

Results of Discriminant Analysis

Of the six brands for which we had gathered attitudinal and behavioral data, three had sufficient numbers of consistent purchasers to be included in the analysis. Seventy eight Crest buyers, 29 Colgate buyers and 17 Ultra Brite buyers indicated that they purchased their respective brand more often than any other combination of brands. Discriminant functions, tests of significance and degree of association, and respondent classification tables were calculated for the aggregative ($\Sigma P I$) and two competing disaggregative models ($P \times I$ versus P). These findings will be summarized below. A more technical discussion of this application of discriminant analysis procedures is available elsewhere (Cohen & Ahtola, 1971).

Table 3 reveals that the more traditional aggregative model incorporating attribute possession and importance scores was quite successful in predicting group membership (i.e. Ultra Brite, Colgate, and Crest buyers). A customary test of significance for the null hypothesis of equality among

Table 3

Discriminant Analysis For Model One ($\sum_{j=1}^n P_j I_j$)

Discriminant functions	df	Eigenvalue	% Trace	Test of significance	P	$\hat{\omega}^2$
$V_1 + V_2$	6/238	.7216	100.00%	$F_2 = 13.882$	.001	.4403
V_1	4	.5322	73.75	$\chi^2 = 51.631$	.001	
V_2	2	.1894	26.25	$\chi^2 = 20.981$	.001	

Classified	Actual			
	Ultra Brite	Colgate	Crest	Total
Ultra Brite	8	3	6	17
Colgate	2	13	1	16
Crest	7	13	71	91
Total	17	29	78	124

Note. -- Percentage Correctly Classified = $\frac{92}{124} = 74.19$

the population centroids is Wilks' lambda using the F approximation developed by Rao (1952). This tests the discriminating power of, here, two discriminant functions (one less than the number of groups) in terms of the extent of "separation" (roughly, $\lambda = \frac{SS_b}{SS_w}$). Through the use of discriminant analysis the two sums-of-squares are expressed in terms of a weighted linear combination of, here, the summed attitude scores for each of the three brands. These weights maximize the value of λ , the eigenvalue associated with each discriminant function, subject to the constraint that each successive discriminant function constituting the discriminant space possesses maximum variance among linear combinations uncorrelated with the first, and so on. The relative magnitudes of the two eigenvalues indicate the percentage of the trace (total discriminating power contained in the two discriminant functions). Each discriminant function, V_j , is distributed approximately as a chi-square with $p + k - 2j$ degrees of freedom where p = variables and k = groups (Tatsuoka, 1970).

Thus, both discriminant functions represented dimensions along which significant differences among the Ultra Brite, Colgate and Crest buyers were found.⁹ High statistical significance does not, however, imply a strong degree of association between predictor and criterion variables, especially when the sample size is fairly large. A measure of discriminatory power, $\hat{\omega}^2$ (omega squared) has been generalized to the multivariate case (Hays, 1963, p. 382; Tatsuoka, 1970) and provides a measure similar to R^2 in multiple regression analysis. It may be interpreted as the extent to which the relative reduction in the variance (or uncertainty) associated with a criterion is conditional upon the values of the predictor variables. Table 3, then, indicates that approximately 44% of the variance in the discriminant space was relevant to group differentiation. This seems most encouraging in terms of the ability of the attitudinal predictors to account for consistent differences in patterns of brand purchasing behavior. We have also presented classification matrices showing the percentage of respondents correctly classified by the discriminant functions. Since this classification is performed on the same set of respondents from which the discriminant function is calculated (The sample was too small to save part of the data strictly for this purpose.), an upward bias is present in the results. A comparison over the three models, however, may be useful as may this complementary way of looking at discriminatory power despite its upward bias. In comparison with the $\hat{\omega}^2$ criterion, classification matrices leave a good deal to be desired since the decision rule used is, in essence, "which group" rather than one of "degree of similarity." Hence a model lower in variance explained may seem to be superior on the latter criterion by correctly classifying a set of marginal individuals.

Model One correctly classified 74.19% of the respondents. The procedure used was essentially Bayesian (Cooley & Lohnes, 1962) incorporating both differences in frequency of occurrence of membership in the three groups and differences in group dispersion. How good any such classification is depends upon the purpose of the classification. If the purpose were only to maximize the percentage correctly classified we should use a maximum chance criterion (Morrison, 1969) by way of comparison. Since the percentage distribution of respondents in the sample is as follows: Ultra Brite, 13.7; Colgate, 23.4; Crest, 62.9; we could classify 62.9% correctly by assigning everyone to the Crest group. The limitations of this criterion are obvious since we commonly seek to identify members of each group, not simply maximize the percentage correctly classified. The proportional chance criterion seems a more appropriate standard for comparison. Simply stated, if we would classify respondents according to the actual percentages represented in the sample, we would classify 46.9% of the sample correctly (Morrison, 1969). Model One did considerably better than that.

Turning now to Model Two (See Table 4) we can see the far greater power of our disaggregative treatment of attribute possession and importance scores. Discriminant functions were calculated from the five P x I scores

Table 4

Discriminant Analysis For Model Two (P_jI_j)

Discriminant functions	df	Eigenvalue	% Trace	Test of significance	P	ω^2
V ₁ + V ₂	30/214	1.5699	100.00%	F = 5.395	.001	.6687
V ₁	16	1.1037	70.30	$\chi^2 = 85.874$	.001	
V ₂	14	0.4662	29.70	$\chi^2 = 44.011$	.001	

Classified	Actual			
	Ultra Brite	Colgate	Crest	Total
Ultra Brite	11	0	1	12
Colgate	2	23	4	29
Crest	4	6	73	83
Total	17	29	78	124

Note. -- Percentage Correctly Classified = $\frac{107}{124} = 86.29$

for each of the three brands (thus 15 predictor variables in total). Both discriminant functions were highly significant; over 66% of the variance was explained by the two together.¹⁰ In addition over 86% of the respondents were correctly classified.

Table 5 indicates that a very similar degree of relationship was obtained when possession scores were used by themselves as predictors. Over 65% of the variance was explained, a little more than 1% less than Model Two. The relative contribution of the two discriminant functions in each case was about the same, the first (and most discriminating) had a very slight relative advantage over the second when both components were used (Model Two). Model Three correctly classified one additional respondent more than Model Two. Clearly, then, our results indicate that there was little increase in predictive power associated with the addition of attribute importance scores. We do not find any evidence, however, for the "suppressor" effect noted for this component by Sheth & Talarzyk (1970).

Theoretically, at least, attribute importance should make more of a contribution than has been found in several of the studies in the consumer behavior area (including our own). Several hypotheses have been suggested for the weak relationship. Sheth & Talarzyk (1970) suggest that "value importance is probably already incorporated by the respondent [p. 12]" when he assigns ratings on the perceived instrumentality (attribute possession) component.¹¹ To see if this could help explain our findings, we calculated intercorrelations of the two components by brand for each attribute, and as

an overall index of intercorrelation between the two sets of predictors, canonical correlations by brand. These results are presented in Table 6.

Table 5

Discriminant Analysis For Model Three (P_j)

Discriminant functions	df	Eigenvalue	% Trace	Test of significance	P	ω^2
$V_1 + V_2$	30/214	1.4836	100.00%	$F = 5.136$	.001	.6546
V_1	16	1.0168	68.54	$\chi^2 = 80.673$	.001	
V_2	14	.4668	31.46	$\chi^2 = 44.057$	.001	

Classified	Actual			
	Ultra Brite	Colgate	Crest	Total
Ultra Brite	15	1	3	19
Colgate	0	21	3	24
Crest	2	7	72	81
Total	17	29	78	124

Note. -- Percentage Correctly Classified = $\frac{108}{124} = 87.10$

Table 6

Intercorrelations Of P And I By Brand

Attribute	Ultra Brite	Colgate	Crest
Appearance	.25	.10	.35
Decay prevention	-.02	-.09	.35
Breath freshness	.20	.16	.15
Low price	.03	.15	.24
Taste	.20	.08	.12
Canonical Correlation			
All attributes	.45*	.45*	.52**

*p .05, N = 124

**p .001, N = 124

Even though significant correlations were found between the two sets of measurements (using chi square approximations for lambda; Bartlett, 1947; Cooley & Lohnes, 1962) the high degree of association needed to argue that, in effect, only one component is needed -- since it is measuring the same factor -- is not present.

In order to take a slightly different view of the problem, a discriminant analysis similar to those discussed earlier was run using only attribute importance scores (i.e. five predictor variables). We had earlier designated this approach as Model Four in the regression analysis segment. Would there be any meaningful discriminatory power in a set of predictors whose point of reference was not differences among brands at all but rather the importance of the product attributes themselves? Results indicated that approximately 20% of the variance ($\hat{\omega}^2 = .1993$) can be explained using only attribute importance scores. While, taken by itself, this is not a high degree of association, still it is not inconsequential. When the moderate degree of correlation between attribute possession and importance scores is taken into consideration, the tentative conclusion emerges that attribute importance has potential significance and is not being adequately measured through attribute possession scores.

The question of lack of contribution still remains when attribute importance was combined with the far more discriminating attribute possession component as applied to our data. One conclusion is inescapable when the two sets of scores are compared: there is much less variation in perceived attribute importance regardless of brand preferred than there is in perceived attribute possession across brands. Table 7 presents the mean evaluations of each component by brand within groups. Importance scores, which are based on respondents' evaluations of want-satisfying characteristics of the product class, exhibit little variation per attribute across purchaser groups. Possession scores, on the other hand, are a direct function of brand characteristics and show considerable variability depending on (1) which group of purchasers is doing the evaluation and (2) which brand each group is evaluating. Some idea of the extent of the differences in variability for the two components may be seen by looking at the range of mean differences over groups and, for possession scores, by brand. Though these are average evaluations by groups, and therefore do not exhibit as much variability as would be found among individuals, the range of attribute possession scores was not only consistently high but dramatically greater than that of importance scores. As McNemar (1969) has pointed out, correlations based upon variables restricted in range must be relatively low. Their contribution to a model such as this, then, must be limited.

A number of factors combine to increase the variability of P scores relative to I scores. First, of course, brands do in fact differ in their possession of desired attributes. Secondly, advertising and promotional appeals are typically used to further differentiate brands from one another. In addition, post-purchase psychological processes often operate so as to "spread apart" evaluations of alternatives considered for purchase on the very attributes used for brand evaluation (Cohen & Houston, 1972). In total, there are 30 "own brand versus other brand" comparisons (e.g. for Ultra Brite users; Ultra Brite versus each of the other two brands on five product attributes) across the three consumer groups (See Table 7). On all 30, the evaluation is in favor of the brand used! Thus, ratings of attribute possession are not only variable but consistent with brand customarily used. It is little wonder, then, that they would be a valuable correlate of brand choice.

Table 7

Mean Evaluations of P And I By Brand Within Groups

Attribute	Ultra Brite(N=17)			Colgate(N=29)			Crest(N=78)		
	Ultra Brite	Col-gate	Import-ance	Ultra Brite	Col-gate	Import-ance	Ultra Brite	Col-gate	Import-ance
Appearance	8.06	4.35	7.71	3.62	6.38	6.10	3.96	3.81	6.50
Decay prevention	6.76	5.29	8.29	2.83	7.38	7.79	2.46	4.74	8.77
Breath freshness	7.65	4.53	7.24	4.28	6.97	7.34	3.67	4.22	6.64
Low price	6.76	5.18	4.41	3.14	5.72	5.55	2.95	3.90	4.53
Taste	7.71	4.29	6.59	3.90	7.14	6.83	3.26	4.51	6.05

Range of Mean Differences

Attribute	Range of Mean Differences	
	P	I
Appearance	4.44	1.61
Decay prevention	5.69	.98
Breath freshness	3.98	.70
Low price	3.81	1.14
Taste	4.45	.78

Conclusion

An attitude model incorporating respondents' evaluations of attribute possession (by brand) and attribute importance was developed along lines suggested by expectancy x value theory. Several alternative ways of treating data based on the model (relating attitudes toward brands of toothpaste to reported brand use over prior periods) were then considered. Two disaggregative approaches -- one incorporating only attribute possession scores and the other both components -- were found to be superior to initially summing component scores and thereby weighting each equivalently.

Little difference was found for predictions based upon the two-component model compared to a model using attribute possession scores by themselves using both multiple regression and multiple discriminant analyses. A number of factors were advanced to account for the lack of difference.

One of these concerns the inadequacy of testing a predictive model on the same sample used to generate weights for predictor variables. The multiple correlation coefficient, for example, represents an optimal state of affairs: the maximum correlation to be expected between the criterion variable and (a linear combination of) predictor variables. The empirical determination of regression coefficients insures an optimal weighting of variables. This, or course, means that advocates of a one-component approach are put in a most ambiguous position in arguing the adequacy of their model: they cannot know the extent to which regression weights incorporate the contribution of the second component on a post hoc basis. To the extent they do, the model would appear to be less desirable from the standpoint of prediction. A direct measure of both components for the second sample should be more accurate than the use of one direct measure with functional relationships among terms (for both models) specified by weights derived from earlier data.

Theoretical justification exists for a two-component approach. Specific applications (certain products, objects, issues) may not benefit as greatly from the inclusion of the attribute importance component, though no evidence for diminished predictive power as a result of its inclusion was found. The relative contribution of attribute importance in predicting behavior may be a direct function of the amount of disagreement among consumers as to the value of the product benefits possessed by members of the product category. For products on which substantial consensus exists in the ordering and nature of wants and goals served, attribute importance, while theoretically sound, should be of reduced practical significance. Arguments were presented in support of multiple discriminant analysis (relative to regression analysis) for the kinds of predictions generally thought to be tractable in relation to attitudinal variables. Considerable success ($\hat{Q}^2 = .67$) was observed in the application of discriminant analysis to the data.

Footnotes

¹Appreciation is expressed to Michael J. Houston for his help in supervising the field study and in data processing.

²Rokeach (1968) makes a similar point regarding the importance of both object and situation. He chooses to assess both A_o and A_s (attitudes toward the object and situation respectively) and determine weightings for each.

³If behavioral intentions are measured at the same point in time as attitudes using roughly similar measurement techniques, it is not clear that they should be regarded as anything other than a related (e.g. more focused) measure of attitudes.

⁴Rosenberg (1956) offers a far richer treatment of motives and values. Building upon the work of Murray (1938) and White (1951), Rosenberg obtains measures of more basic and central needs and values in his two-component model.

⁵There seems good reason to believe that this type of approach can be applied successfully to the study of attitude change. Though this has not been a prime focus to date, the specification of underlying cognitive structure rather than merely degree of affect suggests the possibility of estimating information relevance and effect. Such a research program is now underway under the direction of the senior author.

⁶Looking at this another way, it is possible to imagine a profile of competing products in terms of P_j 's, which together with importance weightings (I_j 's) tend to describe patterns of similarities in product judgments. Such data might then be used to evaluate market opportunities and segmentation strategies, to design products and product appeals, and to maintain a continuous audit of changing consumer desires and product information. Many of these objectives can be approached using multidimensional scaling techniques without prior specification of attribute dimensions. Although the approach suggested here may be more direct and less subjective (e.g. in interpreting dimensions), a meaningful comparison must await appropriate research. It does seem clear, however, that a great deal of information regarding the bases of consumers' attitudes toward a product can be learned from a disaggregative analysis of belief structure.

⁷No indication is given as to whether the R^2 's have been adjusted downward to provide unbiased estimates (McNemar, 1969). However, since sample size is large relative to the number of variables in the equations little change should result.

⁸See Cohen & Houston (1970) for a discussion of procedures used in regard to skewness present in the data.

⁹Further discussion of the interpretation of the discriminant space in terms of product attributes is contained in Cohen & Ahtola (1971).

¹⁰Unfortunately, there is presently no reliable method of correcting $\hat{\omega}^2$ for the number of predictor variables used, and some upward bias is likely.

¹¹Actually, their argument seems more a critique of weaknesses in measurement than of theory. Since value importance has theoretical merit it would seem reasonable to evaluate its potential contribution. This, of course, cannot be achieved unless an adequate and separate means of measurement is used by the researchers.

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THE RELATIONS AMONG ATTRIBUTE AND IMPORTANCE COMPONENTS

OF ROSENBERG-FISHBEIN TYPE ATTITUDE MODEL:

AN EMPIRICAL INVESTIGATION

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Various models of attitude have recently appeared in the marketing literature (e.g. models of Osgood & Tannenbaum, 1955; Rosenberg, 1956; Rokeach & Rothman, 1965; and Fishbein, 1967). The work of Rosenberg, Fishbein and others has indicated strongly that an individual's attitude toward any object is a function of his evaluative beliefs about that object (Fishbein, 1967).

Rosenberg and Fishbein models, in particular, have been used to examine the underlying structure of attitudes and their relations to affect and behavioral intention (brand preference) and behavior (brand choice). Sheth (1970) investigated the theoretical links among beliefs, affect, behavioral intention and behavior regarding brands of a convenience good product. He found that evaluative beliefs (information about a brand on a set of relevant characteristics), when used separately in a multiple regression analysis, provided good predictors of both affect (general like or dislike of a brand) and behavioral intention (verbal expression of intent to buy the brand); however, they proved to be better predictors of affect than of behavioral intention. In addition, when evaluative beliefs were summed, substantially lower association resulted between attitude and behavior. Sheth and Talarzyk (1970), in their study of the cognitive structure of consumer attitudes, applied the functional relationship of Rosenberg's theory to brand preference and attitude data. The analysis consisted of regressions on the two attitude components (i.e., perceived instrumentality and value importance) which were treated, in a summed form, both by themselves and when multiplied together. They noted that of the two components of the model, the perceived instrumentality factor was a better predictor of preference (a measure of attitude). Moreover, generally lower associations were obtained when the two factors were multiplied (perceived instrumentalities weighted by value importances). Cohen and Houston (1971) examined the composite structure of Rosenberg-Fishbein attitude construct. They evaluated the use of attribute possession and importance scores in the prediction of consumer behavior toward brands by treating the components (by themselves and multiplied together, both separately and in a summed form) as predictor variables in a multiple regression analysis. The results indicated that: (a) attribute importance scores were poor predictors of behavior toward brands, and (b) inclusion of the attribute importance scores did not improve the behavioral prediction of the attribute possession scores.

It is generally suggested, based on Rosenberg-Fishbein approach, that attitude toward a product is a function of the sum of perceived attributes (perceived instrumentality or strength of belief aspect) weighted as to their importance (value importance or evaluative aspect) possessed by that product. However, this multiplicative relationship as well as the extent of contributions by these two components in determining a consumer's attitude toward a product remains an important and unresolved issue in attitude research and the area of consumer behavior. Further investigation of this issue should precede any attempt to test the attitude-behavior relationships as the next linkage

along a hierarchical sequence of effects (i.e., cognitive, affective, and conative dimensions).

Research Objective

The objective of this study is to examine the relative importance of the two components of Rosenberg-Fishbein type model in determining a buyer's attitude. The model for this research can be represented as follows:

$$A_x = \sum_{i=1}^n W_i B_{ix}$$

Where: A_x = a subject's attitude toward a particular product or brand x

W_i = the importance or weight of attribute i

B_{ix} = the product's satisfaction score on attribute i; subject's belief about attribute i for product x

n = the number of product attributes.

Traditionally, it is suggested that a consumer's attitude toward any product is a function of his beliefs about the product in terms of product attributes and the importances of these attributes; the consumer prefers the product toward which he expresses the more favorable attitude. The aim of this research is to show that the buyer's attitude toward a product can be determined mainly from the attribute scores; the importance criteria is not a major contributor. In other words, the saliences (importance or weight) of the various product attributes are inherent in the attribute scores.

The central focus of this study is to examine the underlying cognitive structure of attitudes by evaluating relative contributions of product attribute and importance scores in determining consumer attitude (affect or preference) toward a product. Previous studies in this area have considered only a group as the experimental unit and thus have been limited in their scope of analysis to regression technique. The theory is meant to depict an individual rather than a group construct. Generalizing the individual model across subjects leads to response circumstances that are confounded and difficult to isolate (the response sets are constant within but not across subjects). The individual analysis is conceptually the proper one to use and the high correlation values presented in a later section of this study clearly argue for this conclusion. This research presents a stronger case by: (a) considering both the individual and a group as the unit of observation (Wicker, 1969), (b) considering the components by themselves and multiplied together, both separately and in a summed form, and (c) bringing to bear upon the problem various techniques of correlation, regression, and multidimensional scaling (MDS).

Data for the Experiment

The sample space consisted of 40 housewives selected randomly from Columbus, Ohio. The following information for 9 brands of headache and pain remedies were collected:

Section 1. Each housewife was asked to rate each brand on 9 attributes,² using a 6-point scale ranging from 1--satisfactory to 6--unsatisfactory. The list of brands and attributes appear in Table 1.

Section 2. Each respondent was also asked to evaluate these attributes in terms of importance on a 6-point scale, ranging from 1--important to 6--unimportant.

Section 3. The respondent was asked to rate the 9 brands in terms of preference, using a 10-point scale ranging from 1--most prefer to 10--least prefer.

Section 4. The participant was also asked to rank the same 9 brands in order of preference from 1 to 9.

Table 1

List of Brands and Characteristics

Brands	Attribute
Rexall Aspirin	Pleasant taste
Alka Seltzer	Low price
Empirin	Speed of relief
Bufferin	Few side effects
Anacin	Easy to take
Bayer	Dissolves fast
Bromoseltzer	Extra strength
Excedrin	Many ingredients
Vanquish	Relieves headache and pain

Analysis and Results

Correlation Analysis

For the individual analysis, two attitude scores were calculated for each brand for each individual using the following formulations:

$$A_x = \sum_{i=1}^9 W_i B_{ix} ; \text{ attitude as a function of weighted attribute scores}$$

$$A_x = \sum_{i=1}^9 B_{ix} ; \text{ attitude as a function of unweighted attribute scores}$$

Preference rankings were obtained for each respondent (on the basis of the more favorable the attitude the more preferred the brand) from these attitude scores (Talarzyk & Moinpour, 1970). These derived preference rankings were compared to the stated preference rankings via the Spearman rank difference correlation coefficient. As indicated in Table 2, the addition of weights has not improved the results. In fact, the unweighted attribute scores appear to be better determinants of subjects' attitudes toward products. Measures of the sum of weighted attribute scores (suggested by the Rosenberg-Fishbein model) were expected to correlate highly with the stated preference measures. They are both indicants of the same notion, attitude. It is important to note, however, that when weights were deleted, higher correlations between measures of the sum of attribute scores and stated preferences resulted. Sheth and Talarzyk (1970) reached similar conclusions via a different approach (the regression technique); the weights (value importance), in their study, in fact suppressed the predictive power of attribute scores (perceived instrumentality) in determining attitude (preference). Our findings add credence to Sheth and Talarzyk study whose results were suspect because of low values of the coefficients of determination.

Table 2

Summary of Correlations for Two Models

	Unweighted Attribute	Weighted Attribute
Range of Spearman Rank Difference Coefficients	0.111 to 0.976	0.173 to 0.976
Number of Correlation Coefficients <0.50	5	7
Number of Correlation Coefficients >0.90	13	10
Number of Coefficients Significant at 0.01 level	20	14
Number of Coefficients Significant at 0.05 level	30	27

Note.--Correlation coefficients were calculated for all individuals (n=40).

Regression Analysis

For the group analysis, we used two methods: multiple regression and multidimensional scaling.

First, using ordinary least squares multiple regression, we regressed the stated preference rankings for each brand on the weighted and unweighted

attribute scores and on the weights themselves for all individuals (n = 40). That is, for each brand we fit the following three models:

$$Y_u = a_u + \sum_{i=1}^9 b_{ui} X_{ui} + e_u ; \text{ unweighted}$$

$$Y_w = a_w + \sum_{i=1}^9 b_{wi} X_{wi} + e_w ; \text{ weighted}$$

$$Y_v = a_v + \sum_{i=1}^9 b_{vi} X_{vi} + e_v ; \text{ weights alone}$$

Where: X_{ui} = the nine unweighted attribute scores

X_{wi} = the nine weighted attribute scores

X_{vi} = the weights themselves

The adjusted R^2 values for these regressions are given in Table 3. (We present the adjusted coefficients of determination to allow comparison with other studies.) For seven of the nine brands, the unweighted attribute scores explained more variation in the preference rankings than did the weighted attribute scores. Additionally, the unweighted attribute regressions resulted in more significant adjusted R^2 values (in number and size) than the weighted attribute regressions. We infer from these results that the weights tend to dampen the influence of the attribute scores on the preference rankings for the brands.³ As we anticipated, the last column of Table 3 indicates

Table 3

Summary of Regression Results

	Unweighted	Weighted	Weights Alone
Rexall	.3584**	.2182*	-0
Alka Seltzer	.4299**	.3559**	-0
Empirin	.2681*	-0	.0959
Bufferin	.4141**	.2743*	-0
Anacin	.0909	.2732*	-0
Bayer	.4972**	.3692**	-0
Bromoseltzer	.5115**	.5660**	.1438
Excedrin	.0945	.0138	-0
Vanquish	.2771*	.0987	-0

Note.--"-0" indicates an R^2 value so close to zero that the corresponding adjusted R^2 is negative.

*p < .05

**p < .01

that the weights themselves explain essentially none of the variation in the preference rankings. We should point out that our regression results for the unweighted case are in agreement with those reported previously by Sheth (1970); the disaggregative use of the attribute scores (perceived instrumentality) enhanced the prediction of attitudes (preference). A direct comparison cannot be made with Cohen and Houston (1971) report due to a difference in the criterion variable (past behavior in their study, preference in ours). However, the implications of both studies are similar regarding the "weighting" hypothesis. That is, the inclusion of weights do not add to the predictive power of the attribute scores.

Multidimensional Scaling Technique

As the next step, inter-brand proximity measures were computed using both weighted and unweighted absolute value distance formula (Green, Maheshwari, & Rao, 1968; Neidell & Teach, 1969; and Moinpour, 1970):

$$d_{ij} = \sum_{k=1}^n w_k |x_{ik} - x_{jk}|$$

Where: d_{ij} = distance between stimulus (brand) i and j

x_{ik} and x_{jk} = attribute scores for brands i and j on attribute k

w_k = the weight (importance) of attribute k;
 $w_k = 1$ if attributes are weighted equally

n = the number of product attributes

The derived dissimilarities thus obtained were averaged over the forty respondents; they were subsequently rank ordered and submitted to TORSCA-9 (Young, 1968). The configurations for both cases (weighted and unweighted) depict the stimulus objects (nine brands) as points in a Euclidean-space of two dimensions⁴ (see Figures 1 and 2). Labels of "buffer" and "strength" were assigned to first and second axes respectively.⁵ These obtained MDS solutions are expressions of the average respondent's perception of the nine brands of headache and pain remedies. It was assumed that all respondents perceived the brands along a common set of dimensions. The relative position of brands, in these perceptual maps, were determined by their psychological distances, brands clustered together were perceived to be more similar than those far apart. Four clusters are clearly evident in both configurations: Alka Seltzer and Bromoseltzer; Vanquish, Excedrin and Empirin; Anacin and Bufferin; and Bayer and Rexall aspirin. As shown in Table 4, the rankings of the interpoint distances of these configurations corresponded closely to the dissimilarities of the original data. The stress values (for two dimensional space) were judged as good to acceptable.

Both the Spearman correlation coefficients and the stress were generally stronger for the unweighted-attribute case. An examination of the two MDS solutions (weighted and unweighted) revealed that the configuration had remained invariant over both weighted and unweighted attributes (Moinpour, 1970). In particular, both profiles exhibited similar composition with

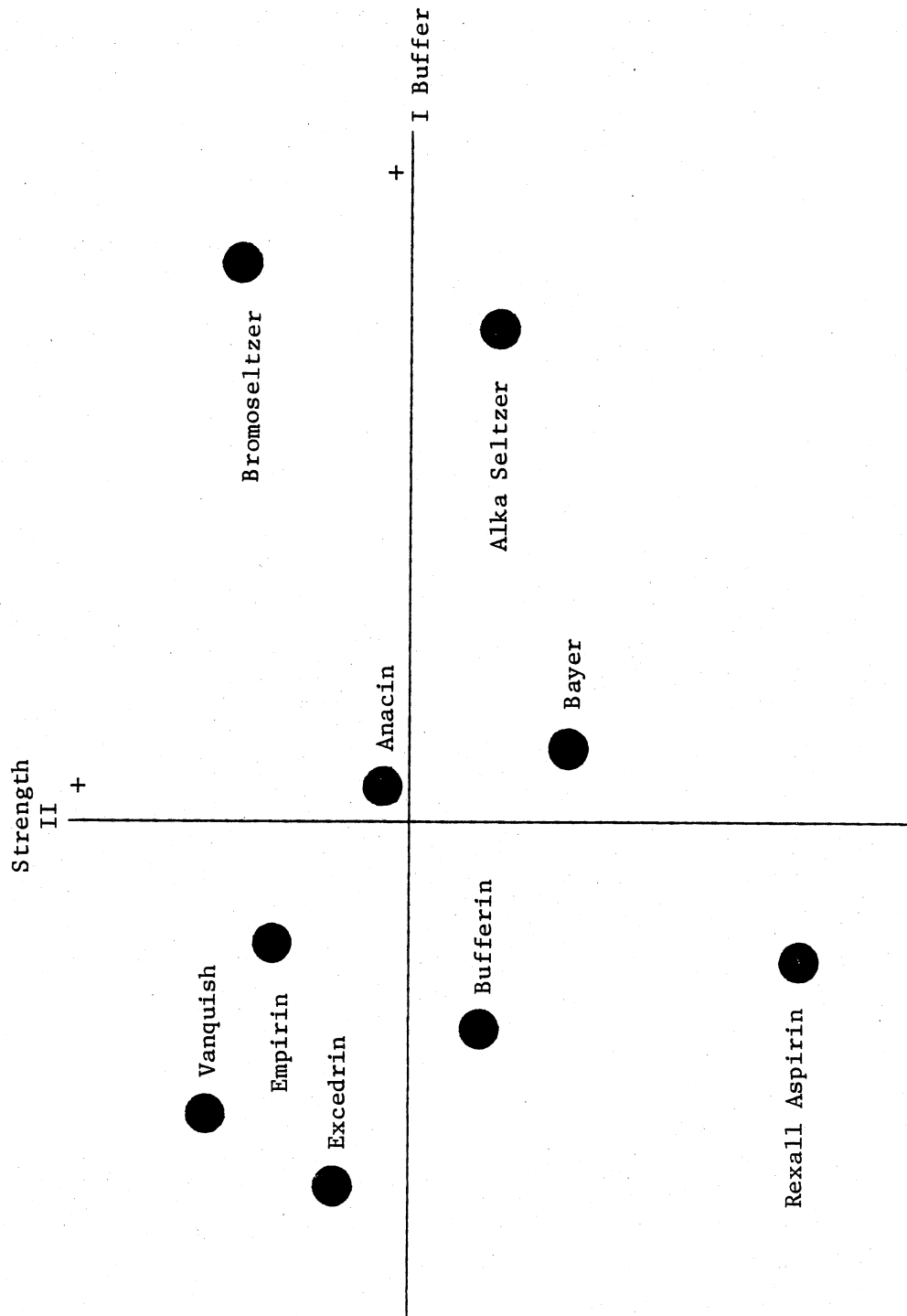


Figure 1

Average Indirect Dissimilarity Configuration
(unweighted attributes); stress = .096

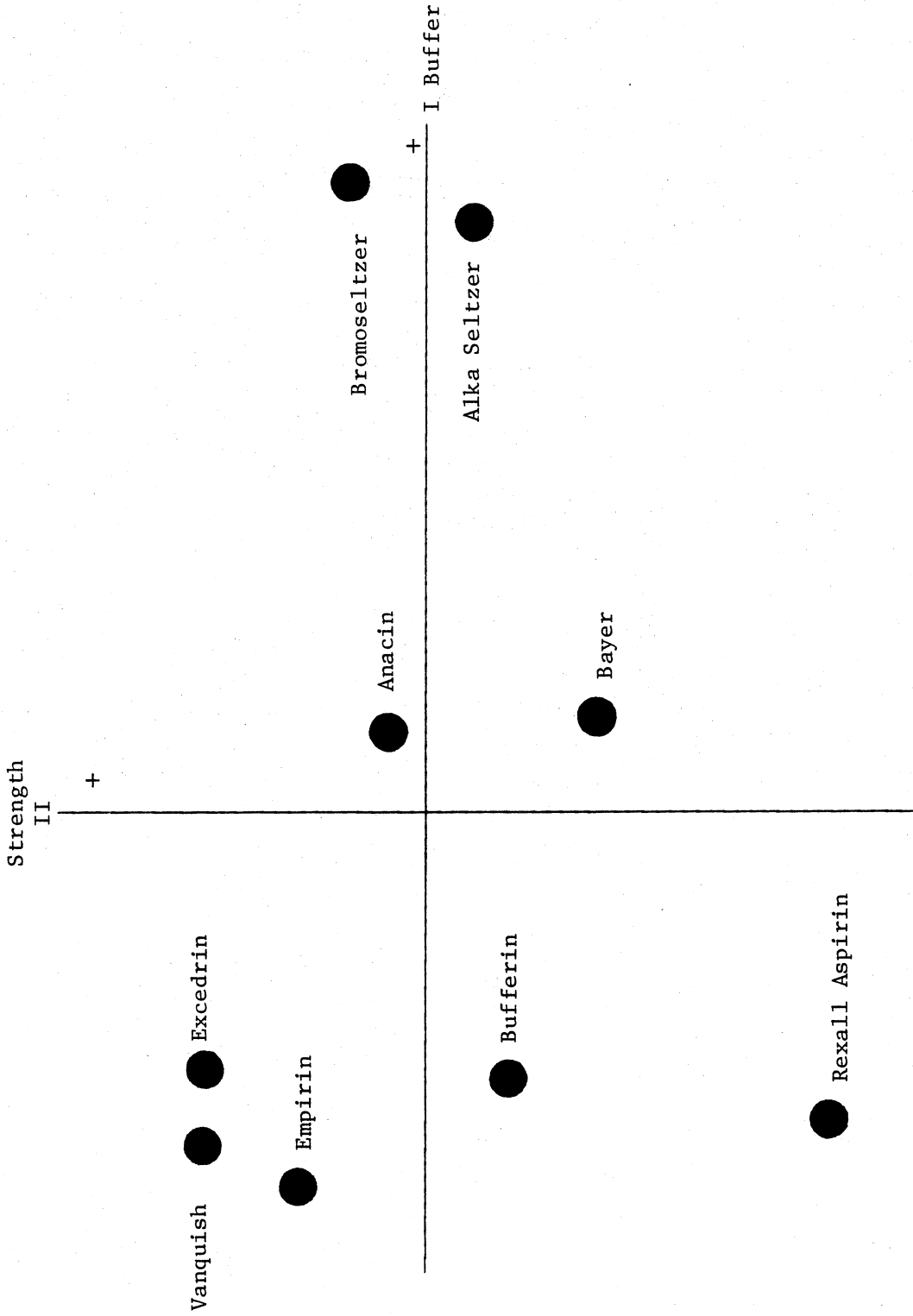


Figure 2

Average Indirect Dissimilarity Configuration
(weighted attributes); stress = .069

Footnotes

1. Assistant Professors of Marketing, Graduate School of Business Administration, University of Washington, Seattle, Washington 98195.
2. The choice of attributes was influenced by a previous self-medication project. See J. F. Engel, D. A. Knapp, & D. E. Knapp, "The Decision-Making Process in Self-Medication and its Relation to Community Health," The Ohio State University, 1967 (mimeographed).
3. The same regressions were run with preference ratings as dependent variables rather than preference rankings. These regressions provided similar results. Although their adjusted R^2 values were often higher than those given in Table 3, they are less meaningful because of the low dispersion of dependent variable values.
4. While the three dimensional solution is more robust, for purposes of illustration, the two dimensional configuration of the MDS solution is decided upon.
5. Factor analysis of the attributes (using BMD03M General Factor Analysis) pointed out 2 factors which accounted for 81% of total variance. Variables with large factor loadings on factor 1 were "few side effects" and "easy to take," and those contributing to factor 2 were "speed of relief" and "extra strength." The attribute scores were also correlated with the coordinates of the points (brands) in both configurations. Results of correlation and factor analysis confirmed the labels of "buffer" and "strength."

Table 4

Summary of Multidimensional Scaling Results

	Spearman Rank Correlation		Stress	
	Two dimensions	Three dimensions	Two dimensions	Three dimensions
Weighted	0.92***	0.98***	0.09	0.013
Unweighted	0.95***	0.99***	0.06	0.009

***p < .001

regards to the four previously described clusters. It should be noted, however, that the configuration invariance is partially the result of averaging over subjects. It is therefore concluded that consumers do in fact take into account the saliences of different product characteristics when evaluating various products in terms of these characteristics. In other words, the scale values of the attributes reflect the saliences of these attributes as well.

Summary and Discussion

The results of individual analysis (correlation) and group analyses (regression and MDS) of this study make it quite convincing that the major component of Rosenberg-Fishbein type model in determining a consumer's attitude toward a brand is the consumer's perception of the brand's possession of attributes. The inclusion of the importance (saliency or weight) of product attributes does not improve, and often suppresses, the result. It is surmised that the attribute importance component of the model can best serve as a selection criterion: if an attribute is judged important, it ought to be included and vice versa (on individual basis). This is intuitively logical since for a given individual an unimportant attribute could not have any relevance to determining that consumer's attitude toward a brand.

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THE RELATIONSHIP BETWEEN COGNITIVE MODELS OF
CHOICE AND NON-METRIC MULTIDIMENSIONAL SCALING¹

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The Problem

Belief-value-type models of consumer behavior have been proposed by several authors (Bither and Miller 1969, Bass and Talarzyk 1969, Sheth 1969, and Hansen 1967 and 1969). Basically these models assume that the consumers choice among a number of alternatives can be predicted from the attractiveness of the alternatives where the attractiveness of alternative "i" is defined as

$$(I) \text{ At}_{(i)} = \sum_{j=1}^r B_{ji} \cdot V_j$$

and where " V_j " is the "jth" of "r" values (or choice criteria) salient in the choice process and where " B_{ji} " is the strength of the belief that alternative "i" is instrumental to the "jth" value. A critical problem with these models relates to the identification of the belief-value dimensions based upon which consumer choices should be predicted. (V_j 's)

Partly, it is difficult to define variables which are not interrelated; partly, the researcher can never be certain, not even when a large number of belief-value dimensions are included, that the most important ones are among those he has picked.

Another problem relates to the number of variables which are needed in order to make satisfactory predictions. Often it has been reported that even though a large number of dimensions have been included in the study, only a few of these account for the majority of the predictive power of the model (Sheth 1969). This suggests that the identification of the few most important variables is paramount to the functioning of the model.

To summarize the present state of the development of these Fishbein (1967) - Rosenberg (1957) oriented consumer choice models, one may say that a highly valuable conceptual framework is emerging, but important estimation problems are still unsolved.

In the area of non-metric multidimensional scaling the situation is almost opposite. Simultaneously with the arrival of the belief-value choice model on the marketing scene, other researchers (for a review see Green and Carmone 1970) have directed their attention to this family of relatively new "descriptive" procedures.

These models have the advantage of requiring relatively weak input data (similarity and/or preference orderings) from which perceptual dimensions are developed.

Regardless of the type of input data, the aim of this kind of scaling analysis is the construction of an n-dimensional mapping of the alternatives for which data have been obtained. The nature of this representation is such that the rank order of distances between the alternatives in the n-dimensional space reproduce as closely as possible the rank order of the similarities data

originally measured. Of course, the larger the number of dimensions which one allows in the solution, the better the computed distance rankings correspond with the original similarities rankings.

The goal of these procedures then, in brief, can be said to be:

1. to tell how many dimensions are required in order to obtain a representation of a predetermined accuracy.
2. to provide a plot of the alternatives in the revealed space.

Commonly, it has been found that consumers' perceptions of brands, products and the like can be described in terms of relatively few perceptual dimensions. Moreover, it is argued that the perception along these dimensions is critical to the choices which the consumer makes and so commonly the dimensions are interpreted as value - like variables.

So far the two lines of research referred to above have developed relatively independently of each other. It seems natural to suggest, however, that the perceptual dimensions revealed in multidimensional scaling somehow correspond to the belief-value dimensions critical to the cognitive choice model. It has been the purpose of the research reported here to examine to what an extent such a relationship exists. This is done by testing the following fundamental hypothesis:

"The perceptual dimensions revealed by non-metric multidimensional scaling are the same as those belief-value dimensions which account for a majority of the correct choice predictions which can be made with the cognitive choice model".

Procedure

The procedure followed is very straightforward. Data in a form suggested by each of the two models and/or procedures were collected from the same respondents on the same topics. This data could then be analyzed by means of both multidimensional non-metric scaling techniques and via the procedure used in the traditional Rosenberg (1957) type of attitude and choice prediction. (See, for example, Hansen 1969.)

Subjects for the study were students at the University of New Hampshire and residents of Durham, New Hampshire. Two sets of test objects or stimuli were used. One set consisted of alternative car-wash facilities, the other of several rathskellers (student hangouts selling beer).

In what we shall call the "Beer-Hall" study the questionnaire was centered around three types of information. First the respondents were faced with 11 value dimensions supposedly relevant to choices among such restaurants. The dimensions used were, for example, such things as "service", "quality of food", "prices", etc. Each respondent was asked to rate, on ten point scales, the importance of these factors in the choice of a restaurant. Following this the three restaurants included in the study were evaluated along the same eleven dimensions. These evaluations constituted the measures of the independent variables in the belief-value model.

Secondly, direct similarity data were obtained on the three alternatives. Since only three alternatives were studied similarity data could easily be obtained by comparisons of all pairs of pairs of stimuli. That is, questions of the following type were asked: "Do you think restaurants A and B are more alike than restaurants B and C?"

And, thirdly, information was obtained concerning respondents' actual choice behavior and their preferences. Here it was asked what restaurant was visited most frequently, which one was most liked, which one was visited last, etc.

To obtain as homogenous a sample as possible respondents in this "Beer-Hall" study were restricted to male junior and senior students, above 21 years of age and living in dormitories. Originally, a sample of 100 students had been selected, but the interviewing which had begun just prior to the students strike in the spring of 1970 had to be stopped before all interviews had been completed. At the time when the students left campus 68 students had been approached from whom 43 complete interviews were obtained. Of these, 3 had to be discarded because of missing information, leaving 40 respondents.

In the "Car Wash" study the alternative stimuli were "coin-operated self-service", "coin-operated automatic", "at home", "garage", and "charity". The sample was composed of 100 randomly selected car owners registered with the service department of the university. Again here, the student strike made it impossible to complete the interviewing and so in the final analyses only 37 complete interviews were included. In this study value importance and instrumentality of each alternative were measured as in the "Beer-Hall" study, this time along 9 selected dimensions such as "convenience", "quality of job", "price", etc.

For the measurement of similarity data the anchor point method was used (Taylor 1969). The data obtained were then converted to individual rank order similarity matrices using the TRICON I program (Carmone, et.al. 1968). And, finally, behavioral and preference data were obtained from each respondent.

Results

Prediction of Choice

Partly as a check on the applicability of the cognitive choice model to the type of products studies here, and partly to identify those belief-value dimensions which are critical to the respondents, predictions of actual behavior were carried out based upon the data which were collected.

Such predictions can be based upon the attractiveness scores computed in accordance with (I), or they can be based upon the belief (instrumentality) data alone:

$$(II) \quad At_i = \sum_{j=i}^r B_{ij}$$

Both computations were carried out, and the results are shown in Table 1. In all cases an overall score is computed for all alternatives and a correct prediction is considered to be one where the alternative with the highest score is the one most frequently used.

Table 1
Percentage of Correct Predictions

Predictions based upon	Beer-Hall Study	Car Wash Study
Attractiveness scores (formula I)	80.0%**	70.3%**
Beliefs alone (formula II)	85.0%**	59.4%**

Note.--All prediction levels were tested for significance using a χ^2 - test.
**p < .01

In the Beer-Hall study (with 3 alternatives) 80-85% of the predictions were correct. In the Car Wash study (with 5 alternatives) approximately 60-70% of the predictions were correct.

To identify which of the 11 dimensions in the Beer-Hall study were of major importance for the prediction of the choices, a regression analysis was carried out. The overall preference ratings for the alternatives (which correspond closely with the behavioral choices) were correlated with the belief scores. Based upon the β -coefficients obtained from this analysis, it can be concluded that two closely related socially-oriented variables, "social" and "kind of people", accounted for a majority of the correct predictions.

Table 2

Determination of Beliefs of Critical Importance for Choice Among Car Wash Facilities Using Regression Analysis

Value Dimensions	Regression of car wash facility overall preference rating on belief scores.			Regression of difference between car wash facility overall preferences ratings on differences between belief scores.		
	β_i	$t_i = \frac{\hat{\beta}_i}{s_{\hat{\beta}_i}}$	$r_{y \cdot x_i}$	$\hat{\beta}_i$	$t_i = \frac{\hat{\beta}_i}{s_{\hat{\beta}_i}}$	$r_{y \cdot x_i}$
Convenience	-0.023	-0.250	0.210	0.015	0.150	0.066
Length of wait	0.061	0.526	<u>0.405</u> (3)	0.131	0.852	0.291
Price	0.115	1.190	0.323	0.056	0.503	0.138
Quality of job	<u>0.173</u> (3)	1.175	0.393	0.211	1.087	<u>0.365</u> (3)
Quality of appearance	<u>0.326</u> (1)	<u>2.299</u> (2)	<u>0.436</u> (1)	<u>0.575</u> (1)	<u>3.838</u> (1)	<u>0.561</u> (1)
Interior job	0.080	1.110	0.290	0.193	<u>2.575</u> (3)	0.292
Effort required	<u>-0.247</u> (2)	<u>-3.112</u> (1)	<u>-0.413</u> (2)	<u>-0.334</u> (3)	<u>3.544</u> (2)	<u>-0.466</u> (2)
Harm to finish	0.162	<u>1.274</u> (3)	0.332	-0.072	-0.441	0.330
Preservation of car	0.067	0.437	0.328	<u>0.418</u> (2)	1.760	0.301
Constant term	(-4.554)	(-3.460)		(-2.065)	(-2.318)	
Multiple R	0.602			0.696		

Note.--Numbers in parentheses are the rank order of the magnitudes of the numbers in a given column. Results in table are based on data obtained from 29 respondents.

In the Car Wash study the overall preference ratings measured on a 15-point scale for the alternatives were also correlated with the evaluations of the alternatives along the nine dimensions used. The results of these analyses are shown in Table 2.

In the same table results are also presented from a regression analysis where the dependent variable was the difference in overall preference ratings for the two alternatives and the independent variables were the corresponding differences in belief scores. For both regressions the estimated β -coefficients, t-ratios and simple correlations of dependent and independent variables are presented. In each column the three highest ranking values (in absolute values) are underlined. It appears that the only two variables consistently showing up as important are "quality of appearance" and "effort required".

It should be mentioned, however, that other variables in the analysis may have some importance also, and that the two variables mentioned are slightly inter-correlated. In the two analyses their correlation coefficients are -.213 and -.325.

It is the purpose in the remaining part of this section to examine to what an extent these critical variables, for the choice predictions, resemble the perceptual dimensions revealed by non-metric multidimensional scaling.

The Relationship Between Perceptual and Belief-value Dimensions

The choice predictions were based upon respondents' own rating of the importance of 11 (Beer-Hall) and 9 (Car Wash) choice values together with their rating of the instrumentality of the alternatives along the same dimensions. As mentioned previously direct similarity data were obtained for both the 3 Beer-Hall alternatives and for the 5 Car Wash alternatives. To examine how the perceptual dimensions revealed by non-metric scaling compare with the more important conceptual belief dimensions the following analyses were carried out.

In the Beer-Hall study the direct similarity data were fed into the TORSCA-9 program for non-metric multidimensional scaling. (Young and Torgerson, 1967; Young 1968). This analysis of this data revealed an unidimensional solution with a stress measure of 0.00. Considering the number of alternatives this is not surprising. More interesting, however is the fact that the ordering of the alternatives agrees closely with their ordering along the more important social image dimensions which were critical in the choice prediction.

In the Car Wash study the converted anchor-point similarity data were used as input for the Torsca program. The two dimensional solutions (stress = 0.0 to 0.01) for different subgroups of the sample are very similar and all of them look very much like the solution based upon all respondents which is shown in Figure 1.

In this representation, the location of the five alternatives can be read directly from the map, which yields easily to an interpretation along the lines suggested by the analysis of beliefs. Looking upon the location of the alternatives one sees that the "Effort Required Dimension" makes good sense ranking as it does from "washing the car at home" to "Coin operated automatic". Along the "quality of appearance" dimension the ordering is surprising to the authors. But it is in good agreement with the rank order based upon the beliefs of the respondents as shown in Table 3.

From Table 3 it appears, however, that the agreement is not perfect, even though some improvement can be obtained when the observation is taken into consideration that the two belief dimensions are slightly correlated, so that one should not expect orthogonal axes. However, even with this in mind the results are such that further analysis of the relationship between the two sets of data is warranted.

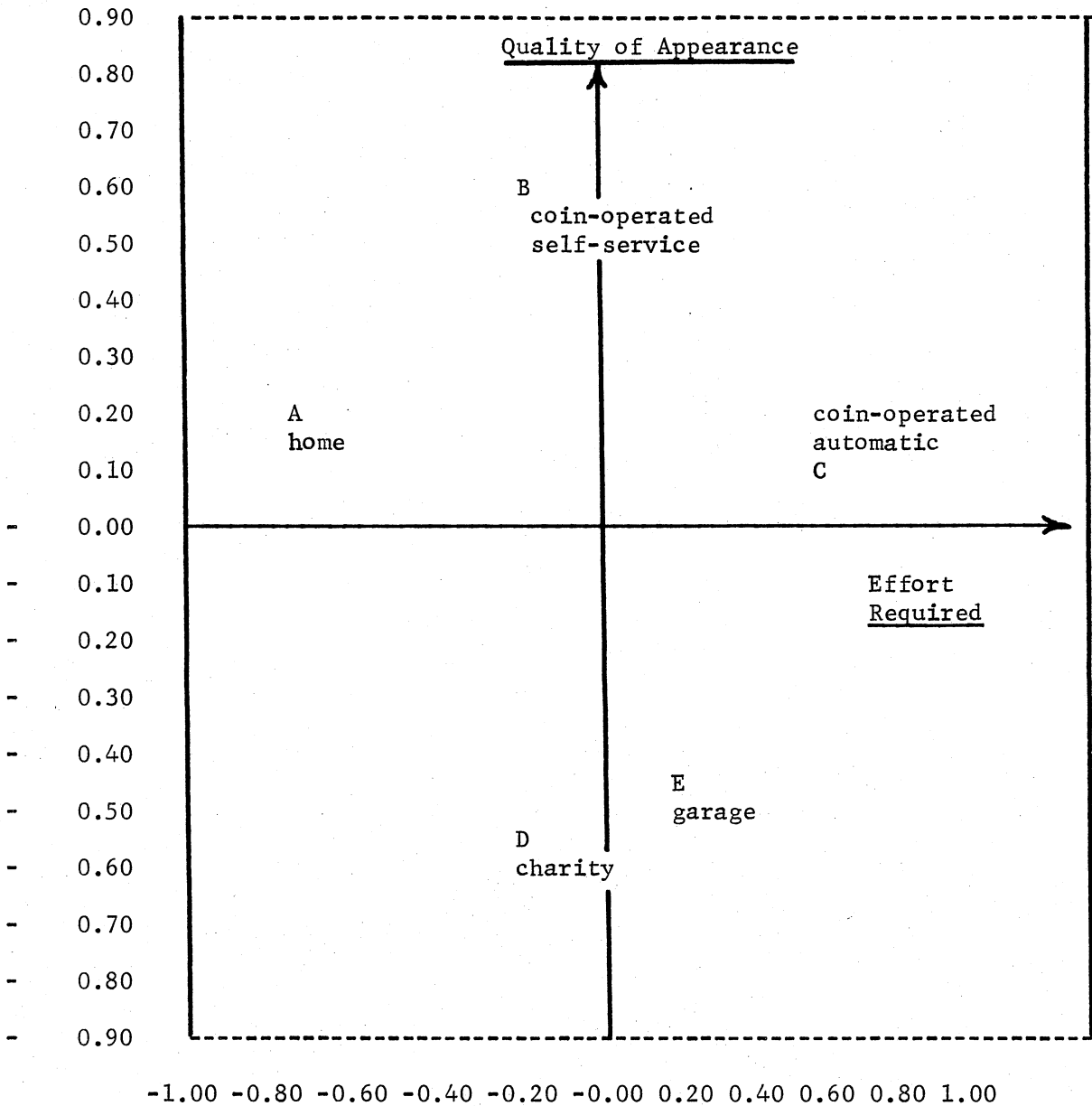


Fig. 1: 2-dimensional representation of 5 alternatives based upon anchor-point similarity data. (Program: TORSCA - 9; input is aggregated rank order similarities matrices; Stress: 0.00).

Table 3

Comparison Between Rank Orderings Based Upon
Belief Measures and Similarity Data

	Rank order in accordance with "effort" based upon.		Rank order in accordance with "appearance" based upon.	
	Beliefs	Similarity	Beliefs	Similarity
Home	1	1	1	2
Coin-operated self-service	2	3	2	1
Coin-operated automatic	4	5	4	3
Charity	3	2	5	5
Garage	5	4	3	4
Spearman's R	.96		.96	

Comparisons Between Indirect and
Direct Similarity Data

Comparisons at the Individual Level

Green (1970) makes a distinction between indirect and direct similarity data, the latter based upon respondents own judgments of similarities among alternatives. Indirect similarity data can be constructed in several ways, some of which utilize belief/value-importance data.

First it is possible to derive similarity measures from the instrumentality data. It is natural to assign a very high similarity to two alternatives which are rated almost identically. On the other hand, if the instrumentalities of two alternatives are very different the alternatives should be said to be very dissimilar and consequently they should be assigned a low similarity rating. One way of representing this is by calculating the differences in rating for two alternatives on each dimension and then summing these over all dimensions. When this is done a similarity matrix for each individual can be constructed. Using the notations of equation (I) this would mean that the distance between two alternatives is computed as:

$$(III) \quad d_{ik} = \sum_{j=1}^r |B_{ij} - B_{kj}|$$

It is possible also to apply the same procedure to the weighted belief measures. That is, to the differences in beliefs ratings weighted with the respondents

rating of the importance of the dimensions. This leads to the following expression:

$$(IV) \quad d_{ik} = \sum_{j=i}^r V_j |B_{ij} - B_{kj}|$$

Comparisons between the direct and the indirect similarity data can be carried out in different ways. The individual rank order similarity data based upon evaluations (beliefs), can be compared individually with the direct similarity data, they can be compared as aggregated matrices, and they can be used in a complete scaling analysis, the results of which are compared with the results of the same analysis carried out on the direct similarity data.

The problem with these comparisons is that they are very difficult to evaluate when carried out on the raw data, whereas one cannot be certain, when the comparison is made based upon some manipulated version of the raw data, whether the differences which are revealed result from differences in the raw data, or whether they to some extent are ascribable to the manipulations themselves. Here comparisons are tried first at the raw data level.

For each respondent in the Car Wash study anchor point matrices are constructed based upon the belief data. Then these matrices are compared with those obtained directly from the respondents. The nature of this comparison is illustrated in Table 4.

Table 4
Comparison Between Directly Obtained and Derived Anchor Point Data for One Individual

Matrix a: Order in which alternatives were placed by respondent directly.		Matrix b: Order of stimuli derived from belief data.		Matrix c: |a-b|		Sum of rows
Anchor point	Stimuli no: 1 2 3 4 5	Anchor point	Stimuli no: 1 2 3 4 5	Anchor point	Stimuli no: 1 2 3 4 5	
1	1 3 5 4 2	1	1 3 4 5 2	1	0 0 1 1 0	2
2	3 1 5 4 2	2	4 1 3 5 2	2	1 0 2 1 0	4
3	5 4 1 3 2	3	5 4 1 2 3	3	0 0 0 1 1	2
4	5 3 2 1 4	4	3 5 2 1 4	4	2 2 0 0 0	4
5	2 3 4 5 1	5	2 3 4 5 1	5	0 0 0 0 0	0
						12

The overall difference between matrices of the type shown in Table 4 can be computed as:

$$\sum_{i,j} |a_{ij} - b_{ij}|$$

(the figure "12" in the example is a measure of this difference). This difference is critical for the evaluation of the quality of anchor point matrices constructed from the belief value data. When this figure is low there is good agreement between the direct and the indirect data; when it is high the opposite is true. Actually for all subjects the average difference is 20.16 compared with an expected difference of 22.5 which would have resulted had the data in the reconstructed matrix been random numbers. This difference is small and only approaching significance (χ^2 test gives $p < 0.05$). When the same analysis is carried out on the Beer-Hall data it results in a χ^2 value of 15.74 with three degrees of freedom ($p < 0.005$). For the above analysis the belief image data were used alone.

Green and Carmone (1969) report that the weights individuals assign to dimensions may be of critical importance when comparisons are made between analyses based upon preference data and upon direct similarity data. It may be that the belief data obtained in the present study in some way reflect individual preferences also.

If this is the case, and if the Green and Carmone (1969) conclusion is valid, weighting the belief data with the importance values should improve the indirect anchor point similarity data. This can be done by using formula (IV) for the computation of the distances between alternative car wash facilities. When that is done the agreement between direct and indirect similarity data improves slightly, but not significantly. This applies to the Car Wash data as well as to the Beer-Hall data.

Seemingly, in the Beer-Hall study the agreement between direct and indirect similarity data is good, whereas in the Car Wash study the results are more questionable. To examine the nature of these data further the following analyses were carried out.

Aggregated Comparisons of Car Wash Data

Even though the individual data do not compare very well, the aggregated data may still do so. Also a number of modified transformation rules might improve the results. To this end the indirect measures were used as above to construct similarity matrices. This was done using formula III as well as formula IV. A squared distance concept was also used. Specifically, corresponding to formula III, this concept calculates the distance between alternatives i and k as:

$$(V) \sum_j (B_{ij} - B_{kj})^2$$

and, corresponding to formula IV, this distance is calculated as:

$$(VI) \sum_j v_j (B_{ij} - B_{kj})^2$$

Corresponding to each distance matrix for each individual a simple rank order matrix of these distances was constructed. This gives a total of eight different measures for each subject. To analyze these different indirect similarity data, correlations were computed between the derived distance matrices obtained by using these 8 different matrices, aggregated over individuals, as input to the TORSCA-9 program, and the similarly derived distance matrix based on the direct similarity (anchor point) data. The analyses were carried out for 3, 2, and 1 dimensional solutions, and for each of these it was done on all subjects and on subgroups of subjects composed of individuals with different preferences as to most frequently used type of car wash facility. All these analyses turn out to give very similar results with regard to the relative quality of the different indirect similarity concepts. As an example the 2 dimensional case with all respondents included is presented here. In Table 5 the computed distances are reproduced and in Table 6 the correlations are presented. From the tables it can be seen that the 8 different methods of generating indirect similarity matrices all provide very similar results. The agreement with the direct similarity data is less perfect, but still quite good: All correlations are larger than .60, and the differences among them are not large. It is reasonable to conclude that the different modifications of the simple indirect distance concept (III) do not improve the results significantly. With regard to the analyses carried out on the different respondents, it turns out that considerably better agreement between direct and indirect similarity data is found among those respondents using other than the "home wash" alternative most frequently ($r=.719$), than among those washing their car at home most frequently ($r=.628$).

Table 5

TORSCA Inter-Facility Distances:
Direct and Indirect Similarities Data

Facilities	Inter-Facility Distances Based On:								
	Direct Similarities Data	Indirect Similarity Data (Actual Distances and Ordinally Ranked Distances)							
		$\sum_k |B_{ki} - B_{kj}|$		$\sum V_k |B_{ki} - B_{kj}|$		$\sum (B_{ki} - B_{kj})^2$		$\sum V_k (B_{ki} - B_{kj})^2$	
		Dist.	Ranks	Dist.	Ranks	Dist.	Ranks	Dist.	Ranks
1,2	.594	1.025	1.069	1.013	1.029	.998	1.036	.930	.995
1,3	1.460	1.637	1.630	1.631	1.627	1.631	1.674	1.621	1.628
1,4	.978	1.373	1.405	1.350	1.392	1.318	1.431	1.329	1.371
1,5	1.171	1.431	1.453	1.434	1.437	1.473	1.489	1.478	1.481
2,3	.998	.679	.623	.636	.630	.651	.661	.694	.646
2,4	1.090	.832	.790	.808	.785	.663	.664	.696	.724
2,5	.974	.677	.694	.629	.698	.801	.665	.662	.721
3,4	1.172	.680	.624	.813	.698	.651	.542	.861	.698
3,5	.641	.400	.440	.457	.521	.662	.459	.570	.551
4,5	.550	.281	.185	.356	.178	.159	.090	.318	.174
STRESS =	.011	0.0	0.0	.002	.000	.004	.001	.008	.001

Note.--Two-dimensional solutions. All subjects included

Table 6

Correlations Between Inter-Facility Distances
Derived From Direct and Indirect Similarities Data

Equation:	1	2	3	4	5	6	7	8
1 III Distance								
2 III Ranks	.996							
3 IV Distance	.992	.986						
4 IV Ranks	.991	.997	.987					
5 V Distance	.964	.978	.956	.985				
6 V Ranks	.987	.995	.975	.994	.988			
7 VI Distance	.975	.972	.987	.982	.972	.975		
8 VI Ranks	.986	.993	.982	.998	.993	.995	.987	
9 Direct Similarity Data	.665	.626	.675	.651	.627	.612	.698	.655

Note.--See side headings for description of column headings. Correlations are based on data in Table 5.

Finally comparisons can be made by visual inspection of the representations based upon direct similarity data and indirect similarity data. This is done in Fig. 2 for representations derived from data for all respondents using formula III. From the figure it appears that the two representations do agree somewhat (to the extent that with both procedures identical stimuli are placed in the same quadrants) but some discrepancies are also obvious.

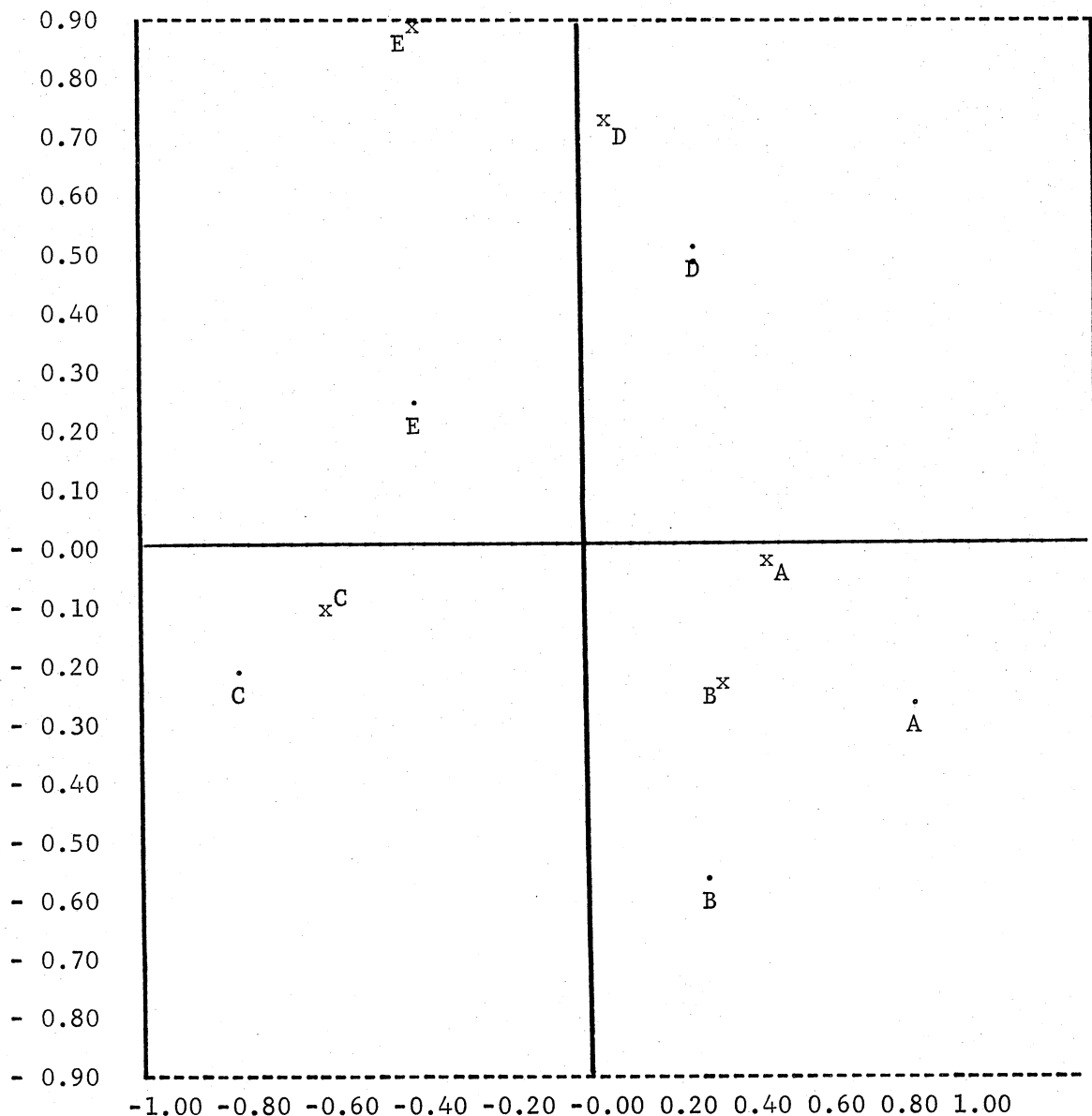


Fig. 2: Varimax rotated representations based upon indirect similarity data for all respondents (x) and direct similarity data from all respondents (.)

Summary

Comparisons were made between the dimensions revealed by multidimensional nonmetric scaling, and those that were of major importance in a belief-value-based choice-prediction. In the two studies reported, the dimensions revealed by nonmetric multidimensional scaling do resemble those that are of major importance in the prediction of choice.

To explore the similarity between the two approaches further comparisons were made between the direct similarity data used in the nonmetric-scaling approach and the indirect similarity data which can be derived from the belief-value-ratings. When this is done two conclusions emerge. First, the representations derived from non-metric multi-dimensional scaling procedure applied to indirect similarity data is not highly sensitive to the approach used for constructing the input data (at least not among 8 alternative approaches tried). Secondly, whereas the agreement between direct and indirect data is poor at an individual level, somewhat better agreement is found at an aggregated level.

This agreement, however, is far from perfect.

Discussion

One major problem, in the comparisons between belief-value, image, or preference data on the one hand and direct similarity data on the other, relates to the meaning one attaches to the concept "important dimensions". It is perfectly possible that a certain dimension is extremely important to the respondents but, since the alternatives do not differ along this dimension some techniques may not reveal these dimensions at all. It is plausible that this applies to representations based upon direct similarity data; and the common observation that even very complex stimuli sets often result in satisfactory two or three dimensional solutions may find its rationale in this very fact. In the present approach the use made of the belief-value data is such that major emphasis is placed upon those dimensions along which major differences between the alternatives exist, but still the possibility cannot be ruled out that those dimensions that appear to be of major importance in the explanation of choice are not the same as those upon which respondents place major emphasis when comparing the alternatives.

Another possible explanation for the observed discrepancy between the two sets of data may rest with the data collection procedures. Apart from the problems the student strike presented for the study reported here, the possibility exists that even though, conceptually the two approaches do deal with the same phenomena, the measurement techniques used in one of the two, or in both, areas are imperfect to such an extent that this inevitably will result in discrepancies.

In general three types of research would improve our understanding of the relationship between the kind of results presented by non-metric multidimensional scaling and the kind of insights into consumer behavior gained by direct studies of belief-value types of variables:

1. Exploration of the relationship between the two approaches in a wider range of product areas and among different segments of consumers
2. Further comparative studies of reliability, validity, and stability of the measurement techniques used in the two areas, and
3. Further insight into the extent to which differential stretching of the perceptual axes (Green and Carmone 1969) is capable of eliminating the discrepancies between representations derived from different types of data.

Hopefully future research will throw further light on these issues.

Footnotes

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- 2 Now Marketing Director, T. Bak-Jensen A/S, Copenhagen, Denmark

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AN EMPIRICAL INVESTIGATION OF THE RELIABILITY
AND STABILITY OF SELECTED ACTIVITY
AND ATTITUDE MEASURES¹

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Since 1965, a substantial body of data and research findings have been generated which employ market-related measures of consumers' activities and attitudes. This work has consciously attempted to expand the set of descriptors of consumer characteristics to fill the void between the economist's demographic profiles and the psychologist's personality inventories. Even though the developmental time has been short, it is impossible to review all the work in which this more problem-specific point of view was adopted. Interested readers are directed to a paper by Hustad and Pessemier which summarizes much of the history and current status of the research on activity and attitude measures (3).

In this paper we will concentrate on a variety of studies conducted by researchers at B.B.D.O., Purdue University, the University of Chicago, Lever Brothers, and the University of Toronto (1, 2, 5, 6, 7, 9, 10, 11). By abstracting some of their findings and modestly extending some of the analyses which these researchers performed, we hope to draw specific conclusions which will have generalized implications for all attitude and activity research. In particular, we will look at a few mundane but significant questions relating to reliability and validity. To do so, selected common aspects of eight research efforts will be examined. These surveys involved ten investigators and nearly 8,000 subjects from male and female, student and non-student and American and Canadian populations sampled in the interval from 1963 through 1970.

The research efforts noted in Table 1 represent important contributions to the expanding collection of data dealing with consumer activities, attitudes, interests, opinions and values. Since these areas of measurement are largely unexplored, it is not surprising that few well-worn paths have appeared in the few years this work covers. However, a large enough number of common criterion, cross-study variable sets and within-instrument controls for bias and consistency were used to provide a real opportunity to examine some aspects of validity and reliability. By far the greatest commonality exists among activity, interest and opinion variable sets across the separate surveys. Matched sets of items have been extracted for various pairs of surveys. These will be the principal vehicle for examining structural stability or cross-validation properties of the constructs employed in the separate surveys. Test-retest and consistency substudies address the reliability issue. Finally, because the instruments employed have typically been of considerable length, some findings about order bias and fatigue will be reported.

Reliability

Reference to Table 1 makes it clear that both the activity, interest and opinion (AIO) sections and the total instruments tended to be lengthy. Several of the studies required six or more hours per respondent. Naturally, this time was spread out over several sessions but fatigue during any given session could not be ignored as a source of potential measurement error. In the studies by Summers, Baumgarten and King, the question of order of presentation and fatigue were examined in some detail. The summary results appear in

Table 1

Summary Descriptions of the Eight Surveys Employed in this Study

Investigator: Location & Identification	Date of Survey	Sample Size & Sex	Nature	No. of Att- itude, Interest & Opinion Variables	AIO Section as a Fraction of the Instrument	Width of Semantic Differential Scale
1) Wilson: BBDO	August 1963	469F	National: HTI	150	1/2	Yes: DK: No
2) Tigert/Pessemier Purdue	October 1965	515F	Lafayette, Indiana	150	1/5	1 - 6
3) Summer/King: Purdue	1967	983F	Indianapolis, Indiana	130	1/15	1 - 5
4) Baumgarten/King Purdue	February 1968	420F 398M	Purdue	130	1/10	1 - 5
5) Tigert/Wells: Chicago	January 1969	829F M	National: Market Facts	300	1/4	1 - 6
6) Rohloff/Bruno:	February 1970	721F	Regional (N. Y., Ala., Mich.)	60	1/5	1 - 5
7) Tigert: Toronto	June 1970	1849F 1042M	National Canadian: Burke Research	300	1/4	1 - 6
8) Pessemier/DeBruicker/ Hustad: Purdue	November 1970	912F 912M (Husband- wife pairs)	Lafayette, Indiana	31	1/70	1 - 6

Table 2. These results support the general conclusion that carefully organized and motivated surveys can collect very large amounts of data without serious degradation of the measures appearing in the latter part of the instruments. It must be noted however, that the questions which were susceptible to the greatest change when their positions in the instruments were varied were those that are affected by the subject's mood.

Table 2. The Percentage of Questions Whose Responses Varied Significantly When The Order of Appearance for the Questions was Modified

Study	Number of Questions	Percentage of Significant (.05) Changes in Mean Response
Summers/King	225	7.1%
Baumgarten/King	941	9.0%

In three of the studies, a sizable number of questions were repeated at various points in the questionnaire. These questions were used to test the reliability of individual responses. The tests for consistency involved the examination of the percentage of direct matches in responses and/or the percentage of near matches. A new match was a response that was within the interval ± 1 response category from the original response. As Table 3 indicates, the consistency of responses to the questions (mainly attitudinal) were high enough to yield reliable data, especially when multiple items are used to measure a particular construct. As we will see, not only were multiple items used but they exhibited strong, persistent within-construct behavior when subjected to cross-validation.

Finally, two test-retest measures of the reliability of individual responses have been reported for the studies we are examining. The most extensive efforts have been reported by Tigert (8). He correlated and cross tabulated two sets of responses to the same 150 AIO variables. The retest questionnaire was administered to 280 respondents after a period of somewhat more than six months. The distribution of reliability coefficients across respondents is shown in Table 4. The reliability coefficients for sum scores of high-loading items extracted in both studies are shown in Table 5.

Table 3. The Percentage of Perfect Matches or Near Matches on Repeated Questions Within Three Questionnaires

Study	Scale Width	Number of Repeated Questions	Range Across Questions of Percent of Responses	
			Matched	In ± 1 Interval
Summers/King: Purdue	1-5	15	58-81	87-96
Baumgarten/King: Purdue	1-5	8	30-80	68-96
			<u>Percent of Responses to All Six Questions</u>	
			<u>Matched</u>	<u>In ± 1 Interval</u>
Tigert/Pessemier: Purdue	1-6	6	27	67

Table 4. Frequency Distribution of Test-retest Reliability Coefficients for 150 AIO Questions

<u>Range of Reliability Coefficients</u>	<u>Number of Questions in the Indicated Range</u>
.80 or higher	10
.70 to .79	23
.60 to .69	47
.50 to .59	35
.40 to .49	25
.30 to .39	9
less than .30	1

Table 5. Test-retest Reliability Coefficients For Sum Scores of Principal Items Loading on the 12 Common Constructs of "Psychographic" Dimensions

<u>Descriptor of "Psychographic" Dimension</u>	<u>Reliability Coefficient</u>
Do it yourself homemaker	.90
Weight watcher	.89
Sports fan	.86
Unhappy homemaker	.86
Fashion conscious	.85
Involvement in husband's work	.80
Personal appearance conscious	.75
Price conscious	.74
Anti-advertising	.71
Dull, routine life	.71
Pro-discounter	.70
Information seeker (personal)	.64

In a more limited test-retest examination of the reliability of individual responses, DeBruicker has reported on the responses of 972 women in the 1970 Lafayette, Indiana study. Here, ten questions from various sections of the questionnaire were readministered one to two weeks after the initial test. The retest reliability coefficients for the individual questions, like those found by Tigert, were all significant above the one in one million level. The subject retest reliability coefficients computed for the 1970 study appear below.

Table 6. Frequency Distribution of the Test-Retest Reliability Coefficients for Subject-Responses to Ten Questions in the 1970 Lafayette Study

<u>Range of Reliability Coefficients</u>	<u>Number of Subjects in Indicated Ranges</u>
.95 or higher	756
.85 to .95	66
.70 to .85	4
Not. sig. at .01	21
Non-respondent to retest	<u>65</u>
	912

Table 7

Comparisons of Six Attitude, Interest, and Opinion Data Sets
Common to Four Survey Instruments

Data Sources	No. of Common Variables	No. of Rotated Factors	Variance Accounted For By Rotated Factors		Cut off Min. Factor Loading		No. Variables Loading at Cut Off		No. Variables Loading on Common Factor
			A	B	A	B	A	B	
W (BBDO)	44	6	30.5	34.0	.38	.35	25	33	24
W (BBDO)	40	6	31.5	36.1	.38	.35	27	31	22
T/P(Purdue)	33	5	34.4	33.2	.37	.38	24	23	21
T/W(Chicago)	35	5	31.8	29.1	.35	.34	30	25	17
R/B(Lever)	16	4	40.0	38.1	.35	.37	14	9	8
T/P(Purdue)	15	4	44.2	43.6	.40	.43	10	13	7

Table 8. Significant Correlations Among the Variables Within a Study:
 All Variable Common to the Four Studies: T/W = Tigert/Wells (Chicago);
 W/B = Wilson (B.B.D.O.); T/P = Tigert/Pessemier (Purdue) and L = Rohloff/Bruno (Lever).

Common Questions	Variable No.	Study Code	Significant Correlation Coefficients					
			1	2	3	4	5	6
Once I find a brand I like, I stick with it	1	T/W						
		W/B						
		T/P						
		L						
I have a regular routine I follow most of the time	2	T/W	*					
		W/B	*					
		T/P	.097					
		L	.139					
I usually watch advertisements for announcements of sales	3	T/W	.098	*				
		W/B	*	*				
		T/P	*	*				
		L	*	*				
I look for the lowest possible price when I shop	4	T/W	.084	#	.499			
		W/B	-.158	#	.547			
		T/P	*	*	.216			
		L	*	*	.252			
I keep away from brands I never heard of	5	T/W	.140	.078	*	.107	#	
		C/W	.409	*	*	-.098		
		T/P	.397	.111	*	-.199		
		L	.186	.220	*	.011		
I don't buy new products until I hear about them from friends	6	T/W	.140	*	*	.120	.269	
		C/W	.279	*	*	*	.389	
		T/P	.189	*	*	*	.120	
		L	.084	.115	*	.088	.288	
I try new products before others	7	T/W	*	*	.079	*	-.102	-.190
		C/W	-.181	*	.121	.137	-.173	-.306
		T/P	-.137	*	.097	.138	-.169	-.167
		L	*	*	.133	.037	-.175	-.250

*Correlation not significant at .05 level
 #Significant and inconsistent

Note that over 96% of the respondents showed test-retest reliability coefficients significant above the one in one million levels.

The general conclusion to be drawn from the results cited above is that research activity and attitude variables are sufficiently reliable for most marketing applications. It is also clear that additional development is needed. For example, instruments may be improved by adding, dropping or re-phrasing some of the items associated with different constructs. In addition, sets of new items which fall outside the purely demographic and psychological domains may be needed to complete this collection of useful measures.

Questions about the additions and deletions of variables, are directly concerned with validity, particularly content, construct, concurrent and predictive validity. Here, one must face questions of criterion and predictive power. Although a thorough examination of concurrent and predictive validity is well beyond the scope of this paper, important data on validity can be presented. In particular, cross validation of the structural properties of the constructs is possible. It will be reassuring, if the association of variables within and across studies remains consistent and stable.

Stability

Construct stability across different populations and across time is important in developing a theoretical base for attitude and activity research. In its absence a researcher would be confronted with several serious problems:

- 1) The distribution of the measured levels of the constructs based on attitudes and activities (say self confidence, new-product process and the like) could vary markedly from population to population and with the passage of time. Assuming a construct satisfies the researcher's criterion for predictive validity, the construct's value would be increased if the measured characteristic is widely applicable and persistent.
- 2) If the items used to develop the constructs of interest do not retain the same general relationships to each other, the existence and/or definition of the construct comes into question.

For these reasons, it will be valuable to examine several of the constructs that appeared in the separate studies. At the outset it is important to observe that the overlap in both questions and constructs from study to study is usually modest. Table 7 makes this fact clear for those studies in which we would directly reanalyze matched data sets. On the whole, the analyses indicate similar amounts of variance could be extracted and that most of the constructs and their constituent variables remain largely unchanged across different populations, points-in-time and instrumental contexts.

Although it is impractical to display all the factor analytic results here for the data in Table 7, it is possible to indicate the character and stability of those few variables common to all four studies. The four-way correlation matrix in Table 8 shows how these variables were related to each other within each study and the extent to which the relationships were similar across the studies.

In Table 8, a full one third of the 84 entries involved cases in which the correlation between a pair of variables is significant and of like sign for all four studies. The probability of the latter outcome occurring by chance is extremely small (about one in a million). In addition, only five percent (2/42) of all possible entries were inconsistent (significant sign reversals). Clearly, the relations among the items described above are sufficiently stable

for the purposes of most theoretical and practical applications. There is no reason to believe that the set of common questions which have been examined exhibit any more or less stable correlational properties than the other AIO items in each study.

A similar set of issues can be examined by looking at how a specific construct or set of constructs emerge across studies in which a suitable number of common variables were present. If the construct is a valid characteristic of consumers and the component variables are reliable measures, analyses should yield similar factor structures. A representative set of results for three studies is displayed in Table 9.

Several important aspects of the above illustration should be noted. In the first two studies a separation of risk avoidance into "negative attitudes to change" and the "uncertainty avoidance" had been hypothesized. In the 1967 study, the decomposition did not develop but it did appear in the 1968 study. In the 1970 study, the decomposition was not expected but was produced by the analysis. In the case of the 1967 and 1968 studies, additional variables loaded on the factors beyond the original hypothesized set and several variables that were expected to load heavily (greater than .350), failed to do so. These modest departures of the results of the analysis from prior expectations are hardly surprising in light of the exploratory nature of the constructs and the variables used to measure them. The important differences in the respondent populations and time at which the studies were administered introduced other sources of instability. Though perhaps no more surprising, it is encouraging to find the central features of the constructs remain essentially unchanged.

To emphasize further the generality of consumer activity and attitude measures and wide applicability of the above observations, two additional sets of illustrative cross study comparisons will be presented. First, the analysis of data from a 1970 Canadian national sample of 1849 females will be compared to a similar analysis of data from a 1969 U. S. national sample of 829 females. The basic data presented includes the top-loading variables and their correlations from the analysis of a matched subset of 41 questions taken from each study. In both cases, the subset of questions were embedded in a larger set of about 300 attitude and activity questions.

In the U. S. study, 33 of the 41 common variables yielded 14 factors accounting for 60% of the variance. In the Canadian study 34 of the variables yielded 15 factors accounting for 56% of the variance. Ten of the factors in both studies had the same highest loading variables and appear to measure the same constructs. Summary data for these ten common constructs appear in Table 10.

To further re-enforce the comparative analysis of activity and attitude variables, Table 11 displays the analysis of a set of 47 variables common to the Rohloff:Lever and the Tigert:Canadian studies. In the first study, 42 variables loaded (above .38) on 16 factors which accounted for 55% of the variance. In the second study, 34 variables loaded on 14 factors which accounted for 54% of the variance. Summary data on the nine factors that had the same high loading variables appear in Table 11.

Summary and Conclusions

It is important to note both the nature of the comparative evidence and the conclusions that have been presented about the development of marketing-related activity and attitude measures.

- 1) The variables studies are respondent related, not product or media specific.

- 2) Although they deal with both cognitive and affective constructs, they are rarely linked immediately to specific choice behavior.
- 3) The wide range of variables employed and the constructs to which they relate appear to be sufficiently reliable for both practical and theoretical purposes.
- 4) Both the constructs and the component variables have been used in diffuse exploratory studies. This approach has produced useful variety.
- 5) The time has arrived when it would be profitable to begin to standardize some activity and attitude measures. This is especially true for those measures with high a priori marketing relevance but low specificity in individual brand and media choice contexts. In this regard, it would be helpful to develop several taxonomies of activity and attitudes measures. The work by Wind concerning AIO variables is illustrative (12).
- 6) It will be useful to begin a detailed examination of the reliability of product class and media specific activity and attitude measures.
- 7) Finally, the principal gap in this review should be closed by undertaking a relatively extensive examination of the concurrent and predictive validity of marketing/consumer specific activity and attitude variables and related constructs.

Elsewhere, one of the authors had argued that both general purpose and product/media/brand specific activity and attitude measures are necessary components of many applied marketing research studies (4). That viewpoint remains unchanged. We also argue that standardized, general purpose activity and attitude measures such as the AIO variables examined here offer a degree of efficiency and cross product-class and cross media-class comparisons not otherwise attainable. Unless further development and predictive testing are conducted under relatively rigorous conditions, these measures will not achieve their proper theoretical and applied stature.

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Table 9. Illustrative Factor Loadings for Selected Attitudes Toward Change and Uncertainty: A Three-study Cross Validation

Constructs: Change and Uncertainty Avoidance

Common Questions	Factor Loadings > .350				
	Comp. "Risk" Factor	Change Avoidance Factor		Uncertainty Avoidance Factor	
	1967 Adopt. Diff. Study	1968 College Fashion Study	1970 -71 PCBR Project	1968 College Fashion Study	1970 -71 PCBR Project
Things are changing too fast	.607	.596	.758	-	-
I like things the old way	.629	.535	.700	-	-
I don't like to take chances	.464	-	.420	.723	.375
I don't like rapid change	n.a.	n.a.	.737	n.a.	-
I don't like to feel uncertain about things	.358	-	-	.502	.631
Investing in the stock market is too risky for most families	.465	n.a.	-	n.a.	.684
I enjoy games of chance	n.a.	-	n.a.	-.688	n.a.
n.a. = not available					
Respondents: No. and Sex	983F	389M	912F		
Points on Semantic Diff. Scale	5	5	6		

Table 10. Comparative Analysis of 41 Common Variables in Tigert/Wells: U.S. and Tigert: Canada Studies (300 AIO Variables per study) Female Respondents

Factor No. and Var. Code	Common Variables	Factor Loadings		Correlation Coefficients U.S./Canada		
		U.S.	Canada	Variable Code		
				a	b	c
1a	I enjoy concerts	.78	.77	1.00	.50/.45	.50/.45
b	I would rather listen to classical music than popular music	.74	.77		1.00	.35/.33
c	I enjoy going through an art gallery	.72	.71			1.00
2a	I thoroughly enjoy conversation about sports	.80	.81	1.00	.55/.57	.40/.41
b	I usually read the sports page in the daily paper	.76	.81		1.00	.35/.38
c	I would rather go to a sporting event than a dance	.74	.72			1.00
3a	I often seek out the advice of my friends regarding which brand to buy	.74	.81	1.00	.28/.30	
b	Information I get about a product from a friend is better than what I get from advertising	.57	.65		1.00	
4a	A store's own brand usually gives you good value for the money	.87	.86	1.00	.62/.57	
b	A store's own brand is usually just as good as a nationally advertised brand	.87	.85		1.00	
5a	I am more independent than most people	.79	.72	1.00	.38/.26	
b	I think I have a lot of personal ability	.71	.71		1.00	
6a	The Government should guarantee everyone at least \$3,000 per year whether he works or not	.72	.65	1.00	.18/.17	
b	No matter how fast our income goes up we never seem to get ahead	.46	.56		1.00	

Table 10. (continued)

Factor No. and Var. Code	Common Variables	Correlation Coefficients				
		Factor Loadings		U.S./Canada		
		U.S.	Canada	Variable Code		
				a	b	c
7a	I have helped to collect money for the Red Cross, United Fund or Miles for Millions	.71	.73	1.00	.33/.31	
b	I like to work on community projects	.66	.70		1.00	
8a	I often try new brands before my friends and neighbors do	-.43	-.61	1.00	-.10/-.11	-.19/-.12
b	I keep away from brands I have never heard of	.69	.59		1.00	.20/.23
c	I like to wait and see how other people like new brands before I try them	.67	.53			1.00
9a	It is very important for people to wash their hands before eating each meal	.69	.73	1.00	.31/.25	
b	Everyone should use mouth-wash	.58	.66		1.00	
10a	Investing in the stock market is too risky for most families	.74	.70	1.00	.12/.15	
b	There is too much emphasis on sex today	.35	.52		1.00	

Table 11. Comparative Analysis of 47 Common Variables in the Rohloff:Lever and Tigert:Canada Studies (About 50 and 300 AIO variables per study) Female Respondents

Factor No. and Var. Code	Common Variables	Factor Loadings		Correlation Coefficients U.S.(Lever)/Canada		
		U.S.	Canada	Variable Code		
				a	b	c
1a	I enjoy going through an art gallery	.76	.77	1.00	.50/.45	
b	I enjoy going to concerts	.70	.76		1.00	
2a	We will probably move at least once in the next five years	.67	.62	1.00	.23/.25	.20/12
b	My greatest achievements are still ahead of me	.62	.52		1.00	.22/.17
c	I would like to take a trip around the world	.54	.50			1.00
3a	A store's own brand is usually just as good as a nationally advertised brand.	.79	.85	1.00	.49/.57	
b	A store's own brand usually gives you good value for the money	.80	.85		1.00	
4a	Everyone should use mouthwash	.56	.68	1.00	.27/.25	
b	It is very important for people to wash their hands before eating each meal	.65	.63		1.00	
5a	I would rather go to a sporting event than a dance	.79	.83	1.00	.46/.41	.27/.29
b	I thoroughly enjoy conversations about sports	.72	.62		1.00	.09/-.02
c	I would rather spend a quiet evening at home than go out to a party	.41	.52			1.00
6a	I keep away from brands I have never heard of	.56	.61	1.00	.29/.20	
b	I like to wait and see how other people like new brands before I try them	.69	.54		1.00	
7a	I buy many things with a credit card or charge card	-.75	-.77	1.00	-.28/-.32	

Table 11. (continued)

Factor No. and Var. Code		Factor Loadings		Correlation Coefficients		
		U.S.	Canada	U.S. (Lever)/Canada		
				a	b	c
8a	I like to work on community projects	-.70	.71	1.00	.35/.31	
b	I have helped to collect money for the Red Cross, United Fund or Miles for Millions	-.70	.65		1.00	
9a	I usually watch the advertisements for announcements of sales	.45	.76	1.00	.13/.22	
b	I look at the advertising in magazines almost as much as I look at the pictures or read the stories	.62	.56		1.00	

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AN EXPERIMENTAL INVESTIGATION OF "ATTRIBUTE IMPORTANCE"

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The Problem

This research is concerned with potential problems involved in measuring the "importance" of various attributes of an attitude object.²

The measurement of attribute importance is a critical step in at least two major thrusts of recent research in consumer behavior - studies of attitude structure (e.g., applications of a Fishbein-type model [See 1,2,3,5,9]) and studies of the product stream of market segmentation [See 4,10]. In studies of attitude structure this measure is used to individualize the weights of various attributes and thus theoretically improve the raw evaluative measures obtained from the same respondent. In segmentation research these importance measures are used (after certain refinements) to aggregate respondents into relatively homogeneous segments with respect to product benefits most sought; these segments are then tested for differences in purchase behavior, brand predispositions, enduring characteristics, and susceptibility to different advertising appeals.

The importance of this measure is clear, yet little empirical study of possible biases inherent in commonly used instruments has been reported. Because importance weights are typically used as a basis for further analysis (not as end measures), results from a single paper and pencil instrument are particularly difficult to evaluate. There are, however, two major questions which should be considered in utilizing these weights:

1. Are the "attributes" themselves sufficiently meaningful and inclusive? This can be termed the "attribute generation problem."
2. Are the "importance" scores obtained for these attributes "true scores" in the sense of adequately reflecting the strength of desire for any given attribute by the respondent? This can be termed the "attribute measurement problem."

This paper presents findings related to the second of these problems (i.e., measurement). It will be assumed that a relatively complete and unambiguous set of product characteristics has been presented to the respondent.

Typical methods for obtaining measures of attribute importance include a dichotomous scale (Important - Not Important) for each attribute, rank ordering of the attributes, gradient scales (e.g., 1 - 6) for each attribute, and point assignments from a common sum for each attribute. Levels of measurement desired may thus range from nominal through interval scales.

The particular method to be chosen for a given study should be a function of both the ability of the respondent to make the level of judgement required and of the levels of analysis to follow these measurements. Market surveys

attempting to simply delimit those product characteristics desired by most consumers will not require the detail demanded by models testing attitudinal structure, for example, and may be done faster and more easily by the respondent. Both the survey researcher and the theoretician are implicitly assuming, however, that results would not differ if a different instrument were used.

This study investigates the extent to which this assumption of "true" measurement might hold for two frequently purchased consumer products. Five instruments combining four levels of measurement over a number of attributes are examined for the kind of stability which would give support to the practice of arbitrarily choosing one instrument upon which to base an entire study.

A short discussion of research methodology will be followed by presentation of results and several key conclusions arising from the study.

Methodology

The study began by considering issues on choice of product classes to study. Literature search was followed by a series of openended discussions with small groups selected to be representative of the population to be studied. These discussions were taped and the records content-analyzed to provide both a basis for decision as to product classes and a start toward generation of attributes for these classes. Shampoos and deodorants were selected as the products of interest, and a number of attributes for each class were isolated (17 for deodorants and 20 for shampoos).³ These attributes were pretested for clarity, then run with 250 college juniors and seniors.

Five forms of a questionnaire for each product class were randomly assigned to the 250 respondents -- 50 per form. Each instrument included one or more of the measurement methods discussed above. Table 1 summarizes the measures contained by instrument.

Table 1

Summary of Measures by Instrument

- VERSION 1: Gradient Scale, 1-6; 1) Do Not Consider, 2) Very Little Importance, 3) Somewhat Important, 4) Important, 5) Very Important, 6) Absolutely Required
- VERSION 2: Rank Ordering (1 - n)
- VERSION 3: Allocation of 100 Points to all Attributes (0-100)
- VERSION 4: Dual Task: VERSION 4a - Yes/No (Important)
VERSION 4b - Allocation of 100 points (0-100)
- VERSION 5: Dual Task: VERSION 5a - Gradient Scale (1-6)
VERSION 5b - Allocation of 100 points (0-100)

Version 1 used a six point scale with which the respondent rated each attribute independently as to its importance in making a purchase decision. Version 2 required that each attribute be rank ordered as to importance. In this version the determination of importance is not made independently for each attribute. Version 3 had the respondent allocate 100 points to the set of attributes. Versions 4 and 5 also required the respondent to allocate 100

points but only after the respondent first had performed another task. Version 4 used a Yes/No importance rating for each attribute while Version 5 used essentially Version 1 (1-6 scale). There are several natural comparisons of results. Versions 1 and 5a using the 1-6 scale are comparable except for the anticipation of further work for Version 5a. Similarly, Versions 3, 4b, and 5b are similar in point allocations, although 4b and 5b follow performance on another task first.

As expected, time to complete the questionnaire for both shampoo and deodorant was least for Version 1 (about 6 minutes) and increased monotonically to Version 5 (about 11 minutes). Little difficulty was evidenced for Versions 1 and 2, whereas the point assignments required by 3, 4, and 5 did lead to errors in addition or failure to complete the task by about 10% of those sampled. Additional respondents were used to increase the sample sizes for these versions to a level comparable to 1 and 2.

A broad statement of the question underlying this work is: Do measures of "attribute importance" obtained from the several questionnaire versions differ? There are several dimensions to this overall question that are worth consideration. Among these dimensions are: levels of measurement, individual versus aggregate results, task differences, and stresses on specific attributes versus patterns across attributes.

As noted earlier, measures obtained in this study range from nominal (Version 5a - Yes/No) to interval (Versions 3, 4b, and 5b). To compare results across these levels of measurements requires that higher, interval levels of measurement be diluted in order to test against weaker, ordinal levels. Tests usable with ordinal level data are required for this purpose.

There are various uses to which information of the type gathered here would be put. Some uses require aggregation of results, as when individual attributes are of major concern, while other uses require that individual respondent vectors be weighted differentially. For this reason it is important that both individual and aggregated results be tested for differences.

Each questionnaire version requires the respondent to perform a somewhat different task. These task differences are viewed here as different contexts under which similar measurss are to be generated. Versions 3, 4, and 5, for example, all yield point allocations, but differ in the tasks completed prior to the point assignment. These task differences may result in differences in outcomes.

Finally, if differences emerge it would be useful to trace such differences, if possible, to specific attributes or to patterns of attribute evaluations made by respondents. This study will attempt to treat the issue of whether observed differences are due to comprehensive tendencies or to relatively few key attributes.

The next section will give the results obtained from the study and will move across these four major dimensions of the problem. The results are generally organized around levels of measurement proceeding from lower levels to higher levels of measurement. Within each level results on aggregation, task differences and attribute patterns are presented as appropriate. Finally, some overall results based on factor analysis across all questionnaire versions are given.

Results

Number of Important Attributes

Every one of the attributes for both product classes was termed "important" to some degree by at least a few respondents in the total sample.

By defining "important" as 2 or greater on the gradient scale of Versions 1 and 5a, as Yes on Version 4a, and as one or more points on Versions 3, 4b and 5b, the average number of "important" attributes per respondent was 9.5 for deodorants and 10.7 for shampoo. Thus, in both product classes, somewhat greater than half the possible number of attributes were termed important.

One hypothesis of the study was that the results obtained from different measures and different tasks or contexts would yield differences in the number of attributes called "important." Tests of this question are presented in Table 2.

Table 2
Version Differences: Number of Attributes
Given Positive Importance Scores*

		SHAMPOO (20 Attributes)				
Measure (Version)		(4a) "Yes"	(5a) "2-6"	(3) 1+Points	(4b) 1+Points	(5b) 1+Points
(4a)	"Yes" ($\bar{x} = 9.1$)	-----	$\leq .0001$	$\leq .10$	NS	$\leq .02$
(5a)	"2-6" ($\bar{x} = 14.7$)	$\leq .0001$	-----	$\leq .001$	$\leq .001$	$\leq .001$
(3)	1+Points ($\bar{x} = 9.9$)	$\leq .10$	$\leq .001$	-----	$\leq .10$	$\leq .10$
(4b)	1+Points ($\bar{x} = 9.0$)	NS	$\leq .001$	$\leq .10$	-----	$\leq .01$
(5b)	1+Points ($\bar{x} = 10.9$)	$\leq .02$	$\leq .001$	$\leq .10$	$\leq .01$	-----

		DEODORANT (17 Attributes)				
Measure (Version)		(4a) "Yes"	(5a) "2-6"	(3) 1+Points	(4b) 1+Points	(5b) 1+Points
(4a)	"Yes" ($\bar{x} = 8.7$)	-----	$\leq .0001$	NS	NS	NS
(5a)	"2-6" ($\bar{x} = 12.9$)	$\leq .0001$	-----	$\leq .0001$	$\leq .001$	$\leq .0001$
(3)	1+Points ($\bar{x} = 8.0$)	NS	$\leq .0001$	-----	NS	$\leq .05$
(4b)	1+Points ($\bar{x} = 8.3$)	NS	$\leq .001$	NS	-----	$\leq .06$
(5b)	1+Points ($\bar{x} = 9.5$)	NS	$\leq .0001$	$\leq .05$	$\leq .06$	-----

*Cell Entries Equal Level of Significance; t-test of Mean Differences (df = 98).

The 1-6 gradient scale (Version 1) compared to the Yes-No measure of importance (Version 4a) tends to shift answers from the "No" they would be given in Version 4a to some low level of Yes. The 1-6 gradient scale may therefore be able to achieve a finer distinction as to importance and apparently leads to a greater number of "important" attributes.

Within the point allocation versions where the tasks or contexts varied across Versions 3, 4 and 5, it appears that the presence of a prior task affects the number of attributes receiving points. The nature of this effect seems to differ between the two product classes. Although it is not clear that Version 4a (Yes-No task) differs from Version 3 for the two products studied, it does appear that Version 5 with a 1-6 gradient scale task prior to point allocations does lead to a greater number of attributes given importance points.

Ranking of Importance

The rank order of importance can be obtained by aggregating responses to each version in a manner consistent with the level of measurement achieved. These aggregated rank orders of attributes are presented in Table 3 (a and b). It can be seen that the seven measures yield very similar results, with Kendall W = 0.88 for shampoo and 0.96 for doedorant. Extreme ranks, those attributes of greatest or least importance, are especially stable.

Table 3a
Rank Order of Attribute Importance
Aggregated by Version - Shampoo

ATTRIBUTE	Overall	Version						
	MEDIAN RANK	1 (1-6)	2 RANKING	3 POINTS	4a YES-NO	4b POINTS	5a (1-6)	5b POINTS
1. Controls "Frizzy" Hair	12	15	11	7	10	7	14	11
2. Long-Lasting	10.5	5	10	8.5	12	12	10	9
3. Softness	7	8	7	8.5	3.5	6	7	8
4. Smells Good	10.5	12	8	12	6.5	10	12	12
5. Controls Dandruff	2	2	2	1	2	1	3	1
6. Gives Oil to Hair	16	17	20	16	16	11	17.5	16
7. Takes Oil from Hair	4	4	5	5	8.5	4	2	3
8. Gives Body to Hair	8	6.5	4	11	8.5	8	6	7
9. Has Right "Image"	20	19	19.5	20	20	20	19	20
10. Gives "Sex Appeal"	19	20	19	19.5	19	15.5	20	19
11. Gentle to Eyes	17	16	17	18	14	17	17.5	18
12. Gives Shine to Hair	9	11	9	10	11	13	8	10
13. Unbreakable Container	6	6.5	13	6	6.5	9	5	5
14. Hair Control	3	3	3	4	5	5	4	4
15. Lots of Lather	14	13	14	14.5	15	18	11	13
16. Medication	15	18	12	14.5	17.5	15.5	16	17
17. Price	5	9	6	5	3.5	3	9	6
18. Reputation of Manufacturer	13	10	16	13	13	14	13	14
19. Familiarity of Advertising	18	14	15	17	17.5	19	15	15
20. Cleans Thoroughly	1	1	1	2	1	2	1	2

Kendall Coefficient of Concordance: $W = .88$

$$x^2 = 116.5 \text{ (df = 19)}$$

Table 3b

Rank Order of Attribute Importance
Aggregated by Version - Deodorant

ATTRIBUTE	OVERALL MEDIAN RANK	Version						
		1 (1-6)	2 RANKING	3 POINTS	4a YES-NO	4b POINTS	5a (1-6)	5b POINTS
1. Controls Perspiration	2	2	1	1	2	2	2	2
2. Convenience of use	5	6	5	6	6.5	8	6	6
3. Long-Lasting Protection	3	3	3	3	3	3	3	3
4. Doesn't Sting	10	10	7	9	10	11	10	10
5. Doesn't Stain	6	5	6	7	8	7	5	5
6. Has Right "Image"	16	16	16	16	15	15	14	16
7. Easy Use by More Than One Person	12	14	12	13	11.5	10	15.5	11
8. Controls Odor	1	1	2	2	1	1	1	1
9. Smells Good	4	7	4	4.5	4	4	4	4
10. Price	8	9	8.5	4.5	6.5	5	9	8
11. Color	17	17	17	17	17	17	17	17
12. Familiarity of Advertising	13	13	13	14	13	13	13	12
13. Package Size	14	12	14	12	14	14	11.5	13
14. Package Shape	15	15	15	15	16	16	15.5	15
15. Isn't Sticky	7	4	8.5	10	5	6	7	7
16. Reputation of Manufacturer	11	11	11	11	11.5	12	11.5	14
17. Dries Quickly	9	8	10	8	9	9	8	9

Kendall Coefficient of Concordance: $W = .96$

$$\chi^2 = 107 \text{ (df = 16)}$$

This high agreement of ranks across versions is interesting in that it appears that the researcher interested only in aggregate rankings of importance can obtain this data from any of these methods, and can thus use the simplest and fastest of them (Yes-No or 1-6).

Interval or Ordinal Data?

It is usually the case, however, that the researcher will desire at least an interval level of measurement as input to further analysis. Typical uses of the Fishbein model, vector representations, factor analysis, and other multivariate models commonly assume at least interval data, and this data is often obtained from some variant of the 1-6 rating scale.

Analysis of Version 5 data can provide evidence regarding the scaling power of the 1-6 scale. Each attribute was first rated on the 1-6 scale (Version 5a) then given some number of points (Version 5b) by each respondent. Assuming that Version 5a's point assignments lead to an interval scale, these points can be related to their 1-6 rating to reconstruct a point scale underlying the 1-6 assignments. The results of this analysis are presented in Table 4. It can be seen that the mean intervals associated with the 1-6 ratings are not at all similar, but instead increase dramatically for high importance terms. An analysis of individual responses, moreover, showed that not one of the fifty respondents exhibited an interval scale for either product. Although about ten percent came close, these were more than balanced by some 20% of respondents who were not even monotonic in their point assignments.

Table 4
Points Associated With 1-6 Scale
(Across Attributes - From Version 5)

I. Shampoo (n=51, 20 attributes)

	1	2	3	4	5	6	Σ
Number of Times Chosen	273	147	178	206	151	65	1020
Mean Points Assigned	.05	1.55	2.48	5.93	10.45	24.83	
Mean Interval	1.50	.93	3.45	4.52	14.38		

II. Deodorant

	1	2	3	4	5	6	
Number of Times Chosen	202	153	132	160	118	85	850
% Times Chosen	(.24)	(.18)	(.16)	(.19)	(.14)	(.10)	
Mean Points Assigned	.05	1.23	3.69	5.63	12.20	23.10	
Mean Interval	1.17	2.45	1.94	6.57	10.90		

It seems, then, that the desirable characteristics of the 1-6 scale used in this study do not include interval measurement. In order to obtain interval measurement, it would be necessary either to perform a prior scaling study of the sort described by Myers and Warner^[8], transform weights through a concurrent scaling study, or move to some version of point assignments.

Point Allocations

As it is often desirable to utilize a device which leads directly to an interval scale, point allocations have appeal. However, there is no single criterion that exists for the evaluation of this level of measurement. For the purposes here, the most straightforward evaluation method seemed to be to ask for point allocation with no prior task (Version 3). This version forms a baseline against which two variants with prior tasks could be evaluated: Version 4 which uses a Yes-No judgment prior to point awards and Version 5 which asked for a 1-6 rating.

As would be expected from the results presented in Table 3, there is no major effect on the rank order of means obtained from Versions 3, 4, and 5. The Kendall W between the three measures is 0.93 for Shampoo and 0.97 for deodorant.

Table 5 summarizes both F- and t- tests by attribute for all three versions of the point assignments. F- tests for differences of means among all three versions are significant for only 1 attribute for deodorants and 3 attributes for shampoo. Paired versions and corresponding t- tests similarly showed few significant differences. When the shampoo attributes were tested pair wise across all three versions for mean differences, only 4 out of a possible 60 pairs were significantly different at the .10 level. Similarly, only 7 out of a possible 51 pairs of deodorant attributes were significantly different. It appears that the presence, as well as the nature of a prior task does not have a great effect on the mean importance scores generated for each attribute.

As pointed out earlier and as indicated in Table 1, the three versions do differ in the number of attributes given one or more points. The differences in mean scores are slight as just discussed. There is, however, for some attributes considerable difference in the variance surrounding mean scores of the attributes. Table 5 shows that a statistically significant difference in variance exists for both shampoo and deodorant attributes. On a pairwise comparison basis, over 50 percent of the variances were significantly different. Further analyses were made to determine patterns and possible causes of these differences in variances. However, they appear to occur without discernible pattern and are not correlated with the characteristics of the attribute or its corresponding importance weight.

Table 5

Number of Attributes with Significant Differences in Means and Variances*

T - Tests of Mean Differences (Tested Pairwise)

<u>SHAMPOO</u>				<u>DEODORANT</u>			
VERSION	3	4b	5b	VERSION	3	4b	5b
3	-	0	1	3	-	1	2
4b		-	3	4b		-	4
5b			-	5b			-

One Way Analysis of Variance of Mean Differences

SHAMPOO: Three attributes were significant
(Number 7, 17, and 19)

DEODORANT: One attribute was significant
(Number 11)

F - Test of Differences Between Variances

<u>SHAMPOO</u>				<u>DEODORANT</u>			
VERSION	3	4b	5b	VERSION	3	4b	5b
3	-	10	11	3	-	10	10
4b		-	14	4b		-	9
5b			-	5b			-

* Significant at the .10 level.

There is sufficient evidence to suggest that the several questionnaire versions do yield different results. Piecemeal comparisons do not point to an overwhelming and easily recognized pattern. Hence, some means of examining pattern differences as opposed to specific attribute differences among the several versions seemed desirable. Two approaches were used. The first was to use a multiple discriminant analysis of point vectors for the three versions.⁴ The second, which included versions 1 and 2 as well, was to perform a factor analysis in an attempt to reduce the number of independent dimensions to be considered. In both cases, patterns are of interest which leads to a somewhat non-standard use of both of these techniques.

The multiple discriminant analysis correctly classified about 50% of the respondents as to the three versions (49% for shampoo and 55% for deodorants). This can be compared to a hit or miss chance level of 34%, and is significant beyond 0.001. Although the classificatory power would be expected to shrink somewhat using a holdout sample, the strength of this result does suggest that pattern-wise there are differences among the versions.

Given the contradictory evidence over the several versions studied, it seemed further useful to see whether whatever differences which exist would be detected by a technique that might commonly be used to reduce the larger set of attributes to a smaller number of dimensions which are presumed independent of one another.

The data obtained from the five versions was submitted to factor analysis.⁵ The results of this analysis were examined for agreement between versions in terms of the number of factors obtained, the factor loadings that resulted, and similar measures appropriate to factor analytic methodology. In the most general sense it might be expected that each of the 6 versions (Version 5 was analyzed as 5a and 5b, also, recall that Versions 1 and 5a, and Versions 3, 4b, and 5b were of the same type of measurement) would yield similar number of factors and similar amounts of explained variance.

Table 6a indicates that, for shampoo, the number of factors ranged from 5 (Versions 1 and 5a) to 8 (Versions 3, 4b, and 5b) with Percent Explained Variance ranging from 45% (Versions 1 and 5a) to 71% (Versions 3, 4b, and 5b). While the range was fairly great across versions, there was general overall agreement for similar measures. Results for the versions across deodorants were less stable. The number of factors ranged from 3 to 7 and the Percent Explained Variance from 36% to 69%. Versions 1 and 5a displayed 4 and 3 factors respectively with only 51 and 36 percent explained variance. Versions 3, 4b, and 5b were much less stable than for shampoo with 6, 7, and 4 factors respectively and 67%, 69%, and 41% explained variance.

Examination of the individual factor loadings indicates much more strongly the differences between the six versions. It is rarely an easy task to interpret, summarize, and communicate factor analysis results. The lack of agreement among factor loadings can be seen by examining the numbers of times attributes were similarly paired by two or more questionnaire versions under identical factor analytic conditions. Little agreement occurred as Table 6b indicates. The maximum agreement, i.e. all six versions, did not occur for a single pairing for either shampoo or deodorant, nor did any five agree. Only twice were attributes paired by four different versions for deodorants and not at all for shampoo. Agreement by three versions occurred only four times for both shampoo and deodorant. Agreement by two versions occurred 11 and 18 times for shampoo and deodorant respectively. Sixty-one and 43 different pairs for shampoo and deodorant were brought out singly by the six different versions. Attempts to name the factors proved difficult and showed little communality across versions.

While a very rough way to summarize the results, this general lack of agreement would indicate that the factors developed by each version of the questionnaire were strikingly different. As before it is difficult to pinpoint the cause, but it does appear that how importance of attributes is measured seems to make some difference in the results to be achieved.

TABLE 6a
SUMMARY OF FACTOR ANALYSIS RESULTS
FOR QUESTIONNAIRE VERSIONS

Questionnaire Version	Number of Factors		Percent Explained Variance	
	Shampoo	Deodorant	Shampoo	Deodorant
1 (1 - 6)	5	4	46	51
2 (Rank)	7	5	58	49
3 (Point)	8	6	68	67
4b*(Point)	8	7	68	69
5a (1 - 6)	5	3	45	36
5b**(Point)	8	4	71	41

*Preceded by Yes - No Importance.

**Preceded by 1 - 6 Gradient (Version 5a)

TABLE 6b
PAIR GROUPS OF FACTOR LOADINGS
BY QUESTIONNAIRE VERSION

Number of Different Versions Yielding Pair Grouping	Shampoo (20 Attributes)		Deodorant (17 Attributes)	
	Total	Agree By Sign	Total	Agree By Sign
1	61	--	43	--
2	11	11	18	14
3	4	4	4	3
4			2	3
5				
6				

Conclusions

No single judgment can be made as to the results obtained in this study, but some findings of potential value for future research have emerged:

1. Aggregated rank orders of attribute importance appear quite stable across versions. Simple "yes-no" or "1-6" judgments work as well as any of the more difficult tasks.
2. Use of an arbitrary dichotomy for importance yields differences across versions. The 1-6 gradient scale seems to generate finer distinctions when used alone and also when used as a warm-up for point allocations. It also offers a combination of both independent and relative ratings of importance and was easily completed by the respondents.
3. The 1-6 scale falls short of interval measurement, however, and its measures should only be viewed as ordinal. If interval data is required, either a separate scaling study should be run in conjunction with the 1-6 scale, or a shift to some version of point allocation should be undertaken.
4. Evidence from three versions of point allocations is mixed. The three versions yield similar mean points for almost all attributes. The few attributes that differ by version are difficult to characterize. Variances about the attribute means show many more significant differences across versions, but again no systematic rationale can be seen to account for these differences. It is at this point that the stability found on broader levels begins to break down. It appears that respondents may have approached their tasks in comprehensively different fashions which may lead to instability of patterned responses.
5. The possibility of pattern instability is further confirmed by results of multiple discriminant analysis and factor analysis. These findings clearly showed differences in responses over the three versions studied, and raised the question of how adequately a single measuring device really represents the construct it is purporting to study.

In conclusion the purpose of this study was to provide evidence concerning the problem of measuring attribute importance. Expectations were that results would be straightforward; importance scores across versions would be either consistent and interpretable or inconsistent and interpretable. Actual results, of course, were somewhat consistent, somewhat inconsistent, and generally noninterpretable. The results are, however, suggestive of follow-up research efforts. Stress should be given to measurement intended for higher-level analysis, since considerable stability was achieved on simple importance rankings measured by any version. With respect to the higher level analysis this study indicates that results are sensitive to differences in response method, but they do not provide an answer as to whether the differences are due to unreliability or to a systematic bias. Reliability can be tested through a longitudinal design. Validity is particularly troublesome due to the absence of even a clear predictive criterion, since the measures are now used as intermediate inputs for testing models (of unknown validity) which are aimed either at inference of attitude structure or prediction of behavior. It would seem that two approaches to the

validation issue are possible. A tangential method would involve sensitivity analysis of the models to determine how "true" the measurement needs to be. If results show little sensitivity, the problem can be dispensed with. If not, creative search for a specific criterion related to the particular model must be undertaken.

FOOTNOTES

1. Associate Professor of Industrial Administration, Assistant Professor of Industrial Administration, and Doctoral Candidate, respectively.
2. "Importance" should be understood here to refer simply to some desire or need for the presence of a particular attribute in a product. Questions as to which of a set of attributes are most crucial for a purchase decision are more complex issues ("saliency" or "determinism" [See 6,7] which might use "importance" measurement as one input.
3. See Tables 3a and 3b for lists of these attributes.
4. Discriminant Analysis is here used to test whether patterns of points across all attributes can be used to correctly identify the questionnaire version leading to that pattern.
5. The method used was principal component factor analysis with varimax orthogonal notation. Communalities were estimated by the squared multiple correlation coefficient. Only those factors associated with an eigenvalue greater than or equal to 1.0 were subjected to rotation.

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NEW CONCEPTUAL APPROACHES IN THE STUDY OF INNOVATION

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This paper presents three new conceptualizations relevant to the adoption and diffusion of innovations. Because of their newness they presently lack direct empirical evidence. They are, however, logically derived from existing knowledge and research perspectives and promise considerable, fresh insight into the processes whereby innovations gain or fail to gain individual and broad social acceptance. The first conceptualization suggests that if the adoption and diffusion of innovations is the object of study it might be fruitful to examine as the relevant adopter unit only those which perceive a given idea, practice, or object as an innovation. The second conceptualization suggests a different approach to the treatment of attributes of items likely to be perceived as an innovation by some adopter unit. The third conceptualization argues for more explicit treatment of resistance factors and processes. While the study of successful instances of innovation has been fruitful, the incremental value of additional studies of this nature seems to be diminishing. Moreover, there is a general consensus that unsuccessful diffusion attempts are the rule rather than the exception. By studying factors affecting the failure of both planned and unplanned diffusion attempts we might gain considerable insight into processes affecting social change in general and diffusion in particular.

Perception in Innovation

Several approaches have been taken to defining an innovation. Various writers have used such criteria as: qualitative distinction from preexisting phenomena (Barnett, 1953); functionally new (Federal Trade Commission, 1967); degree of acceptance within the relevant social system (Bell, 1963); effects upon established patterns of consumption or behavior (Robertson, 1971); newness as perceived by an objective investigator (Engel et al, 1968; Jacoby, 1971); and newness as perceived by the relevant unit of adoption (Zaltman and Lin, 1971; Rogers and Shoemaker, 1971).

Of these various approaches the one with the most significant implication is that which emphasizes perceived newness by the adopter. Zaltman and Lin (1971:656-57) "Consider as an innovation any idea, practice, or material artifact perceived to be new by the relevant unit of adoption." Rogers and Shoemaker (1971) have established essentially the same position. This idea of perception should not be confused with the idea of the perceived characteristics of the innovation once it is established as new. That an individual or some larger unit of adoption perceives an idea or object as new is one thing, what produces this perception is another matter.

There is some empirical justification for considering an innovation as the result of a perceptual process for we know that sensation, in which perception is embedded, is, fundamentally, a matter of energy change or differentiation. Experiments in sensory deprivation demonstrate that a certain amount of differentiated and changing input is necessary for mental balance in the human being. In other words, the individual needs to perceive change in his environment if he is to perceive anything at all. Recognizing innovations is, of

course, a major way of introducing change in one's environment and various physiological, psychological and cultural conditions ensure such recognitions. In a very real sense innovations are the output of a perceptual process.

To sum up the discussion thus far, innovations have existence only as a perception and reality is only what is perceived. If innovations are perceived differently by different people or differently over time by a given individual then there are "different" innovations involved. Also, the same item may be perceived as an innovation by one person and not by another or what one person perceives to be innovative about an item is not what another person may perceive as new. There are two important implications of this perceptual approach to innovation. These are considered below.

Defining Adopters on a Perceptual Basis

Perhaps the most significant but virtually unexplored consequences of the perceived newness approach is in defining the relevant target group to study. What is an innovation for some adopters may not be for others. Therefore most innovation diffusion studies may be misleading in that they are likely to be studying adoptions of ideas or practices differentially perceived by adopters as innovations. Should those who perceive an object as not new or only slightly new be included in any study of diffusion? Current practice says "yes" but this is a very difficult position to maintain or defend from a logical point of view. Obviously many diffusion curves would look much different if we were to exclude those to whom an item is not new. How they would differ is a matter for subsequent empirical investigation.

Many empirical studies have demonstrated that those who adopt innovations in approximately the same time period tend to share common traits. (It should be added, however, that there are differences among studies as to what these traits are for any given cluster of adopters.) Defining groups on the basis of relative time of adoption is very misleading. Time is merely a proxy variable serving as a convenient operational measure of a more complex set of variables. One very serious misuse of time in diffusion studies occurs when it is used as a dependent variable. This is not to say time should not be used as an independent variable but rather that in such instances it has sometimes been misleading. The problem stems from our view of time as a proxy variable, an index composed of several variables. The actual problem is that the independent variables used to explain or predict the rate of diffusion are sometimes the very variables for which time is a proxy.

Perhaps a more fruitful approach to segmenting adopters or potential adopters is to do so on the basis of perceptions. One could classify people or groups according to the extent to which they perceive a given item as new. It is quite conceivable that some of those who are among the earliest adopters, e.g. "innovators," might be those to whom the item in question is not perceived as significantly new. Similarly, one can readily imagine a situation where so-called laggards are simply people who do not regard the product or idea as new.

It is suggested here that degree of perceived newness be considered as a criterion variable and its physiological, psychosocial and cultural determinants be found and developed. This would provide an entirely new foundation upon which change agents or interventionists can build their strategies and tactics for induced social change. While it is a subject for empirical investigation it is likely that new clusters of consumers would form when defined in terms of perceived newness and new and perhaps more useful underlying variables or adopter traits located.

Perception in the Adoption Process

This emphasis on perception has yet another significant implication. In most studies adoption is said to occur when an individual or some multi-member entity continues to make full use of the idea he perceives as new. This raises the question as to whether perceived newness remains intact throughout the adoption decision making process? The more basic and fundamentally more difficult question to answer is how long after initial exposure does perceived newness linger on? Alternatively, what is the relation of the perception of newness to the stages of adoption? Conceivably an item may be initially perceived as new but later during the evaluation or experimentation stages found not to be so new after all. Conversely, as the individual becomes more familiar with an item he may find that it is indeed significantly new or different in some way.

The differential relevance of particular innovation attributes at each stage has also been a topic of research (Lin and Zaltman, forthcoming). Certainly viewing the relevance of innovation characteristics particularly their differential relevance at different stages has made important contributions to our understanding adoption and diffusion processes. But different stimuli are perceived at each decision stage and the issue of whether the item is differentially perceived as an innovation has simply not been treated. This has many implications for change agents. Depending on the importance of perceived newness and its positive or negative impact on the adoption decision the change agent may wish to alter its salience over the course of the adoption process of the major target groups. This calls for considerable research into the psychosocial and situational factors affecting perceived newness. One factor which seems especially important concerns perceptual transformation or the change which can be induced in a percept by adding new elements to the situation. This reaches the very heart of the perceptual process and holds great promise as a source of clues suggestive of ways we can manipulate the image of an innovation and intervene in the individual's cognitive structure.

New Perspectives on Innovation Traits

The importance of perceived innovation characteristics as factors affecting adoption cannot be understated. Ostlund (1969), for example, found that product perception factors overall had greater power in predicting innovativeness for the six new products he studied than did all of several predispositional variables including such frequently used concepts as venturesomeness, cosmopolitanism, and social integration, etc. and such demographic and socioeconomic including education, age, income, and occupational status. The product perception factors studied and their relative order of (decreasing) importance were: relative advantage, compatibility, perceived risk, divisibility, complexity and communicability.

Perception has been stressed earlier in this paper as a key process affecting the interpretation of an item as an innovation. Along these lines Osgood et al (1962:248) has suggested that there are three basic dimensions of perception: activity, evaluation, and potency. Perhaps these three factors can be used to classify by semantic differential techniques the basic perceived attributes of innovations such as compatibility, terminality, etc. which customarily affect their rate of adoption. It would also be useful to determine whether there are differences among adopter categories (defined on the basis of degree of innovation perceived) in their classification of basic underlying attributes of innovations.

The manner in which people identify with or project themselves into an innovative situation may possibly be subject to categorization with each potential adopter category consistently emphasizing different dimensions, e.g., activity, evaluation, and potency. While the physical attributes of a material innovation may provide certain limits as to what is or can be perceived their perception is also influenced by the cultural, social, and psychosocial qualities influencing the perceiver. An innovation having a direct physical manifestation is more subject to standardization and hence may be most readily classified according to potential adopter perceptions. Ideas and practices would be more difficult to investigate along these lines.

An attribute of innovations which has been little studied as an attribute per se concerns the impact of an innovation upon interpersonal relationships among adopters or between adopters and non adopters. Certainly many studies have focused on the impact and consequences of an innovation upon individuals and groups of various characteristics. But the potentiality of innovations for having various consequences has received little attention. For example, innovations may vary along a disruptive-integrative continuum. Related to this is the consideration of whether the innovation is more relevant to the socio-emotional (internal) functioning of a group than to its task and goal (external) function or vice versa.

It is quite possible that initial non adoption by an individual may reinforce or strengthen his relative integration in a group but as the innovation gains acceptance by others within a group the non adopter becomes increasingly marginal (at least with respect to the innovation in question) while the reverse process occurs for the earliest adopters.

In general, relatively little work has been done concerning the perceptual processes of informal and formal groups as single entities. Consequently, little is known about group perceptions of innovations. They may or may not mirror the dimensions and attributes considered relevant by individuals.

Zaltman and Lin (1971) have recently elaborated upon new characteristics of innovations not previously treated in the literature. One concern is with the degree of commitment required for successful use of an innovation. Another attribute concerns the publicness and conversely the privateness of an innovation. A public good is one which, if it is available to one party in a social system, is automatically and simultaneously available to all members. The number of gatekeepers involved in the dissemination of an innovation is also important, as are the number of nodes in a social system through which an innovation must pass or through which it can enter. Gatewayability defined by Zaltman and Lin as the extent to which the adoption of an innovation may open avenues for the adoption of other innovations, is also important.

The concept of compatibility as a salient attribute of innovations has been most thoroughly reviewed by Thio (1971) who traces its treatment from first use at a cultural level of analysis, to a social level and most recently at socio-psychological level of analysis where attention has been given to its "goodness of fit" with such adopter characteristics as personality, emotional attitude, value orientation, previous innovative experience, beliefs, education and income level. The notion of compatibility is particularly tied to the psycho-social-cultural world of the adopter-to-be and perhaps more than any other innovation attribute must be considered in conjunction with that psychosocial world. Especially important is symbolic compatibility which refers to the subjective perception of the potential adopter, i.e., what the adopter-to-be sees in the innovation. Also relevant is functional compatibility which concerns what is

functionally required of the possible adopter in order to make use of the innovation. Thus, the following typology is offered. These two aspects of compatibility must be considered in interaction with the cultural, social, and psychological levels of analysis or experience.

Angelmar (1971) has provided some important insights into the concept of an innovation which raises some interesting theoretical questions and casts light on the task of classifying innovations. He notes that many attributes commonly associated with innovations (and mentioned earlier in paper) are not necessarily related to their being perceived as new. Examples of such attributes are divisibility, communicability, and terminality. This is not to say that such factors do not affect the behavior toward an innovation. Rather, we must distinguish between those factors which are likely to be the components of the newness being perceived on the one hand and those factors associated with an innovation which function to retard or facilitate its adoption on the other hand. In addition, there are variables which represent the antecedents of perceived newness. One example is the recency with which the potential unit of adoption has been exposed to the innovation. Often (but by no means always) this is related to the period of time an item has been in existence.

Resistance to Change

Resistance to change is more rule than exception. Interestingly, most diffusion studies focus on the exception -- successful innovation -- rather than the rule. It is suggested here that by examining and understanding the sources and forces of resistance to change marketers will increase significantly the likelihood of success in programs of planned change. The change agent or interventionist needs to know what not to do and how he can bypass points of resistance.

Given the constraints imposed on this paper we can do no more than indicate what forms resistance takes. First we shall present resistance forces as they relate to two adoption models recently suggested by Robertson (1971) and Zaltman and Brooker (1971). Following this we shall present in summary form sources of resistance as outlined by Watson (1971) and Foster (1962), the two best treatments of the subject.

Exhibit 1 presents some potential causes of incomplete or aborted adoption decision making processes. Both change agent and adopter causes are considered. The exhibit is self-explanatory. The particular acceptance process is one developed by Robertson (1971).

Exhibit 1

Potential Causes of Incomplete Acceptance Processes (Robertson Model)

<u>Acceptance Process Stage</u>	<u>Change Agent Causes of Incomplete Acceptance Processes</u>	<u>Adopter Causes of Incomplete Acceptance Processes</u>
Problem Perception	Failure to comprehend relevant situation	Perceptual defense satisfaction with status quo

Exhibit 1, Continued

<u>Acceptance Process Stage</u>	<u>Change Agent Causes of Incomplete Acceptance Processes</u>	<u>Adopter Causes of Incomplete Acceptance Processes</u>
Awareness	Poorly used or too little communication	Selective exposure selective perception
Comprehension	Communication difficult to understand	Faulty organization of information
Attitude	Communication not persuasive	Complacency suspended judgment
Legitimation	Poor source effect of communications	Bending to social pressure against adoption
Trial	Behavioral response not specified in communications	Evaluating alternative or status quo equally as good
Adoption	Failure to adapt innovation to meet needs	Replacing with another innovation
Dissonance	Innovation attributes incorrectly communicated	Expectations greater than reality

Source: Brooker, 1971 (adapted from Zaltman and Stiff, forthcoming)

Exhibit 2

Potential Causes of Incomplete Acceptance Processes
(Zaltman and Brooker Model)

<u>Acceptance Process Stage</u>	<u>Adopter Causes of Incomplete Acceptance Processes (Adopted from Watson, 1971; Foster, 1962)</u>
Perception	Selective processes; differential cross-cultural perception
Motivation	Primacy, habit, misdirected perception of purpose
Attitude	Illusion of impotence, conflicting role perception
Legitimation	Dependence, attitudes toward gifts, source effects
Trial	Self-distrust, demonstration dangers
Evaluation	Insecurity and regression, anxiety, learning problems
Adoption/Rejection	
Resolution	Homeostasis, commitment

Source: Zaltman and Brooker, 1971

Exhibit 2 is also self-explanatory. However, resistance factors in both exhibits are oriented at the individual level. Important diffusion inhibiting factors exist at the group and cultural level. Briefly, as outlined by Watson (1971), these include conformity to norms, systemic and cultural coherence, the sacrosanct, rejection of outsiders, restricted communication, and the hierarchical structure of power. Foster (1962) speaks of tradition, fatalism, pride and dignity, norms of modesty, group solidarity, factionalism, vested interests, authority systems, class and caste barriers, etc.

Conclusion

Although diffusion research in general and marketing in particular has progressed considerably during the past several years, there is a need for substantial reorganizing of existing conceptual schemes. This paper has presented a few such promising approaches. Certainly the area of resistance which was necessarily given brief treatment here deserves much further exploration. The authors also feel that a reconsideration of the concept of innovation and the role of perception as an indicator of adopter categories is warranted.

Footnotes

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PROFILING SELF-DESIGNATED OPINION LEADERS and
SELF-DESIGNATED INNOVATORS through LIFE STYLE RESEARCH

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Introduction

This paper is about opinion leadership and innovation and the life style profiles that describe homemakers who possess one or both of these characteristics. The frame of reference is shopping behaviour for a host of convenience foods, durables, drugs, personal cosmetics and grooming aids. The paper attempts to answer several questions.

1. What are the life style and demographic characteristics of the self-designated opinion leader (SDOL) and the self-designated innovator (SDI)?
2. What is the overlap between the SDOL and the SDI?
3. How can the SDOL and the SDI be reached through a media selection strategy?

Wherever possible, comparisons are made between the results obtained in this research and the results obtained by previous researchers. In addition, comparisons are drawn between the results of the U.S. study of 1967 and the Canadian study of 1970. The reader should, however, bear in mind two factors. First, the samples reported here were national in scope compared to the more limited samples used in the majority of earlier studies. Second, the dependent variables, self-designated opinion leadership and innovation, differ in nature from those of other studies. These differences will become more apparent in the later sections on methodology and analysis.

The Concept of Life Style

What is Life Style Research

Lazor (4) presents a description of life style:

"Life style is a systems concept. It refers to the distinctive or characteristic mode of living, in its aggregative and broadest sense, of a whole society or segment thereof. It is concerned with those unique ingredients or qualities which describe the style of life of some culture or group, and distinguish it from others. It embodies the patterns that develop and emerge from the dynamics of living in a society."

To a certain extent, life style research, variously called "psychographics" and even (incorrectly) "attitude" research, resembles motivation research in that its major objective is to draw recognizably human portraits of consumers. Life style research, however, has several advantages over typical motivation research. These include:

- 1) Large sample sizes,
- 2) Conclusions that do not rely heavily on interviewer interpretation or unstructured response, and
- 3) Data that are easily analyzed by a variety of well-understood statistical methods.

Life style research attempts to identify and profile consumer groups in a manner clearly understandable to the copywriter and to the media selection

strategist. The underlying premise is: "the more we know about our target market, the more likely we will be able to design effective copy and to select effective media to reach and communicate with that target market." Pessemier and Hustad (6) and Wells and Tigert (9) provide summaries of the research to date in this area.

Typically, life style questionnaires possess the following characteristics:

- 1) They contain many questions with some recent surveys running over 70 pages.
- 2) They are self-administered with the life style section consisting of a series of statements to be answered on a Likert scale (see Exhibit I).
- 3) The life style questions are either general, covering 40-50 hypothesized dimensions, or product specific, with a large number of questions covering three or four product categories.
- 4) They are usually designed to profile market segments, i.e. heavy users, heavy readers, heavy viewers, users of Brand "A", etc., although they are not limited to these areas. Life style research can be used to profile political affiliation, culture differences, and in the case of this paper, opinion leadership and innovativeness.

In summary, life style research attempts to address man as a system, and to understand him as a consumer. It seeks to quantify activities, interests, opinions and behaviour by systematically searching through a relevant set of dimensions specific to the problem at hand.

To the extent that demographic characteristics may themselves be related to both life styles and behavioural patterns, they play an integral part in any analysis. However, in some instances, particularly in the research described here, demographics may provide little or no discriminatory power. When this phenomenon occurs, life style can play its strongest role.

Data and Methodology

Data

Canadian data. In May and June, 1970, a self-administered life style questionnaire was completed by 4,100 male and female Canadians over the age of 18. This questionnaire was part of a larger study (Trendtape III) conducted similar to the Simmons studies in the U.S. This larger national area probability sample of 7000 was originally contacted via an in-home interview for purposes of measuring media exposure patterns (print and broadcast), product consumption habits and demographic characteristics. The life style questionnaire was left behind for completion and was returned by 4,100 respondents. From this sample the subset of 1859 English-speaking female household heads were selected for the analysis reported here. In addition to responding on 300 general life style statements, respondents also answered questions on media exposure (TV-Q), product consumption, and use of services.

U.S. data. In October, 1967, a similar mail questionnaire was administered to one of the national panels maintained by Market Facts, Incorporated. Each panel was constructed to parallel up-dated U.S. census data with respect to geographic divisions, total household income, population density, and age of panel member. Of the 1,000 life style questionnaires mailed out, 787 useable returns formed the data base for the U.S. analysis.

EXHIBIT I - A PAGE FROM A LIFE STYLE QUESTIONNAIRE

SECTION 1 - ABOUT DAILY ACTIVITIES

In this section I have listed a number of statements about daily activities. For each statement listed, I'd like to know whether you agree or disagree with this statement.

After each statement, there are six numbers from 1-6. The higher the number, the more you tend to agree with the statement. The lower the number, the more you tend to disagree with the statement. The numbers 1-6 may be described as follows:

- 1 I definitely disagree with the statement
- 2 I generally disagree with the statement
- 3 I moderately disagree with the statement
- 4 I moderately agree with the statement
- 5 I generally agree with the statement
- 6 I definitely agree with the statement

For each statement, please circle, preferably with a red pen, the number that best describes your feelings about that statement. You may think many items are similar. Actually no two items are exactly alike, so be sure to circle one number for each statement.

<u>Statement</u>	<u>Definitely Disagree</u>					<u>Definitely Agree</u>
I like gardening	1	2	3	4	5	6 <u>/0/11/</u>
I spend a lot of time with my children talking about their activities, friends and problems	1	2	3	4	5	6 <u>/0/12/</u>
I would rather listen to classical music than popular music	1	2	3	4	5	6 <u>/0/13/</u>
A house should be dusted and polished at least three times a week	1	2	3	4	5	6 <u>/0/14/</u>
Soft drinks should only be sold in bottles that can be used over and over again	1	2	3	4	5	6 <u>/0/15/</u>
I am or have been active in the PTA	1	2	3	4	5	6 <u>/0/16/</u>
I do not get enough sleep	1	2	3	4	5	6 <u>/0/17/</u>
I enjoy going to concerts	1	2	3	4	5	6 <u>/0/18/</u>
I own my own power tools	1	2	3	4	5	6 <u>/0/19/</u>
A woman's place is in the home	1	2	3	4	5	6 <u>/0/20/</u>
A news magazine is more interesting than a fiction magazine	1	2	3	4	5	6 <u>/0/21/</u>
Information I get about a product from a friend is better than what I get from advertising	1	2	3	4	5	6 <u>/0/22/</u>
The Federal Government has too much control over the provinces	1	2	3	4	5	6 <u>/0/23/</u>

Methodology

Defining the dependent variables. The dependent variables were formulated in the following manner:

- 1) Among the 300 questions on life style there were fifteen questions specifically designed to measure opinion leadership, innovation and interpersonal communication. These fifteen questions were factor analyzed using principal components and varimax rotation. Two of the resulting four factors were defined as "opinion leadership" and "innovation" (see Table 1).

Table 1

Factor Loadings for Opinion Leadership and Innovation
(Dependent variables for this paper)

	1970 CANADA (n=1859)	1967 U.S. (n=856)
<u>Opinion Leadership</u>		
People come to me more often than I go to them for information about brands .....	.80	.69
My friends or neighbours often come to me for advice .....	.75	.54
I sometimes influence what my friends buy .....	.47	.53
<u>Innovation</u>		
When I see a new brand on the shelf, I often try it just to see what it's like .....	.66	.73
I often try new brands before my friends and neighbours do .....	.66	.66
I like to try new and different things .....	.57	.63

- 2) To ensure stability of the factors these same fifteen questions were included in a later factor analysis of a larger set of 125 life style statements. The same two factors (SDOL and SDI) emerged with almost identical factor loadings. In addition, the data were submitted to split-half reliability analysis and subsample³ analysis. Identical results were obtained. Thus, the two dependent variables exhibited a high degree of stability across counties, across time, with different mixes of questions, and when submitted to reliability analysis.
- 3) For each of the two dependent variables, simple sum scores were computed for each respondent by summing over the three questions loading on the factor. The use of varimax rotated factor scores was rejected since this procedure would have produced a zero correlation between SDOL and SDI. One of the original objectives of

the paper was to examine the degree of overlap between SDOL and SDI. An alternative to the use of simple sum scores would have been the development of obliquely rotated factor scores.

- 4) Summing over three questions, each of which was coded on a six-point scale from "definitely disagree" to "definitely agree" (6), produced a scale from 3-18 for each dependent variable. For purposes of regression analysis, the scores were left in their raw form. For cross-tabulation analysis the scores were collapsed into the following distributions: (Canadian data only).

	<u>Low</u>	<u>Medium</u>	<u>High</u>
<u>Opinion Leadership</u>			
Sum Score range	3-8	9-13	14-18
Percent in each range ...	34%	52%	14%
<u>Innovation</u>			
Sum score range	3-8	9-13	14-18
Percent in each range ...	25%	54%	21%

Thus for the Canadian data, 14 percent of the sample was defined as scoring high on SDOL and 21 percent of the sample was defined as scoring high on SDI. On average, respondents in this range generally or definitely agreed to the three questions comprising the sum score. In the U.S. study, the sum score was artificially divided into thirds, so that one-third of the sample was defined as high on SDOL and one-third was defined as scoring high on SDI. However, based on more recent reports in the literature, the Canadian data was collapsed to both provide a more realistic definition of the SDOL and the SDI and to conform to the other published studies.

Developing the life style and demographic profiles. The three statistical analyses of cross-tabulation, stepwise regression, and automatic interaction detection (AID analysis) were utilized in profiling the SDOL and the SDI.

For both Canadian and U.S. data, the 300 life style questions were individually cross-tabulated against the collapsed SDOL and SDI sum scores. Next, each of the significant life style variables (i.e. chisquare sig. at .01 level or better), were factor analyzed to identify the underlying life style dimensions related to either SDOL or SDI.

In the case of the Canadian data, these underlying dimensions, in the form of simple sum scores for each respondent, formed the data input to stepwise regression analysis where either the SDOL score or the SDI score was the dependent variable. The regression analyses also included demographics as independent variables.

In the case of the U.S. data, similar sum scores were developed for the significant underlying life style dimensions and the data was submitted to AID analyses, a backward segmentation procedure used to identify the most relevant characteristics of respondent segments. Again, the demographic variables were included in the analysis. In the case of AID analysis where all variables are constrained to split on a high-low basis, the procedure is similar to stepwise regression analysis.

The results and interpretation of the analyses are discussed in Section IV of the paper. In Section V, the results are related to other published literature in this field. In the final section, the implications for marketing strategy are discussed.

Analysis and Discussion

Self-Designated Opinion Leadership and Innovativeness

It is not the purpose of this paper to debate the merits of using the self-designating method to identify opinion leaders or innovators. That debate has been treated by King and Summers (2) and the issue has been further treated by other papers at this conference. For the reader who rejects the notion of generalized self-designated opinion leadership or innovation, this paper has little to offer. However, it is clear that researchers are split on the notion of whether opinion leadership and/or innovative behaviour is monomorphic or polymorphic. In addition, researchers seem unsure whether or not the self-designated method has predictive validity. One paper, by Pessemier, Burger and Tigert (5), did indicate support for predictive validity of self-designated innovator scores.

Overlap of Opinion Leadership and Innovativeness

One of the emerging generalizations from the diffusion literature suggests that there is considerable overlap between opinion leadership and innovativeness. In Table 2, the results of cross-tabulation of the SDOL score against the SDI score are portrayed for both the U.S. and Canadian data. Although the absolute percentages for the two countries cannot be compared, the trends from Low to Medium to High scores are comparable across the two countries. In both cases, the relationship is highly significant and consistent across countries. Among those scoring high on opinion leadership a much higher percent also score high on innovativeness compared to those scoring low on opinion leadership. For the Canadian data, the ratio is 3:1 and for the U.S. data, the ratio is 2:1. The lower ratio for the U.S. simply reflects a more artificial way of collapsing the SDOL and SDI scores into thirds rather than collapsing on the basis of strong disagreement, neutrality and strong agreement on the two scores. Thus, the analysis supports the generalizations of Rogers and Stanfield (7) regarding the correlation between opinion leadership and innovativeness.

Table 2

Cross-Tabulation Analysis: Opinion Leadership Versus Innovation

Innovation Score	Opinion Leadership Score					
	Low		Medium		High	
	Can.	U.S.	Can.	U.S.	Can.	U.S.
Low	38%	36%	20%	33%	11%	21%
Medium	48	43	61	38	51	32
High	<u>14</u>	<u>21</u>	<u>19</u>	<u>29</u>	<u>38*</u>	<u>47</u>
	100%	100%	100%	100%	100%	100%

*Read: For the Canadian data, 38 percent of those respondents who scored high on opinion leadership also scored high on the Innovation score.

Both Canadian and U.S. data significant at the .01 level

Note: In the analysis of the Canadian data, 14 percent of respondents scored high on opinion leadership and 21 percent scored high on innovation. For the U.S. data analysis, respondents were artificially classified by thirds.

Life Style and Demographic Profile of Opinion Leaders

The results of the cross-tabulation of the life style variables against the SDOL sum score are reported in Table 3. In the first part of the table, those questions that were significantly related and which formed dimensions when factor analyzed, are listed by factor and in order of importance in terms of explaining variance in the SDOL score in the later regression analysis. The reader may wish to refer to Tables 3 and 4 simultaneously in order to compare the cross-tabulation and regression analysis. The latter part of Table 3 lists a set of miscellaneous questions that were significantly related to the SDOL score but which did not form dimensions when factor analyzed with the total set of questions contained in Table 3. Finally, the right hand column of Table 3 indicates the factor loading for each question on its relevant factor.

The answer to three often asked questions about opinion leaders are evident in Table 3. First, what are the sources of the opinion leader's information? It is clear that she depends upon the interpersonal channels of communication and obtains information from a network of friends and acquaintances. Although she is more likely than the non-opinion leader to read books from the best seller lists, and although she is more likely than the non-opinion leader to look at the advertising in magazines, there is no real evidence of above average exposure to non-personal media sources. There is, however, strong indication of many interpersonal relationships as a result of her filled calendar of community and social engagements. She is more likely to work on community projects, to seek an active, exciting life, to attend ballet, concerts and art galleries, and to do more things socially than most of her friends.

Second, the opinion leader is an information exchanger, both seeking out and transmitting information. And she is a dynamic person, possessing much above average levels of self-confidence and independence. She not only wants to be considered a leader, but she also wants to be considered creative, daring and imaginative by her friends, much more so than the non-opinion leader. In general, this radiating display of self-confidence and personality ability may answer the second question .. what makes the opinion leader influential? Certainly, on balance respondents scoring high on SDOL tend to influence others more than they influence her. That is, although the SDOL agrees more than the non-opinion leader that she seeks out the advice of others, the percentage level of agreement to the information exchanger questions run only from 18 to 36 percent.

The SDOL's concern for style, fashion and personal appearance might also contribute to her influence. That is, she might be more likely to be perceived as an influential. Others might think of her as aware and up-to-date because of her fashionable dress and style consciousness.

In addition, the SDOL appears to be more price conscious, more innovative (confirmed earlier in Table 2), more interested in the arts and cooking, more affectionate and generous, more sociable, more interested in travel and more optimistic.

Many of the above life style dimensions might suggest that the SDOL is an upscale respondent, i.e. in higher socio-economic classes than the non-opinion leader. However, such is not the case. SDOL is not correlated significantly with any of the demographic characteristics used in this analysis, such as age, education, occupation of husband, or total family income. Although there was a slight tendency for the lowest occupation class to score lower on the SDOL score, the differences were not statistically significant. (Only 10 percent of the labour, service occupation group were in the high range on SDOL compared to 14 percent overall for the total sample).

Table 3

Life Style Dimensions of the Opinion Leader (Canadian Data)^a

The percentage of females in each category of opinion leadership who generally or definitely agree with the statement

	<u>LOW</u> N=604 (34%)	<u>MEDIUM</u> =909 (52%)	<u>HIGH</u> =252 (14%)	<u>FACTOR</u> <u>LOADING</u>
<u>Dymanic Leader</u> (r = .33) ^b				
I think I have more self-confidence than most people	18%	22%	43% ^{c)}	.65
I like to be considered a leader	8	13	28	.62
I like to be considered creative, daring and imaginative by my friends	16	23	39	.58
I am the kind of person who is always looking for an exciting, stimulating, active life	25	28	39	.50
<u>Information Exchanger</u> (r = .32)				
I often seek out the advice of my friends regarding which brand to buy	17	24	36	.75
My neighbours or friends usually give me good advice on what brands to buy in the grocery store	15	20	29	.67
I spend a lot of time talking with my friends about products and brands	7	12	18	.65
Information I get about a product from a friend is better than what I get from advertising	58	65	70	.53
When I find a new brand I like, I usually tell my friends about it	57	68	78	.49
<u>Innovator (new brand trier)</u> (r = .25)				
When I see a new brand on the shelf, I often buy it just to see what it's like	22	22	34	.72
I often try new brands before my friends and neighbours do	14	16	40	.65
I like to try new and different things	51	58	76	.45
<u>Community Clubs</u> (r = .24)				
I have helped to collect money for the Red Cross, United Fund or Miles for Millions	32	36	51	.65
I like to work on community projects	14	15	30	.64
I am or have been active in the PTA	14	18	25	.61
I belong to one or more clubs	25	31	35	.51
<u>Independent</u> (r = .20)				
I take care of the money and pay the bills	51	54	63	.76
I think I have a lot of personal ability	39	50	69	.45
I am more independent than most people	37	40	59	.45

Table 3 (cont'd)

	Opinion Leadership Scores			
	<u>LOW</u> N=604 (34%)	<u>MEDIUM</u> =909 (52%)	<u>HIGH</u> =252 (14%)	<u>FACTOR</u> <u>LOADING</u>
<u>Price Conscious</u> (r = .19)				
I shop a lot for "specials"	46	54	57	.72
I find myself checking the prices in the grocery store even for small items	59	65	73	.67
I usually watch the advertisements for announcements of sales	48	52	59	.70
I do a lot of shopping during the after-Christmas sales	16	23	30	.43
<u>Fashion Conscious</u> (r = .22)				
I usually have one or more outfits that are of the very latest style	26	32	45	.72
I usually have my dresses altered to conform to the latest hemline styles	48	54	59	.65
I often try the latest hairdo styles when they change	13	18	27	.63
When I must choose between the two I usually dress for fashion and not for comfort	17	19	28	.61
An important part of my life and activities is dressing smartly	46	47	59	.48
Eye make-up is as important as lipstick	30	36	46	.45
I like to feel attractive to all men	34	40	51	.42
<u>Generous</u>				
I am very affectionate, tender and loving	55	62	72	.67
I am too generous for my own good	30	31	46	.50
<u>Aesthetic Tastes</u>				
I like ballet	21	22	34	.74
I enjoy going through an art gallery	33	40	54	.73
I enjoy listening to classical records	29	31	42	.71
I enjoy going to concerts	31	36	43	.70
<u>Loves to Cook</u>				
I am a good cook	52	59	70	.72
I love to cook	59	62	72	.68
I am interested in spices and seasonings	54	59	70	.56
I save recipes from newspapers and magazines ...	59	59	74	.49
The kitchen is my favorite room	28	31	41	.39
I like to serve unusual dinners	28	28	54	.33
<u>Watches Eating Habits</u>				
I try not to serve foods that are high in cholesterol	40	40	56	.65
I am careful what I eat in order to keep my weight under control	33	36	43	.54

Table 3 (cont'd)

	Opinion Leadership Score			FACTOR LOADING
	LOW N=604 (34%)	MEDIUM =909 (52%)	HIGH =252 (14%)	
<u>Disinfectant Conscious</u>				
You have to use disinfectants to get your house really clean	32	28	43	.78
I use one or more household disinfectants	56	56	67	.69
<u>Sociable</u>				
I often visit friends in the evening	16	22	27	.69
I do more things socially than do most of my friends	8	8	19	.52
<u>Miscellaneous</u>				
The television set should not be in the living room	31	35	47	
I would rather live in or near a big city than in or near a small town	39	40	53	
I usually read one or two books a year from the "Best Seller" lists	33	39	50	
I comb my hair and put on my lipstick first think in the morning	30	38	47	
Our family income is high enough to satisfy nearly all our important desires	43	48	55	
I would be willing to pay higher taxes to get better schools	17	21	29	
The next car our family buys will probably be a station wagon	19	20	29	
I like to do things that are gay, bright and exciting	61	62	75	
I would like to take a trip around the world ...	68	72	80	
I look at the advertising in magazines almost as much as I look at the pictures or read the stories	22	24	37	
I often make my own or my children's clothes ...	42	44	55	
I will probably have more money to spend next year than I have now	34	41	49	
I like to wear white gloves	36	40	52	
Our family travels quite a lot	26	31	39	

-
- a) All variables listed were significant at the .01 level or better.
 - b) Correlation between the Sum Score on Dynamic Leader and Sum Score on SDOL.
 - c) Read: 43 percent of those respondents scoring High on Opinion Leadership generally or definitely agreed to the statement, "I think I have more self confidence than most people".

Table 4

Stepwise Regression Analysis: Opinion Leadership and Innovation
(1970 Canadian Data)

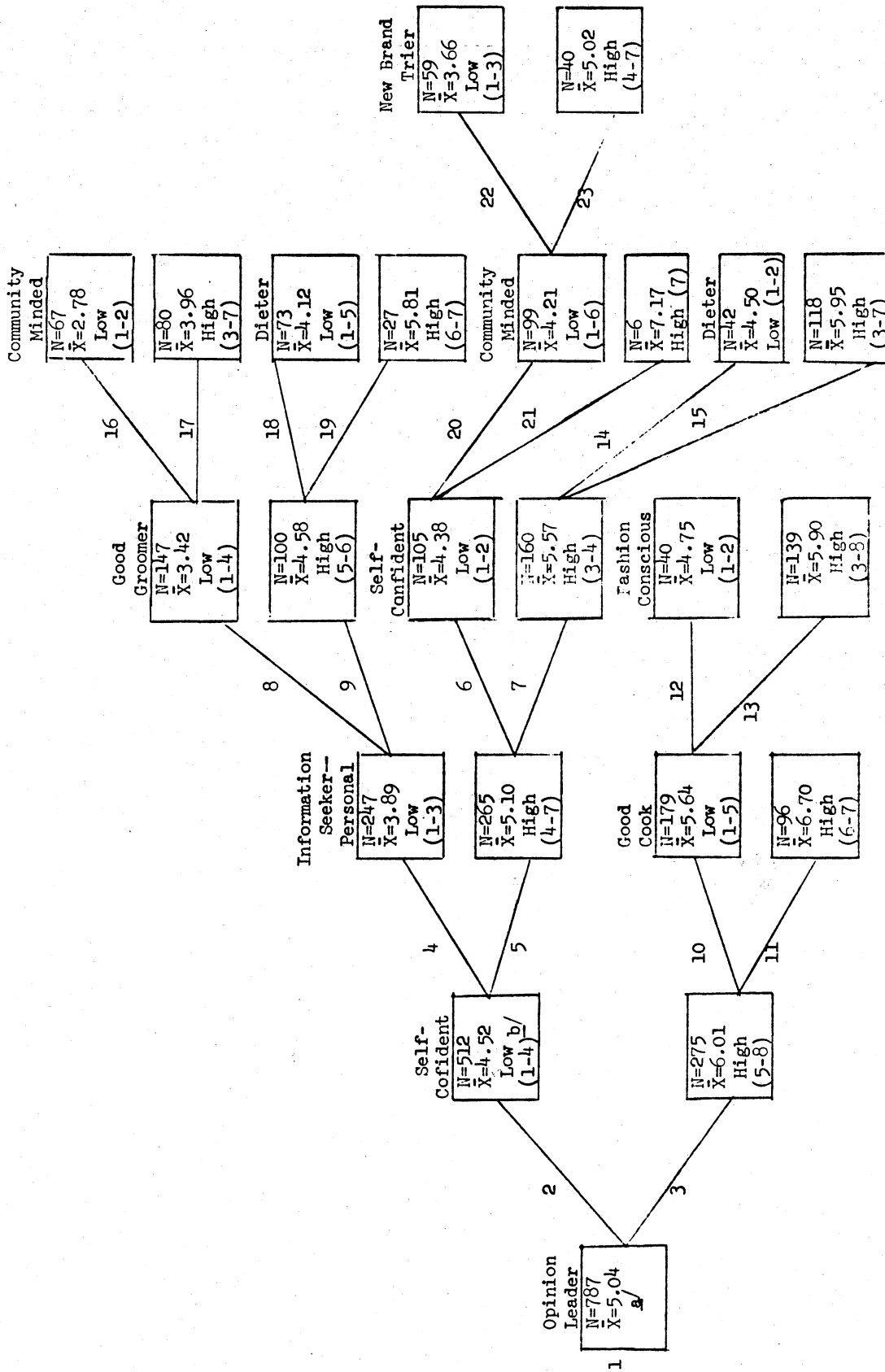
Run One: Dependent Variable -- <u>Opinion Leadership</u>		Addition to
<u>Significant^{a)} Independent variables entering</u>		<u>R²</u>
Dynamic Leader .....		.11
Information Exchanger .....		.08
Innovator .....		.02
Community, Clubs .....		.02
Independent .....		.01
Price Conscious .....		.01
Occupation .....		.01
Fashion Conscious		<u>.006</u>
Total R ² ....		.27

Run Two: Dependent Variable -- <u>Innovator</u>		
<u>Significant Independent variables entering</u>		
Opinion Leader .....		.07
Vivacious .....		.05
Positive towards advertising ...		.03
Brand loyalty (neg. coeff) .....		.03
Information exchanger .....		.03
A reader .....		.01
Looks at advertising .....		.01
Cleanliness .....		.007
Bargain seeker .....		.006
Watch too much TV		<u>.006</u>
Total R ² ....		.25

Note: Multicollinearity is high within the independent variables. For example, in the regression on opinion leadership, fashion conscious entered last. Yet the simple correlation between fashion conscious and SDOL was .22. Unfortunately fashion conscious was also correlated with dynamic leader at the .32 level. In the regression on innovator, fashion conscious was highly collinear with opinion leader and vivacious.

a) Significant at the .01 level.

EXHIBIT II
Factors Relating to Opinion Leadership (U.S. Data)



a/ \bar{X} = mean value on opinion leadership.
b/ respondents in this call scored low on self-confidence.
VARIANCE EXPLAINED: 30 per cent

Many of the life style dimensions illustrated in Table 3 seem to represent a desire for creativity on the part of the SDOL. These dimensions range over the interests of the arts, cooking (serve unusual dinners), travel, and fashion. It may well be that this desire for creativity is the most important underlying dimension, crossing, as it does several of the most important life style factors reported in Table 3.

In the stepwise regression analysis, two dimensions dominate the resulting R^2 of .27; dynamic leader and information exchanger. The problem with the stepwise regression analysis lies in the high degree of multi-collinearity between the independent variables, i.e. the sum scores on the life style dimensions. For example, fashion consciousness, although explaining less than one percent of the variance in the SDOL score in the regression, was correlated .22 with the SDOL score. Unfortunately, fashion consciousness was also correlated .32 with the dynamic leader score and its power was reduced by the earlier entry into the regression by the dynamic leader score.

Thus in total, the regression analysis was only able to explain 27 percent of the variance in opinion leadership. Although there is still much to be learned about opinion leaders, the 27 percent explanation represents a substantial improvement over the total failure of demographic characteristics to explain this phenomenon.

Finally, in Exhibit II, automatic interaction detection analysis is used to portray the life style characteristics of the SDOL for the U.S. data. The reader will note that the first two dimensions on which the SDOL score split were self-confidence and information exchanger, the same two dimensions that entered the regression first in the analysis of the Canadian data. In addition, the remaining dimensions reported in Exhibit II were all significant in the Canadian analysis and all are reported in Table 3. Combining the results from the two countries leads to the following conclusions:

- 1) SDOL is positively associated with self-confidence and leadership.
- 2) SDOL is positively associated with interest in fashion, cooking and the arts.
- 3) SDOL's are information exchangers, both seeking out and transmitting information.
- 4) SDOL's are sociable, active in the community, weight conscious and concerned with personal appearance.
- 5) SDOL's have a need for excitement in their lives, are active and have a strong need for creativity.
- 6) SDOL's are optimistic, concerned with cleanliness, price conscious and like to travel.

Life Style and Demographic Profile of Innovators

The strongest single characteristic of self-designated innovators is opinion leadership. Although this phenomenon has already been made evident from Tables 2 and 4, the relationship is amplified at the beginning of Table 5 where all life style dimensions, significantly related to SDI are listed.

Similar to the SDOL, the SDI seems to want a stimulating, creative, active life. However, compared to the SDOL, the SDI seeks her role in a greater social interaction with her friends. Compared to the non-innovator, the SDI agrees more to questions like, "I like to think I'm a bit of a swinger", and "I like to go to parties where there is lots of music and talk". These questions did not discriminate between the non-opinion leader and the SDOL. These questions did, however, group with other questions that were related to SDOL. In this

Table 5

Life Style Dimensions of the Innovator (Canadian Data)

The percentage of females in each category of innovation who generally or definitely agree with the statement

	<u>LOW</u> N=449 (25%)	<u>MEDIUM</u> =962 (54%)	<u>HIGH</u> =367 (21%)	<u>FACTOR</u> <u>LOADING</u>
<u>An Opinion Leader</u> (r = .27)				
My friends or neighbours often come to me for advice	22%	28%	39%	.68
People come to me more often than I go to them for information about brands	15	18	30	.65
I sometimes influence what my friends buy	12	17	35	.48
<u>Vivacious - Avant-Garde</u> (r = .27)				
I'm the kind of person who is always looking for an exciting, stimulating, active life	22	28	40	.72
I like to be considered creative, daring and imaginative by my friends	19	22	31	.62
I like to think I am a bit of a swinger	13	19	24	.56
I like parties where there is lots of music and talk	51	54	62	.49
I like to feel attractive to all men	32	39	51	.43
I often visit friends in the evenings	17	20	29	.40
I like to do things that are bright, gay and exciting	56	62	75	.36
<u>Positive Towards Advertising</u> (r = .21)				
Advertising leads to wasteful buying in our society	43	34	33	.71
My choice of brands for many products is influenced by advertising	10	15	21	-.59
<u>Brand Loyalty</u> (r = .19)				
I keep away from brands I have never heard of	36	25	21	.72
I like to wait and see how other people like new brands before I try them	19	11	9	.48
I don't like to take chances	53	45	41	.38
<u>An Information Exchanger</u> (r = .23)				
I often seek out the advice of my friends regarding which brand to buy	16	23	32	.75
I spend a lot of time talking with my friends about products and brands	7	11	18	.70
When I find a new brand I like, I usually tell my friends about it	55	65	79	.49
<u>A Reader</u> (r = .20)				
I like to read	74	75	85	.75
I usually read one or two books a year from the "Best Seller" lists	28	39	50	.68
Magazines are more interesting than television	18	18	29	.37

Table 5 (cont'd)

	Innovator Score			FACTOR LOADING
	LOW N=449 (25%)	MEDIUM =962 (54%)	HIGH =367 (21%)	
<u>Looks at Advertising</u> (r = .18)				
I look at the advertising in magazines almost as much as I look at the pictures or read the stories	18	25	36	.65
<u>Emphasizes Cleanliness</u> (r = .13)				
I do not feel clean without a daily bath	50	27	35	.57
A house is not clean if the floors do not shine	23	27	35	.57
<u>A Bargain Seeker</u> (r = .15)				
I shop a lot for "specials"	49	50	60	.75
I usually watch the advertisements for announcements of sales	46	50	59	.67
I do a lot of shopping during the after-Christmas sales	18	19	31	.55
<u>Watches Too Much TV</u> (r = .10)				
I watch more TV than I should	18	22	28	.68
<u>Satisfied</u> (r = .09)				
Our family income is high enough to satisfy nearly all our important desires	43	47	53	.70
I am happier now than I ever was before	41	48	60	.52
<u>Upper Class Tastes</u> (r = .14)				
I'd like to spend a year in London or Paris..	34	38	46	.70
I would like to take a trip around the world.	65	71	79	.69
I would like to have a maid to do the housework	21	23	30	.54
<u>A Disinfectant User</u> (r = .11)				
I use one or more household disinfectants ...	51	55	70	.72
Odours in the house embarrass me	63	69	74	.65
You have to use disinfectants to get your house really clean	25	33	35	.55
<u>Fashion Conscious</u> (r = .25)				
I usually have one or more outfits that are of the very latest style	24	32	42	.72
I often try the latest hairdo styles when they change	11	18	27	.61
I usually have my dresses altered to conform to the latest hemline levels	45	54	58	.61
An important part of my life and activities is dressing smartly	40	50	55	.56
I enjoy looking through fashion magazines ...	57	63	74	.46
I love to shop for clothes	50	60	67	.43
Eye make-up is as important as lipstick	27	36	43	.36
I would like to be a fashion model	9	13	17	.32

Table 5 (cont'd)

Innovator Score

	<u>LOW</u> N=449 (25%)	<u>MEDIUM</u> =962 (54%)	<u>HIGH</u> =367 (21%)	<u>FACTOR</u> <u>LOADING</u>
<u>Progressive</u>				
I would be willing to pay higher taxes to get better schools	16	21	26	.57
I am in favour of the Women's Liberation Movement	20	21	30	.55
<u>Loves to Cook</u> (r = .13)				
I am interested in spices and seasonings	53	59	69	.64
I couldn't get along without canned foods ...	31	39	42	-.52
I save recipes from newspapers and magazines.	57	59	71	.45
I like to serve unusual dinners	24	34	49	.37
<u>Aesthetic Tastes</u> (r = .11)				
I enjoy going to concerts	30	36	40	.70
I like ballet	22	22	32	.75
I enjoy going through an art gallery	38	38	47	.70
<u>Kitchen-oriented</u> (r = .10)				
I like to go grocery shopping	51	57	64	.58
I am proud of my kitchen	54	57	64	.50
I love to bake and frequently do	54	58	65	.47
<u>Independent</u> (r = .12)				
I am more independent than most people	41	39	51	.62
I think I have a lot of personal ability	44	48	57	.59
<u>Weight Conscious</u> (r = .12)				
During the warm weather I drink low calorie soft drinks several times a week	11	15	20	.73
I have used Metrecal or other diet foods at least one meal a day	9	9	17	.68
<u>Miscellaneous</u>				
Women wear too much makeup these days	41	32	30	
Our family travels quite a lot	28	29	39	
I like coloured appliances	54	60	64	
I comb my hair and put on my lipstick first thing in the morning	30	35	44	
I have helped to collect money for the Red Cross, United Fund or Miles for Millions	32	37	43	
My greatest achievements are still ahead of me	34	39	47	
I shop a lot at Eatons or Simpsons	48	52	58	
We go out to eat at a drive-in restaurant at least two or three times a week	13	7	23	
I like to wear white gloves	35	42	45	
If I had my own way I would own a convertible	8	12	18	
Clothes should be dried in fresh air and sunshine	58	54	46	

case, however, the dimension is labelled Vivacious-Avant-Garde rather than dynamic leader. What is missing in the profile of the SDI is the leadership, self-confidence component, although the SDI does indicate some degree of independence and personal ability (see Table 5).

Many of the other dimensions reported in Table 5 were also reported in Table 3 as descriptive of the SDOL. The SDI, as expected, is not brand loyal. She is an information exchanger, a bargain seeker, and a traveller.

She is fashion conscious, interested in fancy cooking, oriented in general towards the kitchen, weight conscious, progressive, concerned about home cleanliness and reasonably satisfied with her life. On all these dimensions, the SDI possesses the characteristic more than the non-innovator.

Compared to the SDOL, the SDI appears to enjoy a wider media exposure pattern. More than the SDOL and more than the non-SDI, the SDI says she watches more TV than she should, likes to read, and thinks magazines are more interesting than television. Her choice of brands for many products is influenced by advertising, and she disagrees more that advertising leads to wasteful buying. Thus the SDI appears to be more positive towards the value of advertising and to be more exposed to it, compared to both non-SDI's and to SDOL's.

In the regression analysis, reported earlier in Table 4, one or two variables did not dominate the explained variance as they did in the analysis of the SDOL. However, multicollinearity was just as evident. Fashion consciousness, with the third highest simple correlation with the dependent variable, did not even enter the regression because it was collinear with opinion leadership and vivacious, the first two variables that entered the regression.

Again the R^2 was quite low, with 25 percent of the variance in SDOL being explained by 10 entering independent variables.

Again, however, that 25 percent explanation represents a substantial improvement over the traditional demographic characteristics. As in the analysis of the SDOL, the demographic variables were not significantly related to the SDI score. They did not enter the regression analysis and they were not significant in the cross-tabulation analysis.

The U.S. data on SDI was submitted to AID analysis and again, the variables entering the analysis tended to be the same ones significant in the regression analysis of the Canadian data. The two most important variables (not shown here) were opinion leadership and brand loyalty (negative), followed by interest in cooking, information exchange, and personal grooming and fashion consciousness. Once more, the results were consistent across the two countries.

To summarize the findings concerning SDI characteristics:

- 1) SDI is positively associated with opinion leadership.
- 2) SDI's are vivacious and avant-garde, but not as self-confident and independent as SDOL's.
- 3) SDI's are information exchangers and tend to be more sociable and gregarious than SDOL's.
- 4) SDI's are fashion and personal appearance conscious.
- 5) SDI's are positive towards the value of advertising and more likely than non-SDI's and SDOL's to be exposed to all media sources.
- 6) SDI's are more positive towards print than broadcast media and more likely to say they watch more TV than they should.
- 7) SDI's are interested in exotic cooking, and have a strong orientation towards the kitchen.
- 8) SDI's are bargain and price conscious.

Support for Previous Research

A number of recent articles and books report emerging generalizations from the literature concerning the characteristics of opinion leaders and innovators. Below are listed a series of these generalizations and for each one an indication of whether the research reported here supports or is inconsistent with those findings. The generalizations are from Rogers and Stanfield (8), King and Summers (3), and Engel, Kollat and Blackwell (1).

Emerging Generalizations About	Supported	
	Yes	No
<u>Innovativeness</u>		
1. Education is positively related to innovativeness		X
2. Income is positively related to innovativeness		X
3. Level of living is positively related to innovativeness..	X	
4. There is no consistent relationship between age and innovativeness	X	
5. Cosmopolitaness is positively related to innovativeness..	X	
6. Mass media exposure is positively related to innovative-ness	X	
7. Interpersonal-communication exposure is positively related to innovativeness	X	
8. Opinion leadership is positively related to innovativeness	X	
<u>Opinion Leadership</u>		
1. Innovativeness is positively related to opinion leadership	X	
2. Venturesomeness is positively related to opinion leadership	X	
3. Opinion leaders are socially accessible	X	
4. Opinion leadership is not correlated with age, income or education	X	
5. Opinion leaders are gregarious	X	
6. Mass media exposure is positively associated with opinion leadership		X

In addition to the above support for emerging generalizations, the research reported here adds significantly to the overall profile of SDOL's and SDI's. This research found dimensions such as fashion consciousness, interest in cooking, price consciousness, interest in the arts, interest in community activities, creativity, concern for home cleanliness, vivaciousness, and concern for personal appearance to be associated with SDOL or SDI or both.

These life style dimensions are important from the viewpoint of reaching and communicating with the opinion leader and the innovator. In the next section on implications for marketing strategy, the question of reaching SDOL and SDI individuals is answered.

Implications for Marketing Strategy

Can we Reach the Opinion Leader or the Innovator?

The U.S. questionnaire contained questions on readership of 73 national magazines. Analysis of the relationship between readership and scores on SDOL or SDI produced no significant relationships. The conclusion from that analysis: neither opinion leaders nor innovators can effectively be reached through print media, i.e. no more effectively than the average consumer in the population.

The Canadian data produced more positive results for both print media and television. The results are summarized in Table 6.

In the case of television, the Johnny Carson show appears to reach innovators. Forty-one percent of those scoring high on SDI rated the Johnny Carson Show as "Very Good" or "Hate to Miss", the two highest rating categories. In the case of SDOL, three TV shows appeared to offer above average potential (Johnny Carson, The Nature of Things and Man Alive). Thus the Johnny Carson show offers above average potential to reach both innovators and opinion leaders.

There are only 6 national magazines in Canada of significance. Two of those, Chatelaine and Homemaker's Digest, were significantly related to one of the two dependent variables. Chatelaine readership was positively correlated with innovativeness and Homemaker's Digest was positively related to opinion leadership. Both magazines have a predominately female audience.

In summary, certain vehicles exhibited above average potential for reaching either the SDOL or the SDI in Canada. Had television data been available for the U.S. sample, the Canadian results would probably have been supported.

Implications for Marketing Management

Implications for marketing management lie in the area of the product life cycle and in the area of advertising copy. Although not shown in this paper, the life style profile of the brand loyal respondents is dramatically different from the life style profile of the SDI. This finding suggests that copy designed to reach innovators in the early stages of new product introduction should be dramatically different from copy designed to attract laggards and eventually those who will become the hard core of loyal buyers for the brand.

In addition, the media exposure patterns, although relatively weak, suggest that media selection strategy in the early stages of new product introduction might be different than media selection strategy later in the life cycle. Brand loyal consumers are heavy television viewers, but not of the talk shows. Thus specific TV shows, plus a selective print campaign may be called for in the early stages followed by a heavy TV schedule across many of the more popular shows later in the life cycle.

Conclusions

This paper has attempted to report on two large scale national studies of the life style and demographic characteristics of self-designated opinion leaders and self-designated innovators.

The study found support for a number of emerging generalizations in the literature concerning the characteristics of SDOL's and SDI's. It also rejected several findings, especially with regard to demographic characteristics. In addition, the research provided new insight into the life style profile of SDOL's and SDI's. One implication is that marketing strategy can best be served by

Table 6

Reaching the Innovators and Opinion Leaders (Canadian Data)

<u>By Television:</u> (out of 73 different shows)	The percentage of females in each category of innovation or opinion leadership who rate the show as "Very Good" or "Hate to Miss"		
	<u>LOW</u>	<u>MEDIUM</u>	<u>HIGH</u>
<u>The Innovator -</u>			
Johnny Carson	25% (N=179)	30% (=430)	41% ^{a)} (=177)
<u>The Opinion Leader -</u>			
Man Alive	26 (N=239)	27 (=403)	44 ^{a)} (=98)
Nature of Things	52 (N=394)	51 (=623)	65 ^{b)} (=172)
Johnny Carson	28 (N=251)	29 (=408)	40 ^{b)} (=127)

<u>By Magazines:</u> (out of 6 different magazines)	The percentage of females in each category of innovation or opinion leadership who read or looked into 2 to 4 issues of the last 4 published		
	<u>LOW</u>	<u>MEDIUM</u>	<u>HIGH</u>
<u>The Innovator:</u>			
Chatelaine	28% (N=464)	34% (=1014)	45% ^{a)} (=372)
<u>The Opinion Leader:</u>			
Homemaker's Digest	24% (N=629)	25% (=962)	36% ^{a)} (=257)

a) significant at .01 level or better

b) significant at .05 level.

concentration on effective copy design to communicate with opinion leaders and innovators. Media strategy should focus on general media alternatives rather than specific media vehicles. Finally, the study attempted to develop media exposure patterns for the two segments, with some positive results.

Footnotes

- ¹The authors wish to thank Burke Marketing Research, Cincinnati, for release of the Canadian data for academic research, and William D. Wells, School of Business, University of Chicago, for his valuable assistance in the analysis of the U.S. data.
- ²Douglas J. Tigert is Associate Professor of Marketing, School of Business, University of Toronto. Stephen J. Arnold is a doctoral student in Marketing in the School of Business, University of Toronto.
- ³Sub-sample analysis involves selection of random samples of the original sample, e.g. for 30 percent, 50 percent, and 75 percent of the original sample. The analysis is then carried out on each of the sub-samples.

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IDENTIFYING THE INNOVATOR AS

A CONSUMER CHANGE AGENT

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During the past 60 years, a substantial body of empirical research has been generated which focuses on the innovator or early adopter of new concepts. Conceptually, Rogers (1971) has defined the innovator as an individual who adopts an innovation earlier than other members of his social system. Operationally, however, a wide range of research approaches and measures have been employed in identifying innovators.

The purpose of this paper is to review the current measures of innovativeness and to present a conceptual structure for the development of a more comprehensive measure of innovativeness.

Operational Measures of Innovativeness: A Description

Historically, researchers have used many different operational measures of innovativeness. Five commonly used measures are:

- 1) Actual time of adoption: subjective or objective;
- 2) Self perceived innovativeness;
- 3) Innovation adoption at time of study: summed score;
- 4) Intention to adopt;
- 5) Innovativeness indexes based on aggregated attitudinal item analyses.

Actual Time of Adoption: Subjective or Objective

The most popular means of determining innovativeness has been to determine the point in time at which an individual purchased an innovation.

The time of adoption criterion has been defined by two methods: subjective and objective. Under the subjective method, the respondent is asked the approximate date that he first purchased a particular innovation. Although this measure seems conceptually correct, it may be open to bias due to inaccurate recall. (King, 1964 and King and Summers, 1967)

In an effort to reduce the recall bias, the objective method is used. This method consists of determining the date of first purchase by searching written records such as doctor's prescriptions and sales receipts. (Menzel and Katz, 1956 and Coleman, Katz and Menzel, 1957) Although the objective method corrects the recall problem, it is obvious that it can be used for only a limited number of innovations where accurate purchase records are maintained.

Self Perceived Innovativeness

A second measure that has been used to identify innovators can be termed self perceived innovativeness. This measure consists of asking the respondent to estimate how innovative he is compared to others. (King and Summers, 1967) This form of self perceived innovativeness has been found to correlate from +.39 (Robertson, 1968) to .69 (Rogers, 1957) with the respondent's recalled time of adoption. Consequently, this measure explains only 16 to 49 percent of the variance between itself and time of adoption.

The low correlations between these two measures suggest that respondents' self perceptions of their innovativeness and their recalled time of adoption relative to their "social system" do not agree. Many respondents who perceive themselves as innovators are not innovators as reflected by their recalled dates of actual purchase and vice versa.

Innovation Adoption at the Time of Study: Summed Score

Using the "innovation adoption at the time of the study" measure, the measure of innovativeness focuses on the adoption of one or more recently introduced innovations. (King and Summers, 1967 and King and Ness, 1969)

More specifically, an innovation or innovation's with low market penetration or adoption are studied. Respondents' reported purchase of the innovation or innovation's is recorded. If a list of innovations is studied, a respondent's innovativeness is typically based on a summed score of the number of innovations adopted. (King and Baumgarten, 1970)

Intention to Adopt

A variation on the "actual time of adoption: subjective and objective" and the "adoption at the time of study: a summed score" measures is the "intention to adopt" measure. Respondents are asked their intentions to purchase a specific innovation or a set of innovations. (King and Baumgarten, 1970)

Innovativeness Indexes

A fifth class of measure focuses on aggregated attitudinal measures.

Methodologically, at the outset in using this approach, a series of attitudinal measures hypothesized to be related to innovativeness is constructed. Ultimately, the series of attitudinal items are aggregated to produce a scale reportedly measuring respondents' attitudinal propensity to adopt new concepts.

Two primary analytical techniques are used in scale construction. In one procedure, a respondent's Likert scale response values may be summed across all the items in an a priori constructed scale. An "innovativeness scale" score is then derived for each respondent. (Tigert, 1971 and King and Summers, 1967)

A second approach involves the construction of an innovativeness factor. Using factor analysis, building upon the respondents' Likert scale response values, the individual attitudinal items are weighted. From this aggregated analysis an "innovativeness" factor score is calculated for each respondent.

Conceptual Elements in Measuring Innovative Behavior

The review of the historical measures of innovativeness reflects a need for broadening both the theoretical dimensions studied and the operational definitions used in future research. The historical methodology has produced a substantial body of empirical research within the marketing discipline. As the diffusion research tradition matures, new approaches to measurement will be needed.

The traditional individual measures each focus on a particular major aspect of innovativeness. No one of these measures taken alone, however, addresses the multi-dimensionality of innovative behavior.

Additionally, except for research conducted at Purdue University, there has been little standardization of operational measures of innovativeness. As a result, direct cross-study comparisons are impeded.

The objective of this section of the paper is to highlight major conceptual issues which must be considered in constructing a more theoretically comprehensive measure of innovativeness. The following issues will be discussed:

- 1) the relative "earliness" of the individual's trial/adoption;
- 2) the degree of commitment to the new concept: trial versus adoption;
- 3) the relevant "social system" to which the individual's behavior is compared;
- 4) the implications of the innovation itself for the individual;
- 5) the use of product specific versus cross product innovativeness measures.

Relative "Earliness" of the Individual's Trial/Adoption

The individual's time of trial/adoption is the empirical statistic which quantifies his specific trial/adoption behavior. The relative "earliness" of a respondent's trial/adoption of a new concept, however, has both behavioral and perceptual dimensions which time of trial/adoption alone does not measure.

The "earliness" of the trial/adoption behavior must be calculated around:

- 1) the actual level of penetration or adoption of the innovation in the individual's social system at the time of his trial/adoption behavior;
- 2) the individual's perception of the level of penetration of the innovation in his relevant social system;
- 3) the individual's expectations regarding future penetration of the new concept within his social system.

- 4) innovativeness as a continuous variable over the time dimension rather than as a dichotomous variable arbitrarily categorized by the researcher. The arbitrary dichotomous categories can significantly distort data analysis and interpretation.

The Degree of Commitment to the New Concept: Trial Versus Adoption

The degree of commitment to the new concept must be explicitly measured to differentiate between trial and adoption. Innovative behavior may involve either trial and rejection of the concept or trial and continued use of the innovation.

Failure to measure continued use of the innovation neglects this important dimension of innovative behavior. In the case of a detergent or packaged food product, initial trial involves very little eco-socio-psycho investment. Only continued use of the product reflects adoption. Even in the case of innovations requiring higher eco-socio-psycho investment for first trial, such as a new apparel fashion or a new birth control procedure, continued use must be a critical element in measuring innovative behavior.

The Relevant Social System

The innovative behavior of the individual is related to the individual's personal social system. The global or macro concept of social system, however, may confound the dynamics of innovative behavior.

Pragmatically, the individual is a member of a variety of micro or sub-social systems, e.g. his professional sub-system, his religious sub-system, his neighborhood sub-system, etc. Each of these sub-systems impinges upon his innovative behavior to differing degrees depending on the innovation context.

Operationally, in developing measurements of innovativeness, the major relevant macro-social system should first be identified. Next, the micro or sub-social systems most relevant to the particular innovation should be identified based on life style analysis. Within these micro units, the dynamics of innovative behavior should then be tracked.

The category of women's fashion apparel provides a simplistic example of this conceptualization. The innovation of hot pants has greatest relevance to the macro social system of younger women with self perceived attractive hips and legs. Within that macro system, several distinctly different sub-systems exist based on the women's life styles. In one sub-system exists the fashion apparel conscious set which leans toward avant garde' fashions. In another sub-system exists the fashion apparel conscious segment which leans toward more conservative classic silhouettes and styles. In still another sub-system exists the non-fashion conscious women for whom the hot pants fashion innovation would have little interest.

The central theme is that the identity of the innovator and the dynamics of the process of innovative behavior would vary trial and/or adoption of the hot pants innovation would vary dramatically across contrasting sub-social systems.

Implications of the Innovation for the Adopter

As implied in the previous section, the eco-socio-psycho implications associated with trial/adoption of an innovation vary dramatically based on several dimensions:

- 1) the characteristics of the innovation itself in terms of perceived newness, complexity and comprehensibility, divisibility, visibility, structural radicalness, etc.;
- 2) the actual and perceived advantages and disadvantages associated with the adoption of the innovation;
- 3) the cultural compatibility or incompatibility of the innovation with various sub-social systems in the relevant macro social systems.

Historically, research identifying innovators and tracing the innovative process has not attempted to categorize innovations. Nor has research attempted to explore the differences in the innovative process across different types of innovations in different adoption sub-systems.²

Product Specific Versus Cross Product Innovative Behavior

Methodologically, scales of innovativeness based on trial/adoption of multiple products or concepts have spanned a variety of forms. Scales have been based on trial/adoption behavior:

- 1) within one specific context e.g., men's suits;
- 2) across closely related contexts, e.g., women's clothing apparel fashions;
- 3) across relatively unrelated adoption contexts, e.g., cosmetics and food products.

Empirical research to date has indicated that innovative behavior within a context is directly related to the life style of the adopting micro-social system. Results have indicated that there is limited overlap of innovative behavior across product contexts except where products are closely related in terms of their interest and benefit characteristics, e.g., fashion apparel and cosmetics.

Therefore, if innovativeness scales are to be based on trial/adoption of multiple products, the measure should be confined to a single product category. Innovative behavior should be studied within narrowly defined adoption contexts and compared across contexts based on comparable research methodologies.

Conclusion

The traditional measures of innovativeness need to be theoretically and operationally broadened. A variety of conceptual issues should be integrated into the construction of a theoretically comprehensive measure of innovativeness. The development of this measure of innovative behavior is crucial to the maturation of a diffusion research tradition in marketing.

Footnotes

1. Rogers, 1971 and Zaltman, 1971 have discussed innovative behavior in the frame work of social change and the social system.
2. For a comprehensive discussion of the role of the innovation in the diffusion process, see Zaltman and Lin, 1971.

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THE MULTIDIMENSIONALITY OF FASHION INNOVATION

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The research traditions in rural sociology and marketing are replete with studies involving measurement of innovative behavior (1, 2, 3, 6, 13). More recently, attention in marketing has shifted to the study of generalized innovative behavior and its impact on the diffusion process (7, 11). The validity of the findings from these studies impinges on (1) the objectives of these studies and (2) the manner in which innovative behavior is measured for analysis in achieving these objectives.

This paper has two objectives: first, the examination of the patterns of innovative behavior across chosen social contexts; and second, the analysis of this behavior to determine if it is generalized or multidimensional. The data were gathered through personal interviews from three surveys in a small southern university city in the winter of 1971. The sampling frames included: (1) male household heads from nine middle to upper middle class suburban areas (N=104); (2) male nonfraternity members (independents) at the university (N=102); and (3) fraternity members (N=76).¹ Among other information collected, data were gathered on innovative behavior toward five relatively new men's fashions (knit suits, vest suits, flare trousers, velour shirts, and dress boots). In particular, each respondent was queried as to whether they had purchased each of the five apparel innovations and, if so, the date of first purchase was requested. Innovation scores were then based on time from introduction to first trial.

BACKGROUND

In identifying farm innovators rural sociologists make use of adoption scales (9, 13). These scales measure the number of farm practices adopted at a given point in time. Although it is widely recognized that more precise information results from employing the estimated date of adoption in computing innovation scores (as opposed to "zero-one assignments for nonadoption or adoption), Rogers has shown that adoption scales do tend to identify "early" adoptors of farm practices (9, p. 343). Following this cue researchers in marketing have tended to identify generalized innovators for a given product category--and across some product categories--using some variations of such an approach (4, 6, 11). For example, Robertson and Meyers use a total list of 42 items across three product categories (appliances, clothing, and food) to derive a measure of innovativeness to compare with personality characteristics (7, p. 165).

Yet two considerations seem germane at this juncture. First, there are differences in the manner in which innovative behavior is typically manifested by the consumer of farm practices vis-a-vis the consumer of fashion goods. Many marketing products are more divisible, lower valued and can be consumed in a much shorter time; yet, many farm practices call for a commitment in terms of time, money and faith. Trial and adoption tend to be the same in these circumstances. But early trial of a new product in marketing is innovative behavior, regardless of final artifactual adoption status, adoption period, or ownership status at the time of the survey. This consideration

leads us to believe that measures such as time-of-purchase should be considered in the measurement of innovativeness until such time that adoption scales prove to be valid indicators of innovativeness. Thus, in our men's apparel fashion study, one of the measures employed was date of first purchase.

Secondly, such approaches do not take into consideration that in a given social context and for a given product category, there may be more than one independent dimension of innovativeness (10, p. 334). For example, with regard to farm practices, the farmer may well adopt practices concerning pasturage, but be not at all interested in new practices relating to tillage planting and fertilizer. Yet both Fliegel (2) and Copp (1) sought to characterize the generalized adoption of farm practices through the use of principal components analysis. Using Hotelling's method of principal components, Fliegel hypothesized that the first principal component of adoption scale data would be representative of the general adoption tendency.

The present study carried this reasoning one step further; it was felt that the factor analysis of the innovative behavior scores for the five fashions would indicate two or more independent dimensions of innovative behavior for men's apparel fashions, much as was found in the analysis of product usage rates (12). A separate analysis was conducted for each social context (suburban, fraternity and independent), since Rogers' paradigm would raise doubts as to the overlap of factors between these groups (8, chapter 11). Those factors explaining a greater than average proportion of variance were subjected to varimax rotation. In addition a 50 per cent subsample analysis basically reproduced the same overall factor structure, lending some credence to the results shown in Table 1.

DATA ANALYSIS

Table 1 shows the factor loadings for each fashion innovation respectively, for each social context. A cursory examination indicates that the data provide strong supportive evidence for the multidimensional character of innovative behavior toward men's apparel fashions.

In the suburban context, there are two clearcut dimensions: first, heavy loadings on knit suits (.89), vest suits (.77), velour shirts (.71), and, to a lesser extent, dress boots (.55) suggest an overall fashion innovator. He tends to innovate on those items that are variations of traditional products. Of all the dimensions considered, this one comes closest to representing a generalized innovator and it is significant that it emanates from the more tradition-bound suburbanite social context.

The second suburbanite dimension of innovative behavior is correlated with flares (.94) and to some degree with boots (.45). This construct is, apparently, the suburbanite casual innovator.

From Table 1 it is seen that the hypothesis of multidimensionality is further supported in the fraternity context. The loadings highly suggest

the existence of two independent factors of innovative behavior for men's fashions. The first factor is related to flares (.83), velour shirts (.72), and boots (.81) innovativeness, and suggests the casual dress innovator in the fraternity setting. The second factor correlates with innovation scores toward knit (-.69) and vest (.75) suits and is called the suit innovator.

Table 1 also contains loadings for three important factors for the independent context. The first factor appears to be a fabric dimension (knit suit = .73 and velour shirt = .87); the second being the independent casual dresser (flares = .78 and dress boots = .83); and the third dimension appears to be innovative behavior uniquely measured by vest suits (.92).

TABLE 1
ROTATED FACTOR MATRICES^a

	<u>Suburban</u> <u>Factors</u>		<u>Fraternity</u> <u>Factors</u>		<u>Independent</u> <u>Factors</u>		
	1	11	1	11	1	11	111
Innovation							
Flares	.07	.94	.83	.00	-.11	.78	.31
Knit Suit	.89	-.07	.26	-.69	.73	-.05	.46
Vest Suit	.77	.17	.38	.75	.04	.08	.92
Velour Shirt	.71	.24	.72	-.33	.87	.09	-.13
Dress Boots	.55	.45	.81	.23	.16	.83	-.14

^aFactors explaining greater than average proportion of variance subjected to varimax rotation for each social context.

DISCUSSION

While the order of importance and combinations of men's apparel fashions loaded on a given factor shift from one social context to the next, there exist interesting trends in dimension characteristics among social contexts. One such trend is that each context appears to have a casual innovator type, but of differing composition. Another is the degree to which some innovative dimensions are idiosyncratic to specific social contexts.

The Casual Innovator

In the suburban context the casual men's clothing innovator tends to be independent of a generalized innovative behavior dimension. In this study--given the small number of new apparel fashions--he tends to innovate only on the most casual of the casual options (flares and dress boots). In a word, he could well be viewed as the avant-garde "mod" or the liberal in the community. Here, the antecedent conditions for innovative behavior in the suburbs dictate high social visibility for this individual; it is believed that he thus serves a valuable function for fashion in the community. Talks with suburbanites have led us to hypothesize that this type of innovator may be a change agent--fulfilling a "linking" function between the suburban community and other social contexts in the diffusion of men's apparel fashions. He may well be Simmel's "marginal man,"² the creative, innovative individual.

In the fraternity context, the casual innovativeness dimension moves from a secondary to a primary position. The primary apparel/life style of the male student is casual; it is only secondarily that he dresses formally. Rather than being the marginal man, the fraternity male casual innovator exists in fewer or in concentric circles with little overlap and thus is closer to exhibiting generalized innovative behavior; this may explain why more new apparel fashions are loaded on this factor (flares = .83, velour shirt = .72, and dress boots = .81). Evidence for this is seen in the fact that he innovates in the clothes which he wears most of his time, suggesting that his circles of activity are indeed concentric, rather than conflicting as must be those of the marginal suburbanite, who innovates only on clothes which he wears but a small part of the time (his leisure time); that is, the fraternity member's innovative apparel can be worn to most of his activities, whereas those of the casual-innovative suburbanite are activity-specific.

The casual innovator in the independent context appears to be quite similar to his suburbanite counterpart in that his dimension is correlated with the same number and kinds of products (flares = .78 and boots = .83). The first explanation is obvious, that the independent casual innovator is the young suburbanite casual innovator. This, however, we believe to be a spurious resemblance, particularly on the rather conservative southern campus involved. We see two alternatives as competing explanations for this similarity. The first is that there are actually two factions among the independents, one of which is truly the young suburbanite, as Scott suggests is the current trend,³ with a second faction as the true independents. Under this explanation, the innovative behavior of the true independent may well be masked by the young suburbanite-in-training. A second alternative explanation is that these are all the true innovators, the real independents who first began wearing the flares or bell-bottoms, in defiance of, and not as training for, life in the suburbs. These are what would pass for the "hippies" on campus, the young radicals.

Context-Specific Dimensions

Some dimensions of innovative behavior for men's apparel fashions appear bound to only one social context. These include:

1. The suit innovator--existing only in the fraternity context, knit and vest suits apparently are competitive apparel innovations; this explanation complements the hypothesis of the more general casual innovator.

2. The fabric innovator--unique to the independent social context, this construct is correlated only with those apparel fashions that are different only in the fabric or finish employed (knit suits and velour shirts). The suit innovator does not manifest existence in this context, leading to the speculation that independents are more conscious of objective attributes of new products. It might also be noted that both of these innovations represent "easy care" clothing. Both of these attributes are conducive to the independent life style.

CONCLUSIONS AND SUMMARY

Recognition of the multidimensional nature of innovative behavior is important to marketers for the following reasons:

1. The determination of product types whose new fashions generate innovative behavior along a common dimension(s) provides new evidence as to purchasing motives of consumers. The examination of common image and attribute content of innovations heavily correlated with a given factor allows a "backward segmentation" approach to the design and introduction of innovations.

2. Further, introductions of new products may find joint promotions and merchandising to be feasible. It may well be that innovations for given product types from different traditional product categories are best handled by the same sales division.

3. For certain purposes basic research in diffusion might find a vector of factor scores per respondent to be more useful than a single "generalized" innovative behavior score. Each of these orthogonal factors could provide an independent basis for analysis with respect to antecedent and process variables.

4. Social context as an antecedent variable appears to exert an influence on the kinds and numbers of independent dimensions on innovative behavior in men's apparel fashions. For example, the casual innovator in men's apparel appears to differ among social contexts.

5. From an epistemic viewpoint, innovating with measures of innovation presently appears to offer new and more viable approaches to the study of product diffusion.

The data in Table 1 we feel to be supportive of the multidimensionality hypothesis of innovative behavior. This hypothesis offers a challenge for further research into the nature of and the uses for marketing from the study of diffusion behavior.

FOOTNOTES

¹ For a detailed description of the survey--sampling plan, interview procedure, questionnaire and nonresponses--see William R. Darden and Fred D. Reynolds, "Generalized Innovation Factors in Men's Apparel Fashions," Proceedings, AMA Fall Educators' Conference, 1971.

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³ John F. Scott discusses this notion in Transaction, September-October, 1965.

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COMMUNICATION PATTERNS AND THE DIFFUSION
OF A CONSUMER INNOVATION: PRELIMINARY FINDINGS

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The pioneering studies on opinion leadership conducted by sociologists have prompted both marketing theoreticians and practitioners to more closely examine interpersonal communication and personal influence in the diffusion of innovations (Rogers 1962, and Arndt 1968).

The present investigation focussed on the diffusion of cable television in Bowling Green, Ohio. It was undertaken to shed additional light on the role people played in the acceptance of a recently introduced consumer service and specifically considered (a) the extent to which adopters and non-adopters engaged in interpersonal communication, and (b) the number of individuals who were influenced as a result of this communication.

It is believed that the preliminary findings reported in this paper may prove helpful to firms introducing new products and services as well as adding to the existing body of diffusion literature.

Environment

The environment in which the study was conducted was unique because of two factors: (1) The Wood Television Corporation held the exclusive franchise to provide cable service, and (2) the size of the market was precisely known. Twenty-eight percent of the households in the city had adopted the service during the twenty months following the innovation's introduction.

Prior to and during this time the company sponsored various promotions. The first, held eight months before the introduction, consisted of a coupon advertisement in the city's only newspaper. Five hundred and twenty individuals responded; unfortunately 428 had to be returned because of a legal entanglement which delayed the erection of the cable in certain neighborhoods. A three month newspaper campaign was begun two days prior to the first installation. After a six month hiatus a second three month campaign was undertaken. Handbills were distributed to occupants residing in cable areas. At the beginning of the second market year, a six week word-of-mouth promotion was initiated. This effort netted 105 subscriptions, and seventy-nine subscribers received one or more "free" months of service as payment for their assistance.

Methodology

At the conclusion of the twentieth month--the time at which the current study was begun--the residential cable television market could be segmented into adopters and two categories of non-adopters as shown in Table 1 on the next page. The ninety-eight potential subscribers and the ninety-four residents living in non-cable areas were chosen at random from the city's street directory. Four hundred and thirty-four of the 498 subscribers were obtained from a time ordered list provided by the company, and the remaining sixty-four

were obtained through sociometric procedures conducted in order to validate the transmission of influence (Coleman, Katz and Menzell, 1957).

Table 1
Data Collection Summary

Market	Universe	Respondents	Percent
Subscribers	960	498*	52%
Potential Subscribers	2,100**	98	5%
Other Households	550**	94	17%
Total	3,610	690	19%

*434 of these respondents were obtained from a time ordered sample, and 64 were obtained through sociometric interviewing.

**Estimated at the end of the twentieth month.

In addition to answering demographic questions, all subjects excepting those who subscribed in the first month additionally responded to numerous and specific questions concerning their conversations about cable television, and the extent to which they had influenced others to subscribe. Questions pertaining to the flow of communication were open-ended and administered without any type of recall.

In this study interpersonal communication had been defined as the exchange of information or advice about an innovation between individuals. As such it was bi-directional and included both the volunteered and solicited transmission of ideas.

Results

Subjects from all three populations were homogeneous in terms of levels of education and occupation, but home ownership was significantly greater among subscribers.

Interpersonal Communication and Personal Influence

Three hundred and fifty-six or 76% of the subscribers who had been asked about their conversations about the service admitted having volunteered information or having had one or more individuals ask them about it. These subscribers talked about the service with more than 3,800 individuals. No attempt was made to measure the extent of overlap within this interpersonal network.

Notwithstanding, the mean average of 8.3 contacts per subscribing household was significantly greater than the 1.3 contacts per potential subscriber as well as the 0.7 obtained from other respondents.

The names and addresses of both influentials and alleged influencees had been obtained from the initial sample. One hundred and seventy-seven subscribers (38%) claimed that they had influenced 352 others. Nine of the potential subscribers claimed they had influenced twenty-one individuals. And two of the respondents from non-cable areas reported they had influenced three others. In total, subjects from all three samples had allegedly influenced 376 individuals to subscribe. Sociometric interviewing made it possible to verify this transmission of influence.

It was disappointing to learn that only 45% of those who had allegedly been influenced were actually subscribing. Nevertheless, the interviewing identified a total of eighty-seven dyads where the flow of influence was clearly established. In fifty-nine of these cases the influential was identified as a subscriber to the service.

A further analysis of the data, as illustrated in Table 2, produced the

Table 2

The Relationship Between Interpersonal Communications
and Personal Influence

Sample Description	N	X Number Engaged in Conversation
All subscribing households	467	8.3
Subscribers who did <u>not</u> influence others	415	8.0
Subscribers who influenced <u>one</u> other	49	10.0
Subscribers who influenced <u>two</u> other	7	13.6

following relationship between the number engaged in interpersonal communication and the transmission of influence. Although there was a positive association, the number who influenced two others was so small that claims do not seem warranted.

Early Adopters as Sources of Influence

To determine if the influentials were concentrated among the early adopters the data were grouped into nine three month periods according to time of adoption.

Table 3 shows, as had been hypothesized, that (a) early subscribers were

Table 3

The Number and Percentage of Subscribers Who Influenced Others to Adopt Cable Television

Time Period	Subscribers N = 467	Influentials N = 56	Percent Influentials
1	84	28*	33%
2	79	11**	14
3	80	8	10
4	38	4	11
5	41	1	2
6	34	1**	3
7	93	3**	3
8	11	0	
9	7	0	
Average	467	56	12%

*Includes four individuals who influenced two parties to subscribe.

**Includes one individual who influenced two parties to subscribe.

A Kolmogorov-Smirnov one sample test which compared expected and obtained percentage of influentials according to date of subscription yielded a $D = .348$, $p < .01$.

more frequently identified as influentials, and (b) that a significantly higher percentage of early adopters transmitted influence as compared with those who adopted later in time.

Direction of Influence

Twenty-seven of the eighty-seven influencees stated that they had sought advice about the service. Cross classification analyses indicated (a) that a significantly greater proportion of these "seekers" turned toward those who had previously subscribed to the service, and (b) that influencees whose date of adoption would label them as members of the "early majority" were somewhat more prone to solicit opinions than were those who would be categorized as "innovators" or "early adopters."

Conclusion

The preliminary findings reported here have demonstrated the existence of a powerful interpersonal network in which the transmission of influence

originated with both the influential and the influencee. In view of these results, it appears that companies introducing new products and services should consider interpersonal communication and personal influence in preparing their own promotional efforts. Sponsored communication can complement the interpersonal network in one or more of the following ways. First, the firm may be able to forestall "opinion seeking" through more informative advertising. Second, the company can cultivate "opinion giving" by getting present users more personally involved with the innovation. Finally, the company can help to legitimize the innovation for later adopters by including the real or implied endorsement of product related authorities in their promotions.

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A SOCIAL PSYCHOLOGICAL ANALYSIS OF THE ADOPTION AND DIFFUSION
OF NEW PRODUCTS AND PRACTICES FROM A UNIQUENESS
MOTIVATION PERSPECTIVE

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During the past two decades, the process of adoption and diffusion of new practices and products has captured the attention of many social scientists (cf., Rogers & Stanfield, 1968) in at least 14 identifiable disciplines (cf., King, 1966). This renewed interest has been provoked by two major problems in society. First, estimates of the number of new products rejected by the consumer range from 50 to 90 per cent (e.g., Booz-Allen & Hamilton, 1960; Lee, 1967). This represents a tragic waste of vast amounts of economic resources. Second, the recent identification of failures to disseminate a broad range of socially desirable practices, such as birth control methods, farming practices and nutritional food substitutes, etc., demonstrates dramatically the importance of further research. In spite of the vital need to understand the processes of acceptance of new practices and products, only a small portion of the research seems guided by systematic theory. The present paper briefly applies a social psychological perspective to the central component of adoption and diffusion processes, i.e., the identification of "innovators". In order to honor a commitment and to the title and time allotment for this paper, the presentation is divided into two parts: (a) the origin and recent research on uniqueness motivation; and (b) some postulated relationships between the dynamics of uniqueness motivation and relevant findings in the diffusion and adoption literature.

Origin of Uniqueness Theory

The concept of uniqueness motivation was stimulated by earlier research on commodity theory (Brock, 1968; Fromkin, 1968; Fromkin and Brock, 1971; Fromkin, Olson, Dipboye, & Barnaby, 1971). Commodity theory is based on the economic principles of supply and demand but departs from the oversimplified economic view of "rational man". In economic theory, scarce commodities are valued because of an expectation that the commodities will increase in monetary value because of their scarcity, e.g., a rare painting. Commodity theory, in contrast to economic theory, is a psychological theory which suggests that individuals value unavailable commodities because of scarcity, in and of itself, when there is no demand or increased monetary reward associated with the scarcity. A "commodity" is defined by Brock (1968) as any object (e.g., informational, experiential or material stimuli) which a potential possessor perceives as useful to him and as conveyable from person to person. The value of a commodity may be defined as its effectiveness in producing acceptance.

For example, Fromkin and Brock (1971) presented subjects in a naturalistic field experiment with identical counter-attitudinal messages under two different conditions. Under scarcity conditions, some subjects were asked to leave because it was alleged that only a small number of persons could hear the message. Under plentiful conditions, additional subjects were asked to hear the message because it was alleged that large numbers of persons were to hear the message. Subjects who received the message under scarcity conditions changed their attitude in the direction advocated by the message more than subjects who received the message under plentiful conditions. In a laboratory experiment, Fromkin (1968, pp. 268-270) presented subjects with a fictitious pre-recorded interview between a Dean and a student who was allegedly caught cheating on an exam. The Dean questioned the student about an incident on the student's previous record. Under some conditions, the student did not reveal information about the incident until the Dean had made several threats against the student for failure to dis-

close this information. Under other conditions, the student revealed this information immediately, the first independent variable. The information revealed by the student demonstrated either the student's prior honesty or prior dishonesty, the second independent variable. After hearing further discussion about the current cheating incident, subjects perceived the student as more guilty (or less guilty, depending upon the honesty or dishonesty of the prior incident) and assigned more severe punishments (or less severe punishments depending on the honesty or dishonesty of the prior incident) to the student under conditions of high threat than under conditions of low threat. This latter experiment demonstrates the potency of an additional operationalization of unavailability, i.e., the degree of coercion required to obtain the commodity (Fromkin, 1968).

The above experiments demonstrate increased valuation for scarce informational stimuli. Another experiment by Fromkin, Olson, Dipboye, and Barnaby (1971) examined the psychological notion of scarcity for a material commodity. Female subjects allegedly participated in a market research project being conducted by a French nylon hosiery company. The alleged representative of that company showed a 15 minute film showing that their new product compared favorably with leading American competitors. The experimenter informed subjects that in order to test interest in the nylons, the company has a large number of samples or only a small number of samples to be given out in the United States, the first independent variable. Only half of the subjects expected to receive a pair of nylons, the second independent variable. Higher valuation of the nylons was obtained under scarcity conditions regardless of whether or not subjects expected to obtain a pair of the nylons. These findings raise the question, why do people value scarce commodities more than plentiful commodities, -- especially when the scarcity was unrelated to expected increments in market value of the commodity.

Relationship between Scarcity and Uniqueness Theory

One possible explanation for the valuation of scarce commodities is that the scarce commodities are in some way related to interpersonal processes of self presentation. In the early 1890's, William James remarked that "the line between what is me and mine is very hard to draw." It was reasoned by Fromkin (1968) that the possession of scarce commodities is one socially acceptable way to redefine the self as different or unique in a society which is rampant with pressures toward conformity and forces of dehumanization or deindividuation. For example, unique material possessions such as automobiles, household appliances and clothing may serve to define that person as different from his neighbor and therefore contribute to his feelings of differentness. The two major assumptions of the above explanation are: (a) there is a need to see oneself as different; and (b) valuation of scarce commodities, when scarcity implies no economic gain, may be attributed to static or dynamic states of uniqueness motivation. If such a motivational state exists in some individuals, feelings of extreme interpersonal similarity will produce different behavior than feelings of extreme interpersonal dissimilarity. Furthermore, the behavior manifest under feelings of interpersonal similarity, when aroused by a variety of operational procedures, will be related to attempts at unique self presentation in a number of different response domains.

A number of different experiments were conducted to test these notions. Two different methods were used to arouse feelings of interpersonal similarity and dissimilarity. The first method, test feedback method, provided subjects with fictitious results from an extensive battery of tests which allegedly measure their personality, values, attitudes, interests and so forth. The test results described subject as either highly similar or highly dissimilar to thousands of their peers. The second method, deindividuation method, attempted to simulate features of the college environment which subjects reported in a previous survey (Fromkin and Demming, 1967) as the cause of feelings of extreme similarity

and dissimilarity. For example, the experimental instructions emphasized that the project was interested (or not interested) in the responses of large groups of subjects and requested subjects to use their assigned experimental numbers (or to use their proper names) and so forth. The dependent variable in the first experiment was performance in a modified form of Guilford's (1950) Unusual Uses Task: the number of "unique uses" subjects suggested for a common every day object, i.e., a shoe. The dependent variable in the second experiment was obtained from a projective measure which required subjects to rate the degree of similarity -- dissimilarity between themselves and a highly ambiguous representation of an unknown other college student (as depicted in a blurred photograph). The dependent variable in the third experiment was the nature of and the degree of positive and negative affect associated with heightened feelings of similarity as measured by a modified form of the Mood Adjective Check List (cf., Nowlis, 1965). The findings demonstrated that feelings of extreme similarity affected subjects differently than feelings of dissimilarity in a manner which support the contentions of uniqueness motivation and demonstrate the validity of the first assumption. When feelings of extreme similarity were aroused: subjects generated a greater number of unique uses for a common object (Fromkin, 1968b); subjects emphasized their dissimilarity from an unknown other person (Fromkin, 1968b); and subjects expressed more intense feelings of unpleasantness and less intense feelings of pleasantness (Fromkin, 1969).

It was suggested above that scarce commodities, e.g., informational stimuli, experiential stimuli, or material stimuli, are more valued because they contribute to feelings of distinctiveness. If the above postulation is valid, scarce commodities should be more valued following heightened feelings of similarity than following heightened feelings of differentness. An experiment was conducted by Fromkin (1970) to examine the proposed relationship between need for uniqueness and valuation of scarce commodities. Following the arousal of feelings of extreme interpersonal similarity via the test feedback method, the first independent variable, subjects were introduced to a second experiment which was allegedly examining the effects of drugs on sensory experiences. The instructions explained that, in lieu of using actual drugs, four electronically equipped rooms were constructed to simulate drug experiences. The four psychedelic environments were described as producing sensory experiences without any harmful effects. Two of the rooms were described as available to all college students and two of the rooms were described as unavailable to most college students because of scheduling problems. The second independent variable. One available and one unavailable environment was described as producing very novel experiences and one available and one unavailable environment was described as producing very familiar experiences, the third independent variable. Subjects then rated the magnitude of their desire and how much time in minutes they wanted to participate in each of four rooms, the dependent variables. The findings on both "behavioroid" measures (Aronson & Carlsmith, 1968, p. 54) support the hypothesis that preferences for unavailable experiences increase as feelings of similarity increased regardless of the perceived novelty of the environments.

To summarize, a series of experiments demonstrate that behavior following heightened feelings of interpersonal similarity is quite different from the behavior following feelings of interpersonal dissimilarity. Furthermore, behavior in several different response domains reflect the person's attempt to define oneself as different from his peers. Although it is recognized that measureable individual differences in the need uniqueness do exist, the present approach focuses on situational factors which heighten or depress the need without regard for individual differences. The following discussion demonstrates that uniqueness theory, when applied to the valuation of scarce commodity response domain, generates post hoc explanations of many research findings regarding the identification of innovators and novel predictions regarding the identification of innovators.

Relevant Aspects of Adoption and Diffusion Research

It is frequently observed that the adoption of new products by large numbers of people is preceded by acceptance by a few initial purchasers. Furthermore, certain types of people are more likely than others to accept innovations across a number of product categories (Jacoby, 1971). "Innovations" are typically defined subjectively in relation to the perceptual processes of the innovator and objectively in relation to the characteristics of the innovation. For example, Rogers (1962, p. 13) and King (1966, p. 666) refer to any idea or product perceived by a potential innovator to be new. Other definitions refer to the objective characteristics of new products, such as new models or new packages and so forth. The present approach accepts both definitions but requires some limiting restrictions. In order for uniqueness notions to be applied to the identification of innovators, the potential innovator must perceive that other persons can also perceive the idea or product to be new. Given the massive advertising campaigns which accompany the introduction of new products, large numbers of products will not be eliminated from consideration by the above modification. More important is the assumption that most new products are initially scarce. This seems reasonable because most manufacturers are reluctant to mass produce new products before they are widely accepted. Furthermore, new products are perceived as relatively "scarce" because the innovator will recognize that most other individuals are unlikely to possess the new product at the time of his adoption.

While the relationship between new products and scarcity in general may be somewhat ambiguous, there are a multitude of cases where newness directly implies scarcity. For example, Fromkin, Olson, Dipboye & Barnaby (1971) noted that a number of recent advertising campaigns emphasized products as scarce or available only in limited quantities. A major television manufacturer announced that only 2000 television sets of a particular model were to be produced and marketed. A television commercial asked consumers to be patient in their attempts to find a store that had not "sold-out" of their brand of razors. An automobile manufacturer stressed the limited production of a new model. Although all of the above examples represent different connotations of unavailability, they share the underlying assumption that the perception of product scarcity enhances product desirability and ultimately leads to increased sales.

The most generally accepted model of the adoption process includes five stages (cf., Rogers, 1962). It is likely that uniqueness motivation will influence the behavior of innovators in the first four stages, i.e., awareness, interest, evaluation and trial. For example, heightened perceptual awareness to characteristics of self and others occurs under conditions of uniqueness arousal (Fromkin, 1968b; Fromkin, Dipboye & Pyle, 1971). Thus, high levels of uniqueness arousal may be a characteristic common to those consumers who are generally more aware of new products. Clearly, under the uniqueness motive perspective, awareness of the scarcity attribute of a new product is one necessary pre-condition to adoption of new products by innovators. The "interest stage" is frequently described as a search for information about how others regard the usefulness and quality of the new product. However, a product qualifies or disqualifies as a means of unique self definition only when these social comparisons yield information about the actual scarcity of the new product. Given that the above necessary uniqueness pre-conditions are activated in the earlier stages, the new product will receive positive "evaluation" by innovators and will lead to at least a probationary "trial". Of course, continued use of the new product (e.g., adoption) will be determined by a number of other factors such as cost and durability of new product and so forth.

Although a number of specific findings in the adoption and diffusion literature tends to support the usefulness of uniqueness motivation for the identification of innovators, only a few exemplars will be presented today. For example, social psychologists have observed the relationship between group membership

and identity (cf., Simmel, 1955) and also the loss of identity experienced by newcomers upon entering new social, vocational, and community groups (cf., Ziller, 1964, 1965). Fromkin (1968b) has speculated that these conditions heighten feelings of interpersonal similarity and result in behavior directed toward re-definition of the self as different from others in his environment. One socially acceptable means of unique self definition is possession of and/or communication about scarce products to other persons. Thus, Shaw's (1965) finding that highly mobile persons tend to be innovationprone seems derivable from uniqueness notions. Second, Fromkin (1968b) has experimentally demonstrated that creative behavior, as measured by Guilford's (1950) Unusual Uses Task, increases when the magnitude of uniqueness arousal increases. This suggests that high uniqueness needs will tend to be manifest in creative behavior when creative behavior serves as a vehicle to define the self as interpersonally different. If the postulated relationship between uniqueness motives and the tendency to accept new products is valid, innovators will tend to be more creative than late adopters. This latter uniqueness theory derivation has been substantiated in research cited by Zaltman (1965). Third, the process of self definition for any attribute, e.g., uniqueness, is accomplished by means of social interaction and social comparison. Fromkin (1968b) suggests that high levels of uniqueness arousal require the individual to be more interpersonally active in pursuit of opportunities to define the self as unique. The postulated relationship between uniqueness motivation and innovators again receives post hoc support from the findings that innovators tend to be more gregarious than late adopters (cf., Katz & Lazarsfeld, 1955; King, 1964).

Last, novel predictions may be derived from application of uniqueness theory to the identification of innovators. For example, "social visibility" is a characteristic of new products which likely enhances positive evaluation by innovators with a high need for uniqueness. That is, although innovators will value new products more than plentiful products under conditions of uniqueness arousal, an additional increment in valuation of new products will occur when the product's newness is observable both to the innovator and to others in his social environment. For example, a new item of clothing apparel such as a coat or slacks will likely be more valued for its contribution to feelings of differentness than a new pair of socks or undergarments. Similarly, a new sofa or television set which is relatively prominent in living rooms is more likely to be valued for its contribution to feelings of differentness than a new furnace, washing machine or soft water system.

To summarize, although the observed tendency for some persons to be "innovation prone" has been attributed to "venturesomeness" or favorable attitudes toward new ideas and practices (cf., Rogers, 1962, p. 169), such tendencies may instead reflect uniqueness motivation. Fromkin's (1968b) uniqueness notions provide a heuristic perspective for identifying and predicting the behavior of innovators. If a measure of uniqueness motivation had been taken among members of this audience, one could predict which members would be aware of, interested in, positively evaluate and prone to try new products and ideas such as the innovative perspective outlined in this paper.

Footnotes

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AN INVESTIGATION OF THE NATURE OF WORD OF MOUTH COMMUNICATION
ACROSS ADOPTION CATEGORIES FOR A FOOD INNOVATION

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The broad objectives of this study centered on a longitudinal view of new product acceptance and coincident informal communications. At the level of the individual, comparisons were planned between the earliest triers of the product, later adopters, and non-adopters. At an aggregate level, points in time one month and two years after product introduction were selected to develop descriptions of product usage and word of mouth activity. And at a level combining individual and aggregate observations, it was hoped that time of adoption, brand loyalty, brand attitude, and word of mouth behaviors could be integrated into a model of the role of informal product-related conversations in the diffusion of a new food product.

To gather data for these perspectives, a two wave field study was designed with four separate samples: (1) a sample of those housewives who were aware of an innovative food product one month after its introduction, (2) a sample of the same respondents two years later, (3) a sample of those not initially aware of the product, conducted two years after their rejection from the first sample, and (4) a general sample of those aware of the product two years after its introduction. This paper will deal primarily with findings from samples one and four.

Method

In early 1961, General Foods' "Maxim" coffee became the first freeze dried coffee in the Minneapolis-St. Paul market. By early 1971, there were five brands of freeze dried coffee in this market and area sales had leveled off for Maxim. These two periods were selected to investigate innovator and non-innovator behaviors for the new food product. The first sample obtained 134 telephone interviews from a randomly selected sample of the area telephone directories during a 10 day period in February, 1969. A second sample of 28 of these respondents was re-interviewed during February of 1971. Procedures paralleled the original sample and questionnaires were extended to gather data on the period since the first interview. The fourth sample of 128 interviews was collected by similar methods during February, 1971, from a sampling population constructed on the same basis as in sample one. Questions were directed toward behaviors in the past one and one-half months in order to create floor and recall effects comparable to conditions in the original interviews. Additional data were obtained on exposure to and usage of Maxim since its introduction.

Results and Discussion

While all results of the study cannot be accommodated in this paper, results on six hypotheses present a fairly concise description of the role of word of mouth in adoption of the new product.

Hypothesis 1:

Word of mouth about Maxim is more likely to be generated by recipients of word of mouth about Maxim than by non-recipients.

(Sample One)

Table 1
Receivers Who Send

	Senders	Non-senders	TOTAL
Receivers	8 (20%)	32 (80%)	42 (100%)
Non-receivers	16 (17%)	78 (83%)	94 (100%)
Totals	24	110	134

[N.S.]

(Sample Four)

Table 2
Receivers Who Send

	Senders	Non-senders	TOTAL
Receivers	5 (45%)	6 (55%)	11 (100%)
Non-receivers	5 (4%)	112 (96%)	117 (100%)
Totals	10	118	128

$\chi^2 = 18.30, p < .005$

One means of legitimizing discussion of a product or brand may be hearing others using the same topic in conversation. However, the relationship between sending and receiving appears only for the general sample two years after product introduction. In part the lack of sender-receiver overlap in sample one may reflect the fact that there were relatively more potential receivers and relatively fewer potential senders (i.e. persons aware of Maxim) at this point soon after the product had been introduced. This explanation could not account for all of the difference between samples however, and argues for a different type of word of mouth during the two time periods. While there appears to be at least a de facto opinion leadership in the introductory stage, the high overlap of senders and receivers in the second period suggests a more generalized type of word of mouth.

It may be noted also that there is a lower incidence of word of mouth present in the fourth sample. It is likely that conversational relevance wanes somewhat as the product becomes accepted and as competing brands enter the market. It is also possible that former "opinion leaders" have moved on to other conversational topics, leaving Maxim to general discussion. A low number of recent word of mouth occurrences in sample two (1 of 28 persons) also tends to support this view.

Hypothesis 2:

Those who have either a very favorable or a very unfavorable reaction when they try Maxim will report more word of mouth than those whose reaction was less extreme.

(Sample One)

Table 3
Trier WOM by Satisfaction Rating

Rating	Senders	Non-senders	TOTAL	Receivers	Non-receivers
Excellent ^a	5 (100%)	0 (0%)	5 (100%)	2 (40%)	3 (60%)
Good ^b	3 (25%)	9 (75%)	12 (100%)	2 (17%)	10 (83%)
So-so ^b	5 (33%)	10 (67%)	15 (100%)	8 (53%)	7 (47%)
Dislike ^a	3 (60%)	2 (40%)	5 (100%)	4 (80%)	1 (20%)
=====	=====	=====	=====	=====	=====
Extreme	8 (80%)	2 (20%)	10 (100%)	6 (60%)	4 (40%)
Moderate	8 (30%)	19 (70%)	27 (100%)	10 (37%)	17 (63%)
Totals	16	21	37	16	21

a = grouped for Chi-square as "extreme"

b = grouped for Chi-square as "moderate"

Sender $X^2 = 5.63$, $p < .01$

Receiver $X^2 = 2.64$, $p < .11$

Combined Sender/Receiver $X^2 = 7.17$, $p < .005$

(Sample Four)

Table 4
Trier WOM by Satisfaction Rating

Rating	Senders	Non-senders	TOTAL	Receivers	Non-receivers
Excellent ^c	1 (9%)	10 (91%)	11 (100%)	1 (9%)	10 (91%)
Good ^c	2 (6%)	30 (94%)	32 (100%)	2 (6%)	30 (94%)
So-so ^d	4 (19%)	17 (81%)	21 (100%)	5 (24%)	16 (75%)
Disliked ^d	3 (25%)	9 (75%)	12 (100%)	3 (25%)	9 (75%)
=====	=====	=====	=====	=====	=====
High	3 (8%)	40 (92%)	43 (100%)	3 (8%)	40 (92%)
Low	7 (21%)	26 (79%)	33 (100%)	8 (24%)	25 (76%)
Totals	10	66	76	11	65

c = grouped for Chi-square as "High"

d = grouped for Chi-square as "Low"

Sender $X^2 = 2.73$, $p < .10$

Receiver $X^2 = 6.25$, $p < .025$

Combined Sender/Receiver $X^2 = 12.34$, $p < .001$

While word of mouth in the first sample occurred most frequently among triers with extreme evaluations, later adopters showed more frequent word of mouth when their evaluations of the product were low. Though interpretation is not entirely clear, perhaps the novelty aspect of an extremely good or bad product make it an enticing topic of conversation only for the more self-confident innovators. Results would also support an interpretation that only among later adopters does word of mouth play a role in information acquisition and problem solving, and therefore further input is sought where evaluations are non-definitive. A greater utilization of word of mouth as an initial source of information for later adopters as opposed to innovators (14% versus 6%) would add to the explanation of increasingly functional word of mouth, but the greater possible exposure time confounds these results.

Hypothesis 3:

Those who have purchased Maxim will report earlier word of mouth conversation than those who have not yet purchased the brand.

(Sample One)

Table 5
Mean Number of Weeks Since:

Purchaser Last Engaged in WOM	2.78 weeks
Non-purchaser Last Engaged in WOM	1.97 weeks
Difference	.81 weeks
$t = 6.142$ (60 d.f.), $p < .005$	

These data were not obtained from sample four. This hypothesis speculated that the critical period for both frequency and effectiveness of word of mouth centers around the purchase decision. One difficulty with this formulation is that the post-purchase discussion of one group of buyers may coincide with the pre-purchase discussion of another. Another difficulty is that this study does not record a purchase decision not to buy. All together 44% of receptions occurred before purchase (17% during, 39% after), and 50% of transmissions were delivered before recipient purchase (12.5% during, 37.5% after).

Hypothesis 4:

Those who have engaged in word of mouth about Maxim will have purchased Maxim more frequently than those not sending or receiving word of mouth.

(Sample Four)

Table 6
Mean Number of Maxim Purchases:

Receivers	2.55
Non-receivers	1.53
Difference	1.02
$t = 0.83$, [N.S.]	

Table 7
Mean Number of Maxim Purchases:

Senders	3.70
Non-senders	.145
Difference	2.25
$t = 1.87$ (126 d.f.), $p < .005$	

While the direction of causality is not apparent in these data, the timing of purchase and word of mouth occurrences suggests that receiving word of mouth encourages trial and sending facilitates retrial.

Hypothesis 5:

Those consumers who were formerly brand loyal to another brand of coffee (before using Maxim) are more likely to report the initiation of word of mouth about Maxim than are those who were not formerly brand loyal to another coffee.

(Sample One)

Table 8
WOM by Brand Loyalty (Triers Only)

	Receivers	Non-receivers	Total	Senders	Non-senders
Brand Loyal	7 (50%)	7 (50%)	14 (100%)	5 (33%)	9 (67%)
Not Brand Loyal	10 (42%)	14 (58%)	24 (100%)	6 (25%)	18 (75%)
Totals	17	21	38	11	27
	[N.S.]			[N.S.]	

Hypothesis 6:

Among purchasers of Maxim, those who were formerly brand loyal to another coffee will have first purchased Maxim at a later date than those who were not formerly brand loyal.

(Sample Four)

Table 9
Mean Number of Weeks Since
First Maxim Purchase

Not Brand Loyal	52.93 weeks
Brand Loyal	39.86 weeks
Difference	13.07 weeks

$t = 1.73$ (38 d.f.), $p < .05$

All measures of brand loyalty defined the purchase of only one brand in the last three purchases of coffee as brand loyal and a greater number of brands purchased on these occasions as not brand loyal. The sample one data show a slight but non-significant tendency for brand loyal persons to engage in greater word of mouth behavior. Sample four data show a tendency for those formerly brand loyal to be later adopters of Maxim than those who were not. Thus, ties of brand loyalty appear to hamper adoption only among later adopters. There was no significant difference in adopter times by brand loyalty in the first sample innovators.

Although sample two data are based on only 28 observations, some striking differences are found between these Maxim innovators two years later and the sample four members who had only recently tried the product.

- While nearly all innovators now rated Maxim as "average" or below, the majority of later adopters rated the product as "good" or "excellent."
- Over one-half of the innovator resample said they would not purchase Maxim in the future, as opposed to only 13% of the new sample.
- Somewhat surprisingly, fewer innovators said that they had used other new freeze-dried coffees than did later adopters.

Thus while the appeal of Maxim appears to have worn off for innovators, it is not because they have also become innovators for newer brands of the product. In fact, most innovators are now brand loyal to regular or instant coffees, while few in the new sample are currently brand loyal.

Although purchase behavior seems to have stopped for the innovator sample, these persons continued to engage in word of mouth about the product.

- About 1/4 of the resample had engaged in conversations about Maxim since they were originally interviewed, as opposed to a much lower percentage among the new sample for the same time period.
- Very few persons in the resampled group ever used Maxim for a long enough period to have been called brand loyal to the product.
- Early triers gave nearly all positive comments at the time of the original sample and largely negative word of mouth about the product by the time of resample.

- One-half of the early triers now feel that their close friends would not like the product, whereas only one-sixth of the new sample feel that this would be the case with their friends.
- Both samples agree that the majority of people now like Maxim, but the resampled group feels more strongly that the product's popularity will decline in the future.

These findings suggest that innovators seem to perceive themselves as different from most and precursors of opinion change, while later adopters view themselves as more typical consumers. It may be that a continued desire for originality sparks the potentially damaging negative word of mouth found now in the innovator group.

Conclusions

The picture of early triers of this food innovation is very different from that of later adopters of the product. The concept of adoption may not even be appropriate for this frequently purchased item, since the adoption by early triers appears to have only been temporary.

It has been suggested that the nature and functions of word of mouth behavior is markedly different between the two groups. While the early group seem close to the classic description of opinion leaders, the later adopting group seem to be engaging in a more conversational form of word of mouth, probably devoid of opinion leadership. Future research may seek to further clarify differences in the nature and functions of word of mouth between adopter categories and investigate the amount of interaction and influence across category memberships. It would be well to examine these relationships in the context of greater and lesser innovations. The present study recommends primarily that it is an oversimplification to speak of a single type and function of product-related conversations in the adoption process.

METATHEORY IN CONSUMER BEHAVIOR RESEARCH¹

Rap Session Position Paper

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There have been remarkable efforts made during the past few years toward the advancement of knowledge in the behavioral sciences. While important and impressive steps toward this goal have been recorded the actual accomplishment in the behavioral sciences has not been consistent with the magnitude of the effort. The applicability of this observation, of course, varies considerably among disciplines and among specialties within disciplines. One important reason underlying the failure of actual achievement to keep pace with effort expended is the seeming absence of use of explicit criteria in the methodological approach (National Science Council, 1969). Certainly consumer behavior as an interdisciplinary area of research is not exempt from this statement. This has very important implications for marketing research in consumer behavior. The market researcher needs a set of criteria to evaluate the material he tries to build upon and, equally important, he needs a set of criteria, i.e., a thinking methodology, to guide his own theoretical and applied research and to ensure the greatest value for his efforts.

The area of metatheory promises to provide fruitful guidelines for using and conducting research in marketing. It is hoped that presenting a brief overview of the domain of metatheory will help sensitize researchers to some of the many and complex issues involved and thereby encourage a more critical and selective development, testing and application of behavioral science in marketing research.

Metatheory and Consumer Behavior

Broadly defined, metatheory is: The investigation, analysis, and description of the technology of: (1) theory building, (2) theory testing, and (3) theory utilization. This definition seems to hold over all sciences. Metatheory is not concerned with the context, i.e., substantive area, of scientific activity but rather with the conceptual procedures of science.

Recently many marketers have recognized the need for being concerned with metatheory. Bartels (1970) in his Marketing Theory and Metatheory deals with the subject although not in a strict behavioral context. He points out that "the term metatheory appears only once in marketing writings, in the preface of John Howard's Marketing Theory wherein he says merely that 'a metatheory of marketing . . . is needed.'" More recent statements demonstrating the need and utility for metatheory work in the behavioral field have come from: (1) Kollat, Engel, and Blackwell (1970), particularly in their treatment of variable and construct problems, although they don't make explicit use of the term metatheory; (2) Zaltman (1970) in his mention of criteria for evaluating theories and his discussion of scientific inference in using behavioral theory in the study of consumer behavior; and (3) Hunt (1971) in his attempt to evaluate from a metatheoretical viewpoint an earlier expression of marketing by Bartels. Earlier writings which in some way touch upon one or more dimensions of metatheory without labeling it as such include Taylor (1965), Buzzell (1963), Baumol (1957), Schwartz (1963),

Halbert (1965), Bliss (1964), Sheth (1967), and Bartels (1951). There is, however, no published writing which represents a systematic account of metatheory in consumer behavior. Perhaps the theory which comes closest to expressing a metatheoretical basis or orientation is the so-called Howard-Sheth (1969) theory of consumer behavior.

In the discussion to follow the authors outline some of the basics of metatheory relevant to consumer behavior. Obviously not all the various criteria, principles, and issues mentioned can be elaborated upon within the confines of this paper. Only selected topics will be expanded in the discussion. The other elements are mentioned at the risk of the confusion and monotony usually attendant upon the simple citing of unelaborated notions, in order to give the reader a broader feeling for the scope and variety of considerations metatheory holds for marketing research. In all cases appropriate references are provided so that the challenged reader may pursue and at least partially satisfy his curiosity. Hopefully, too, in the process of doing this the reader will internalize metatheory guidelines as part of his own thinking methodology.

Since metatheory is a theory whose subject-matter is some other theory it provides the opportunity to treat that theory in a more rational way. Accordingly, it is appropriate to analyze the components of theories, namely hypotheses and concepts, before turning to the notion of theory itself. However, a theory is a conceptual device that is useful for explaining, predicting, and controlling events. Therefore the discussion begins with these three functions of information, i.e., explanation, prediction, and control. Following this will be a treatment of concepts, hypotheses, and finally theories.

Explanation

Explanation, defined here as the ascription of causes to an event or type of event (Morgenbesser, 1968:117), plays a crucial role in the scientific process. What is most distinctive about the major goals of science is the "organization and classification of knowledge on the basis of explanatory principles" (Nagel, 1961:4). In the area of consumer behavior, nearly all research is oriented toward the development of explanatory principles which attribute causes to instances of consumer behavior.

Scientific explanations must meet two systematic requirements. These have been labeled the requirement of explanatory relevance and the requirement of testability. Explanatory relevance means the account of some phenomenon provided by an explanation would constitute good grounds for expecting that the phenomenon would appear under the specified circumstances. Explanatory relevance is achieved when "the explanatory information adduced affords good grounds for believing that the phenomenon to be explained did, or does, indeed occur. This condition must be met if we are to be entitled to say: 'That explains it -- the phenomenon in question was indeed expected under the circumstances'" (Hempel, 1966:48).

An explanation having no test implications is devoid of empirical content; no empirical findings could support it or disconfirm it and consequently it provides little or no ground for expecting a particular phenomenon -- it lacks what Hempel calls objective explanatory power. Thus the requirement of testability is that scientific explanations must be capable of empirical test. An explanation which meets the first requirement (empirical relevance) also meets the requirement of testability whereas the converse does not hold (Hempel, 1966:49).

Causality in Explanation

The definition of an explanation employed in this paper relies heavily on the concept of causation and a very brief exploration of the meaning of the term "cause" will be helpful at this point. For the researcher, the object of explanation should be to provide, with as high a degree of certainty as possible, information about what variables influence, produce, or affect other variables. It is necessary to determine in a given context what the marketing decision variables (causes) are so that procedures can be established for manipulating them. Only when hypotheses or theoretical statements are presented in this way can they be of maximum utility in deriving marketing implications.

It will be useful to formulate a causal statement in a marketing context and use this statement to discuss the properties of causal laws. Such a statement might be: Norms of reciprocity among consumers affect the outcome of personal selling situations. Stinchcombe (1968) describes this type of proposition as one in which one, in particular, of the variables within a broad class of phenomena explains a particular variable in another class of phenomena. The two variables are norms or feelings of reciprocity and the outcome of a selling effort. The connecting mechanism at the individual level might be that feelings of obligation (in turn explained by social exchange theory) develop within a consumer as he comes to perceive the salesman as investing in the selling situation resources valuable to the salesman. Because of an apparent opportunity cost incurred by the salesman (as perceived by the prospect) in his relationship with the consumer, the consumer will reciprocate by rewarding the salesman with a purchase. A number of things in the causal sentence which are properties of causal statements should be noted:

1. The statement assumes, for example, that high levels of reciprocity among consumers will be found in successful personal selling situations; this statement would probably be better stated as a probabilistic prediction.
2. Changes in the level of reciprocity will produce changes in the frequency of successful personal selling.
3. Successful selling efforts by salesmen do not produce feelings of reciprocity among consumers (this may at first glance seem contradictory but salesmen may only activate or stimulate this variable, not create it). (The question of reciprocal causation cannot be considered here due to space limitations.
4. For a change in reciprocity to produce a change in sales, there do not have to be changes in other variables
5. The variables involved in a given causal law may be of different classes, e.g., one variable may be dichotomous and the other continuous.
6. There can be contexts where the causal law does not apply. Presumably it would not apply to "order-taking" personal selling situations but would apply to "creative" personal selling situations.
7. Other variables such as changes in level of disposable income or advertising could cause a change in sales without invalidating the causal statement.
8. Most importantly, we do not know that a given change in sales is in fact caused by a change in reciprocity (either among a given group or by exposure of other groups to the sales effort). Even if we hold constant the effect of

advertising, income change and other imaginable variables and still find variations in reciprocity to be associated with variations in sales we cannot conclude with absolute certainty that the causal statement is true. There is always the chance that a variable or set of variables (including measuring errors and problems in the research design) that we have not thought of has produced the change in sales. As Campbell notes, a fundamental limitation in the scientific process is that, "Not only are scientific truths logically unproven, they also lack certainty in any other sense -- inductive, empirical, scientific, or implication. Yet they are in some sense 'established.' The best of theories if not 'confirmed' are at least 'corroborated' . . . thus the only process available for establishing a scientific theory is one of 'eliminating plausible rival hypotheses' . . . this is the best we can do." (Campbell, 1969:352, 354-55).

Types of Scientific Explanation

There are basically five types or models of scientific explanation: the nomological model, the deductive model, the probabilistic model, the functional or teleological model, and the genetic model (e.g. Nagel, 1961:20-26; Hempel and Oppenheim, 1948: 135-174; Hempel, 1966: 49-69; Brown, 1963: 47A). However, the discussion here must necessarily be limited to the deductive and probabilistic models due to space considerations.

The Deductive Model. The deductive model, widely regarded as the ideal form of explanation is of the following form: If explanatory statements or sentences $S_1, S_2 \dots S_n$ contain one or more laws and if a phenomenon P can be deduced from $S_1, S_2 \dots S_n$ then $S_1, S_2 \dots S_n$ is a satisfactory conjunction of explaining sentences. Thus the explicandum, that which is explained, is a logical necessary consequence of the explanatory premises (the explicans). In deductive models, then, the premises state a sufficient condition for the truth of what is being explained. It is sometimes added that the explaining premises, i.e. $S_1, S_2 \dots S_n$ must contain or constitute a theory.

For example, in a consumer behavior context, the question of brand loyalty among a certain group of customers might be raised, i.e., Why, in a particular instance, is loyalty so durable a phenomenon? The explanatory premise or explanans in this case might be certain learning principles involving the selective perception, retention and reinforcement theories. Thus continued brand loyalty (P in terms of our earlier notation) is directly and logically deducible from a particular learning theory ($S_1, S_2 \dots S_n$ in our earlier notation). This does not exclude other explanatory premises from being introduced as supplementary or competing explanans.

Probabilistic Explanations. Probabilistic explanation can be contrasted with deductive explanation: "With a deductive explanation, the explanatory premises would, if true, provide conclusive evidence for the conclusion, constituting a totally sufficient guarantee of the explanatory conclusion. With a probabilistic explanation, the explanatory premises do not provide a guarantee of the conclusion, but merely render it relatively likely ..." (Rescher, 1970: 37).

Social scientists usually encounter probabilistic explanations when the explanatory premises (e.g., reinforcement theory) contain a statistical assumption about some class of elements (e.g., consumers exposed to random reinforcement as opposed to routine reinforcement) while the explanandum (brand loyalty) refers to a given consumer in that class of consumers. Thus if we want to explain why a given consumer is brand loyal (assumed to be a dichotomous variable for purposes of illustration) we would point out that a known percentage of consumers exposed to random reinforcement will be brand loyal. Notice that this is not deducible.

Levels of Explanation

There are at least four levels of explanation in the behavioral sciences (Doby, 1969). They are presented in Table 1.

Table 1. Levels of Explanation

Level of Explanation	Explanation
One	A certain phenomenon has an empirical existence.
Two	The phenomenon is of the nature Q and is produced by Factors $x_1, x_2 \dots x_n$.
Three	Factors $x_1, x_2 \dots x_n$ are interactive or have interacted in manner $y_1, y_2 \dots y_n$ to produce in some past or present time a phenomenon of the nature Q .
Four	Factors $x_1, x_2 \dots x_n$ interact in a manner $y_1, y_2 \dots y_n$ for reasons $w_1, w_2 \dots w_n$, thus producing a phenomenon of the nature Q .

A good illustration of these four levels of explanation involving behavioral phenomena of relevance to marketing is presented by H. G. Barnett's (1953) theory of innovation as a basis for cultural change. Only elements of this theory, his notion of basic wants as necessary conditions for innovation, will be treated. At level one a phenomenon, an act of innovation, i.e., adoption, is observed; it is known -- not just assumed -- to have occurred or to be in the process of taking place.

At level two the phenomenon is observed to be of a certain nature, Q , in this instance, the purchase of an ultra modern architectural blueprint for a permanent home or possibly the actual purchase of such a home. Thus the nature of the event, Q , consists of a purchase (a particular behavior) of an object perceived as new with new being defined in terms of qualitative distinction rather than in terms of time. Q , then, is composed of three factors: (1) purchase behavior, (2) perceptual processes, and (3) an object having qualitative distinction from other objects in the same general class of objects. Q may have been produced by or be a result of central subliminal wants (a type of self want) and creative wants (a type of want that we relabel as autotelic wants). These two wants represent x_1 and x_2 in Table 1. Central subliminal wants are those which relate to the individual's need for self-preservation and self-definition. They influence how we structure and organize our environment. Creative wants emphasize accomplishment with the process or act of being creative being at least and probably more important than the resultant innovation or objects. In general, wants of this nature result from dissatisfaction with the accepted way of doing things.

Level three is concerned with explaining how central subliminal wants (x_1) and creative wants (x_2) interact in manner y_i to produce the adoption of the innovation in question. Explanation in this case takes the form of describing what y_i is. In our example creative wants interact with central subliminal wants. The need to define oneself as unique, avant-gardish, etc. together with dissatisfaction of existing modes of architecture as means of achieving this self definition, lead to the adoption of radical architectural style. But in level three the emphasis is upon the manner of interaction. It could be explained that creative wants stimulate (the manner of interaction) central subliminal wants and that for reasons of congruence or cognitive consistency the central subliminal wants are expressed in creative ways, i.e., the individual establishes a self-definition of being an innovator. Being interested in doing innovative things and being dissatisfied with existing conditions brings about the idea that he is an innovator which becomes expressed in such behavior as the acquisition of a radically or at least significantly different home.

At level four explanation goes beyond the relationship of the x 's to each other and attempts to account for reasons (w_1, w_2 , etc.) factors x interact in manner y_i . An explanation at this level has already been given. It was stated above that for reasons of cognitive consistency Factor x_1 , creative wants, cause Factor x_2 , central subliminal wants to express themselves in innovative, i.e., creative ways. The notion of cognitive consistency in this illustration constitutes the reason, w_1 .

Evaluating Explanations

There are four basic criteria for evaluation explanations. These are: scope, precision, power, and reliability. Each is discussed briefly below.

Scope. Scope refers to the range of events to which an explanation can be applied. It is difficult in the social sciences to achieve wider scope without introducing ambiguity.

A number of hypotheses and theories relevant to marketing and having broad scope can be cited briefly. The two-step flow hypothesis is a good example of an explanation of marketing-relevant communication behavior. Exchange theory as articulated by George Homans (1961) and Peter Blau (1964) is a theory of wide scope and relevant to marketing (Zaltman, 1970:30-32). E. T. Hall's (1961) theory of culture as communication is another explanation with extremely broad scope although difficult to test empirically.

Precision. "The precision of an explanation refers to the exactness with which the concepts used in explanation are related to empirical indicators, and the precision with which the rules of interaction of the variable in the system are stated" (Meehan, 1968:117). Note that there are two areas of precision referred to in this quote. The first concerns the relationship between a concept and its empirical indicator. The second concerns precision in the statements concerning the relationships among concepts.

With regard to precision in the first case there is always an unavoidable gap, a lack of precision, between a concept and its empirical operationalization. "In a very real sense no theoretically defined concepts can be directly translated into operations nor can theoretical propositions be tested empirically" (Blalock, 1968). In an article largely devoted to this problem of precision, Zaltman (1970:32) concludes: "Perhaps one of the greatest obstacles inhibiting the effective application of the behavioral sciences to marketing problems is

that this very important quality of isomorphism (between theoretical and operational systems) can only be determined intuitively." Hard-headed researchers tend to disagree with this position (Bechtoldt, 1959), but the disagreement ultimately becomes one of two diverging basic philosophical positions, (Harré, 1967).

The second aspect of precision concerns precision in the stated relationships between concepts. Blalock (1969:18) argues vigorously for specifying relationships in the form of direct causal links stated in terms of covariations and temporal sequences for reasons of explication, testing, and measurement.

This last factor, measurement, is a key factor influencing precision. In the first case it affects the accuracy of the operationalized concept: the smaller the measurement error the more isomorphic the relationship between theoretical concepts and their empirical indicators. In the second place measurement affects the detection of such things as interaction effects which influence the interpretation of relationships among explanatory variables.

Power. Power refers to the degree of control over the environment an explanation provides. Power depends upon the precision of the description and explanation and upon the completeness of the variables. An explanation encompassing all, or many, relevant variables and providing linking statements, as discussed in the preceding section on precision, is considered more powerful than an explanation which involves few variables inarticulately expressed and relies heavily on the clause, "other things being equal."

Reliability. Reliability refers to the frequency with which factors not included in the explanation interrupt the situation the explanation concerns. It would be unusual of course to have complete reliability in marketing and the behavioral sciences in general. Reliability must be considered as a relative thing and not in absolute terms. In some ways reliability is related to degree of precision. We can say that a certain behavior is accounted for -- or explained by -- the life style of the actor. This statement is rather reliable given its vague all-inclusiveness but not very precise; certainly not as precise as breaking life style down into principal component parts and explaining behavior in terms of these parts.

Prediction

In the social sciences prediction refers to a stated expectation about a particular aspect of behavior or some particular set of circumstances which may be verified by subsequent observation.

Prediction is generally used in two ways. First, it is often used "for making deductions from known to unknown events within a conceptually static system" (Schuessler, 1968). An example is the use of regression analysis to estimate one variable from one or more concurrent variables. This is a frequent practice in using personality variables to "predict" buyer behavior or to use discriminant function analysis to predict adopter categories on the basis of psychosocial and demographic variables.

A second use of the term involves making assertions about future outcomes on the basis of recurring sequences of events. Sometimes, such statements are time bound, as in predicting for a given period. This is a form of prediction frequently labelled forecasting. Another form of prediction common to marketing

is test marketing, which assumes that processes occurring in the test market will be "re-occurring" not only in the test market but in comparable other areas, so that the recurring sequence of events in the test market adequately predict an outcome in the relative future in other contexts.

Prediction appears to be a special form of explanation, future-oriented (genetic) explanation, although we may have the paradox of being able to predict without explaining and explaining without being able to predict (Kaplan, 1964: 346-349; Bunge, 1967b; Rescher, 1970:30-36; Hempel and Oppenheim, 1948:138). However, "the logical structure of scientific (prediction) is . . . the same as that of explanation, namely, a deductive inference from laws and data" (Bunge, 1967b:69).

"The test then is to get (any explanation) to use the deductive technique of explanation on a future event; that is, to take the risk of being proved wrong by making a prediction. The argument involved in making a prediction is a slight modification of that involved in an explanation. In a prediction the conditions -- some antecedent event or events -- are the starting point, working through a law to the predicted event, whereas in an explanation the explanandum is the starting point, and only such conditions are involved as to make its following from the law plausible" (Caws, 1965:94).

Scientific prediction is forecasting with the help of scientific or technological theories and data. It is a statement or set of statements (1) whose premises are true, (2) which contains data statements which are true but refer to times no later than the present, and (3) which relates to the relative future. All scientific prediction involves some theory from which deductions are possible and some factual evidence relevant to the propositions of the theory.

A good example of scientific prediction in consumer behavior is the use of attitudes, or more strictly empirical measures of attitudes, to predict buyer behavior. The general principle involved is a psychological one concerning the striving for consistency between attitudes and behavior. The empirical data statements may be past or current information describing how the attitudes and buyer behavior are related. On the basis of the general theory and data statements conclusions are drawn -- deduced -- about some state in the relative future. Cognitive consistency models and market data have also been used to predict brand preferences and actual buyer behavior.

Levels of Prediction

As in the case of explanation, there are also different levels in prediction. These levels correspond to those shown in Table 1 except that they are future oriented. Consider an example of different levels of prediction derived from theoretical models discussed by Rogers (1969), Lerner (1958) and others concerning innovation in developing societies. The basic theory involves four interrelated concepts: literacy, cosmopolitanness, empathy, and innovativeness.

At level one the simple statement is that in the relative future more innovative social units (society, group, individual) will exist. The social unit is the phenomenon of concern.

The second level of prediction is that more innovative social units, Q , will exist as a result of increases in literacy, cosmopolitanness, and empathy. These three variables are the Factors x_1 , x_2 etc., referred to in Figure 1. Q is the nature of the phenomenon.

At the third level of prediction we say that the three factors have interacted in the past, and/or are now interacting and/or will interact in the future in such a manner as to produce a change in innovativeness. The "in such a manner" is the focus of prediction at this level. For example, we might predict the following manner or type of interaction between literacy and empathy: higher degrees of mastery over symbols in written form (literacy), widen experiences through meaningful encounters with the print media, and unlock mental abilities, allowing the social unit to encompass these new experiences. This, in turn, increases the ability to project oneself into the role or situation of another. Such identification is a direct antecedent of being innovative (Barnett, 1953).

At level four, emphasis is on the reasons why (w_i) literacy and empathy (and the other factor combinations, e.g., literacy-cosmopolitanism, etc.) interact in the manner (y_i) just described and why empathy and the other variables may produce innovativeness directly independent of the impact of interaction effects. The reason why empathy affects innovativeness may be found in the concept of vicarious modelling. The reason for the literacy-empathy relationship may be found in contemporary theories of creativity. Thus, the prediction that Q is of a specified nature ultimately rests on the prediction that vicarious modelling, certain creative processes, and other reasons have been or will be in operation. The reasons just cited are themselves subject to analysis at each of the four levels of explanation and prediction.

Evaluating Predictions

Scope. The scope of a prediction refers to the range of events that it covers. The range of events may be viewed both longitudinally and latitudinally. If there is a long chain of events which must take place before a given phenomenon will occur and there are no other causal events capable of producing that phenomenon then a prediction of that phenomenon must encompass or include accurate prediction of the state of events in the chain. Scope of prediction may also be viewed laterally, i.e., in terms of the number of final events the predictive explanation covers.

Precision. The precision of a prediction refers to the degree of isomorphism between the concepts involved in the prediction and their empirical indicators. In addition to the important quality of isomorphism, precision is also affected by the accuracy of the empirical indicators, i.e., the quality of measurements with which the prediction is made. This is a methodological problem of some concern. As with nonpredictive explanations, the precision of the statement describing the rules of interaction among system variables is also important. This is very relevant to the problem of scope. The greater the longitudinal scope of a prediction the greater the degree of precision required in stating the relationships among the X's and between X's and Q's. As Stinchcombe (1968:129) has observed, "the elegance and power of an explanation can only be as good as the causal connection among variables allows it to be." This is also a reminder that statements of relationships between variables should not only be precise but be causal as well.

Power. Power in precision is a function of the precision of the predictive statement and its completeness. The more precise and encompassing of variables a predictive explanation is, the more powerful it is. It is more powerful in the sense that it provides a greater opportunity to control, and to control more accurately, those variables amenable to control or external manipulation by the researcher or planner.

One problem affecting that aspect of power involving completeness is the

issue of prediction as feedback: a stated prediction may affect its own fulfillment. This is largely relevant to social rather than physical contexts. A promotional campaign stressing the virtues of a new non-prescription drug may, through the power of suggestion, cause people to actually experience relief solely on the basis of the prediction that it would provide relief. Studies on placebo effects provide the scientific grounding for such a statement. However, the feedback could be negative if excessive unrealistic expectations were built in the consumer's mind which the product could not match in actual use.

Reliability. Reliability in prediction concerns the frequency with which factors not included in the predictive explanation interfere with the predicted phenomenon, i.e., cause it not to happen exactly as the explanation predicted. To some extent there can be a trade-off between reliability and precision. The less precise the prediction or, alternatively, the more vague it is, the greater the degree of fluctuation allowed in the phenomenon Q. It is up to the researcher to determine the final trade-off point.

Control

Explanation serves a twofold function: (1) to satisfy the human need to anticipate events (prediction), and (2) to be able to control future events. It is this latter phenomenon, control, which is of concern here. Many scientists claim that control is the central factor in the scientific enterprise (Rychlak, 1968). Even so, the philosophy of science has relatively little to say about a metatheory of applied behavioral science. Yet, the control function of scientific knowledge is of such great importance in applied activities such as marketing that it is essential to investigate the various criteria and guidelines for exercising control and evaluating control efforts.

Definition of Control

Control is the systematic manipulation of some element related to or contained within a system so as to effect a change in one or more elements in that system. "A system is an entity which is composed of at least two elements and a relation that holds between each of its elements and at least one other element in the set" (Ackoff, 1971:662). Control over a particular event is achieved if the relations specified in the explanation may be manipulated; manipulation of relationships requires manipulation of variables. The definition of control also specifies that an external state, i.e. the environment of a system, may be a source of causal forces. The environment of a system is defined as "a set of elements and their relevant properties, which elements are not part of the system but a change in any of which can produce a change in the state of the system" (Ackoff, 1971:662-63). Control over an event is achieved if endogenous and/or exogenous variables contained in an explanation are manipulated so that a desired result is obtained.

Levels of Understanding in Control

Following the structure of Table 1, four different levels of understanding in the control process can be defined. At the first level there is the simple identification of the criterion variable(s) and the noting that a certain condition can be wrought by the change agent. The second level involves the identification of manipulable causal factors (the x's) capable of bringing about the phenomenon Q. The third level represents a still higher level of knowledge about the control situation. It identifies the strategies and tactics (the y's) to be used to alter existing relational patterns among x's and between

x's and the condition out of which Q is to emerge. The final level is the specification of the reasons (w's) why strategy y, etc. can affect the relations among x's and between x's and the criterion variables. This involves identifying facilitating factors in the system or the system's environment.

At Level 1 the criterion variable is identified. In the illustration used here this variable will be product quality perception. It is ascertained that this is a manipulable variable, i.e., within the deliberate control of the change agent. The next level of understanding permits the marketer to say that the product will have a perceived quality Q as the result of his manipulating price and channel of distribution (Stafford and Enis, 1969:456-58; McConnell, 1968:300-03). At level three the marketer knows through adequate research that, for his product class and market segment, there is a certain price range within which there is a relatively high positive association between price and perceived product quality. Presumably, consumers reason that a high price is due to high workmanship and/or more durable and functional features, thus enhancing the objective quality of the product. There may also be an interaction between causal factors having an additional effect on perceived product quality. The imputed relationship between price and quality and the added causal impact of the interaction effect between price and store images (Stafford and Enis, 1969) would presumably lead to a strategy of relatively high price and distribution through outlets having favorable images. At a still higher level of understanding he would base this action on certain reasons ($w_1, w_2 \dots w_3$) such as the income level of the relevant market segment, the importance of quality, etc.

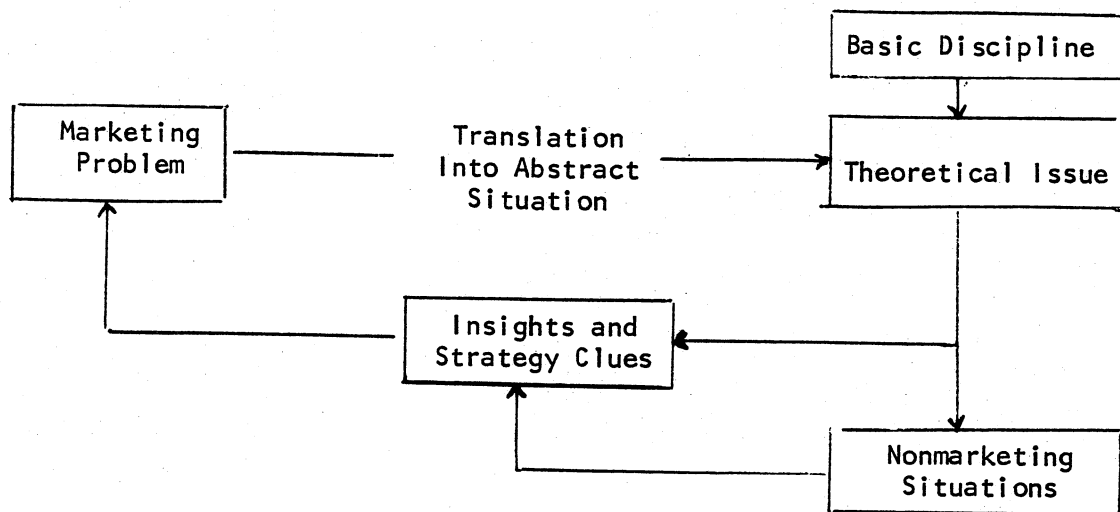
Translating Practical Problems into Theoretical Issues

Argyris (1970) argues for a deductive approach to control problems although he does not explicitly label his approach as such. The reader should recall that the basic deductive model is one in which an explanation is sought for an explanandum under certain necessary constraints. In parallel fashion Argyris sees merit in translating practical problems into theoretical issues. The client's problems become empirical illustrations of more general theories from which the empirical problem phenomena can be deduced.

By translating the client's problems into theoretical issues, the problems may be analyzed using a wealth of concepts and findings in other settings which may be generalizable to the specific situation of the client. Without having first translated the particular problems into theoretical issues, the new suggestions and insights provided for control strategies might otherwise be missed. Marketing has benefited considerably from this process. For example, the translation of brand selection and loyalty problems into learning theory and small group theory issues has proved very fruitful and the recasting of salesman-prospect relations into an exchange theory issue has provided new guidelines for the recruitment, training, and assignment of salesmen.

The process involved in the iteration between practical problems and theoretical issues is shown in Figure 1. Given a marketing problem the first step is to translate it into a more abstract theoretical issue as defined by the current state of knowledge in the discipline(s) contributing information to the particular issue. Exploration of the theoretical issue at a theoretical level can contribute insight and marketing strategy clues directly to the marketing problem. The marketing problem is viewed simply as an explanandum, i.e., as an empirical manifestation of the theoretical issue. Additional insight and guidelines may be derived by examining the implications of a theory in its application in areas traditionally considered as nonmarketing settings.

Figure 1. Iteration Between Problems and Theoretical Issues



Categories of Evaluation of Control Efforts

Effort. Five categories of criteria for evaluating the success or failure of a control performance have been suggested in the literature (Suchman, 1967:60-73). The first category concerns effort. This involves what was done and how well it was done and uses such criteria as the quantity and quality of activity occurring. Emphasis is on input rather than output. This is one of the easiest evaluative tasks. The number of dollars invested in advertising is easy to assess in detailed ways, e.g., by market segment, by media, etc. The approximate number of consumer exposures to advertising can also be known with a high degree of accuracy.

Performance. Performance criteria relate to measuring the results of efforts rather than the effort itself. Such questions as the following are asked: What changes occurred? Were these the intended changes? Was it of the desired magnitude? Did the advertising create positive images? Did it reach the intended audience? What was the purchase response rate? Given that many programs involve a hierarchy of objectives, performance criteria can be applied at each level of objective.

Adequacy. The adequacy of a performance given the total need is another important criterion. A promotional campaign intended to precipitate trial of a product can hardly be adjudged adequate if it only succeeds in stimulating interest. It is less adequate still if it only stimulates awareness and is least adequate when it only reminds consumers of the product's existence. Both exposure and impact must be considered as essential elements of adequacy. Bigman (1961:113) notes: "We must distinguish between effectiveness and impact. By the latter term I mean the strength of the influence upon exposed individuals. A program or activity may have considerable impact, affecting markedly the thoughts and actions of those it touches; it will be necessarily judged ineffective if it is so designed that this impact is confined to a small fraction of the group it is intended to reach and influence."

Efficiency. The next criterion is efficiency. It is "concerned with the evaluation of alternative paths or methods in terms of costs ... In a sense, it

represents a ratio between effort and performance -- output divided by input" (Suchman, 1967:64). This is one of the central features of operations research. Operations research concepts and techniques have been applied to marketing quite successfully and need not be elaborated upon here.

Process. Finally, we have the criterion of process. This involves the analysis of the means whereby a program achieves whatever effects it may have. It calls for an overview and analysis of the impact of particular sequences in the control program. It is concerned, in other words, with the overall program and with the interaction among parts of the program or elements in the system. Are particular components interacting in such a way as to produce dysfunctional effects? Are there bottlenecks in the process?

Concepts

The concepts used in consumer behavior research can be ordered according to their closeness to the realm of observation. Howard and Sheth explicitly use this dimension to classify their concepts into hypothetical constructs and intervening variables (Howard and Sheth, 1969; Sheth, 1967; MacCorquodale and Meehl, 1948). These two types of concepts can be complemented by the type of concepts which serve as definiens of the intervening variables, i.e. observational concepts. Hence we have: (1) observational concepts, (2) intervening variables, and (3) hypothetical constructs (Hempel, 1952; Carnap, 1956; Hesse, 1967). We can distinguish two subtypes of concept-type three, namely isolated hypothetical constructs and theoretical concepts. Isolated hypothetical constructs are constructs that are somewhat removed from the observational realm or plane, i.e., they have acquired some "surplus meaning" and are not exhaustible by and translatable into intervening variables, nor are they included in a "nomological network" (Cronbach and Meehl, 1955) as are theoretical concepts. They are relatively "isolated" (Sheth, 1967) and not explicitly related to other concepts of the same kind. The distinction between these three (four) types of concepts has several implications. Two important dimensions, namely the type of definition and the criteria imposed on each type will be dealt with here.

Types of Definitions

Observational concepts are defined by ostensive definition. Ostensive definitions are object-term associations (rather than term-term associations). An object-term association relates a term to an object, while a term-term association is a definitional relationship between terms. Intervening variables are defined by nominal definition in terms of observational concepts, i.e. by operational definitions. Isolated hypothetical constructs do not receive definition but "illustrations in use," i.e. their meaning is clarified by the various contexts in which they are being used (Caws, 1965). The theoretical concepts, finally, are defined by setting forth the relationships these concepts form with other concepts of the same kind. The latter procedure is called "theoretical definition" (Hempel, 1952; Caws, 1965).

This nice distinction between concepts is blurred by the fact that the same term may be used for expressing concepts that are at different observational levels. As an example, consider the multiple use of the term "attitude" by Howard and Sheth. Two answers are possible to the question "What is attitude?" The first answer is: "Attitude is the numerated response to a set of bi-polar scales." This is an operational definition of "attitude" and hence, attitude is construed as an intervening variable. The second possible answer is:

"'Attitude' is a function of 'choice criteria' and 'brand comprehension,' and it feeds into 'intention'." Evidently this does not tell us how to measure attitude. Rather, it tells us how attitude is related to other concepts (Howard and Sheth, 1969).

Even more disturbing than the multi-level definition of concepts is the fact that, particularly at the level of intervening variables, different operational definitions bear the same name. Examples of concepts displaying such disorderliness are brand loyalty (Engel, Kollat, Blackwell, 1968), attitudes (Summers, 1970) and innovators (Robertson, 1971; Rogers, 1962). One possible remedy to this situation is to call for "standard definitions" (Kollat, Engel, Blackwell, 1970). Another alternative is increased methodological research that preserves the necessary variety of operational measures while investigating their common substantive basis (Webb, Campbell, Schwartz, Sechrest, 1966; Campbell, 1969).

Types of Criteria for Concepts

Now let us look at the various criteria that arise with respect to each type of concept. The principal criteria that are applicable to observational terms are: (1) determinacy, i.e., is their use well determined for every user of the language? and (2) uniformity of usage, i.e., are the conditions of usage the same for all users? (Hempel, 1952; Mandler and Kassen, 1959). As to the intervening variables, the criterion of reliability is most applicable (Bohrnstedt, 1970). This criterion is intimately related to the criterion for observational concepts. Together, they serve to guarantee the inter-subjective character of science (Popper, 1959).

These criteria, however, tell us nothing about whether our concepts are true in some sense, or useful with respect to explanation, prediction, and control, the three major purposes of our scientific endeavor. "Beer" may be a highly reliable concept, but its value for explaining, predicting, and controlling consumer behavior would appear to be minimal. Criteria that do deal with the relevance of concepts for the three mentioned purposes are called criteria for concept validity.

The first such criterion applies to the intervening variables, and it can be called "practical validity" (Campbell, 1960), or "criterion-oriented validity" (Cronbach and Meehl, 1955). Here one's primary interest does not concern the concept in question but some other concept -- the criterion -- which one wants to predict. The concept's ability to predict the criterion is called its practical validity. Indices of practical validity include correlation and regression coefficients, and R^2 . The next type of concept is the trait concept.³ To it the criterion of trait-validity is applicable (Campbell, 1960). Trait validity consists of convergent and discriminant validity (Campbell and Fiske, 1959; Campbell, 1960). One has to show that the concept can be observed in more than one situation (using more than one method of measurement) and that it can be meaningfully differentiated from other, similar concepts. As an example of the lack of convergent validity, consider the concept of innovativeness. Attempts to demonstrate the existence of "general" innovators, i.e. consumers having the characteristic of innovativeness in varying contexts, have apparently failed. An area of consumer research in which discriminant validation would be desirable are the various consumer typologies that have been proposed.

Another criterion applies to the hypothetical constructs. This is the criterion of construct validity (Cronbach and Meehl, 1955; Bechtoldt, 1959; Campbell, 1960; Bohrnstedt, 1970). Strictly speaking, it is not a criterion for a concept but for an inference. Construct validity is required whenever we

want to establish a link between a hypothetical construct and its operational definition. To go back to our example of the two definitions of attitude, one theoretical and the other operational, we need a statement saying "'Attitude' measures 'attitude'." Otherwise, our theoretical concept may lack the crucial criterion of empirical significance (Carnap, 1956). For if theoretical concepts were only related to other theoretical concepts, neither of which were linked to intervening variables by means of correspondence rules, the system would serve no purpose whatsoever with respect to explanation, prediction, and control. The existence of a correspondence rule is a sufficient but not necessary condition for the empirical significance of theoretical concepts. It is possible to measure a concept indirectly, i.e. relate it to theoretical concepts which do possess correspondence rules. An example of this is indirect methods of attitude measurement. To illustrate, take the measurement of attitudes through biases on an information test (Kidder and Campbell, 1970). In this case the two theoretical concepts are "attitudes" and "beliefs," and they are related by an hypothesis claiming that the direction and strength of an attitude toward a social object have systematic effects on the beliefs concerning the object. The theoretical concept "belief system" is now linked directly to an information test. And the distortions on the information test then give us an indirect measure of the direction and strength of the underlying attitude.

Propositions

Propositions establish relations between concepts. We can order them along various dimensions. First of all, the relation between them may be an empirical or a non-empirical relation (Rozeboom, 1956). The latter is simplified by nominal definitions of intervening variables. The propositions, "Attitude is the response to a set of bipolar scales," or "brand loyalty is the proportion of a household's product purchases devoted to the most frequently purchased brand" are nonempirical relations. Another potential instance of such relations may be the correspondence rules. "'Attitude₁' is 'Attitude₂'" for example may conceivably be construed to be a nonempirical relation between two symbols. This, however, is not a generally accepted position (see Hesse, 1967; Hesse, 1970).

The other types of propositions are empirical propositions, i.e., subject to testing and falsification. Examples of these propositions are: "innovators are more cosmopolite than non-innovators," "attitudes influence beliefs," and "attitudes are measured by attitude tests." Note that the three preceding propositions, while being all of an empirical character, have differing observational status. And this dimension, i.e., the degree of observability of the constituent concepts of propositions, can be used as a dimension for ordering the empirical propositions. First of all, there are those propositions whose constituent concepts are observational concepts or intervening variables. Secondly, there are propositions of a mixed character, namely the correspondence rules. They contain both observational and non-observational concepts. Finally, there are propositions containing only non-observational concepts.

A third dimension of propositions, in addition to the two already mentioned (empirical status, observational status) can be discussed, namely the generality of a proposition. Here, we can distinguish between propositions whose universe of discourse is an infinite set and those which open to a finite set. The former are called "universal statements" (Popper, 1959). Universal propositions make assertions that refer to an unlimited number of cases. For example, the proposition: "Innovators are more cosmopolite than non-innovators," if construed as a universal statement, refers to all innovators of the past, the

present, and the future, and regardless of their geographical location. In contrast to this proposition, "A is an innovator," or "The innovators in our sample are cosmopolite" are singular statements. Their universe of discourse is a finite set, and even statements like the latter one are only conjunctions of singular statements. A fourth dimension, finally, distinguishes between all-statements and existential statements (Popper, 1959). All-statements are of the form: "All innovators are cosmopolite," while existential statements are of the form: "There are innovators who are cosmopolite."

Let us now use the preceding classification to characterize the empirical propositions of consumer behavior research. We want to call hypotheses only those propositions containing theoretical concepts. Empirical generalizations are propositions containing only observational concepts or intervening variables. Correspondence rules, finally, contain both theoretical concepts and observational concepts or intervening variables. All three kinds of propositions, in addition, are universal propositions. That is to say, they make a(n) (explicit or implicit) claim for universal spatio-temporal applicability. Thus, empirical generalizations concerning the cosmopoliteness of innovators are, a priori, assumed to be applicable anywhere and at any time -- until proven otherwise. The same holds true for hypotheses and correspondence rules.

Testability and Confirmation

An important characteristic of hypotheses, correspondence rules, and empirical generalizations is their testability. Each of these types of propositions is testable when it is possible to derive from them implications for the form "if conditions C are realized, then outcome B will occur," (Hempel, 1966). It is not necessary that conditions C be realized or technologically realizable at the time when the proposition is propounded. (For example, the proposition "Consumers inhabiting the moon are more innovative than consumers inhabiting the earth" is testable but 'technologically' not realizable at this point in time.) While the propositions to be tested are universal statements, test implications are singular statements. Testability is not much of a problem for empirical generalizations. Since they contain only observational concepts or intervening variables, they are immediately testable with the help of a singular statement which provides the "initial conditions" (Popper, 1959). Hence, the statement "All innovators are cosmopolite" needs only the singular statement "A is an innovator" in order to imply the test-implication "A is cosmopolite," also a singular statement. The testing of hypotheses is somewhat more complicated. Here we need correspondence rules in addition to the initial conditions. For example, if we want to test the hypothesis, "The greater the congruence of the self with the brand image, the more positive is the attitude toward the brand" we need the following two correspondence rules: "instrument X is a measure of congruence," "instrument Y is a measure of brand attitude." Only then can we, together with initial conditions such as "the congruence is high" or "the congruence is low," derive test implications. If our hypothesis has been stated in quantitative form, i.e. in form of an equation, for example, it will yield an infinite number of test implications such as "If congruence is .9 (= condition C), then attitude will be .9 (= outcome B)," or "If congruence is .35, then attitude will be .41," etc.

Another important characteristic of hypotheses, empirical generalizations, and correspondence rules is their confirmability. At the outset, we must say that there is a fundamental difference in the confirmatory aspects of those propositions construed as all-statements and those which make only existential claims. All-propositions can never be conclusively confirmed (or verified), while existential propositions can never be disconfirmed (or falsified) (Popper,

1959; Hempel, 1967). To illustrate the former claim, consider again the proposition that all innovators are cosmopolite. Since this proposition refers to an infinite set, we will never be able to find out whether the unexamined cases (still an infinite number) conform to our proposition. As far as the impossibility of falsifying existential claims is concerned, a similar reasoning applies. For example, if a study designed to test the proposition that "there are opinion leaders within industrial firms ..." (Martilla, 1971) failed to discover opinion leaders, one could argue that within the remaining cases (infinitely many) some of these surely will be opinion leaders. It seems that universal existential propositions are in a good position, quite in contrast to universal all propositions. The latter can never be confirmed. To disconfirm them, however, it suffices to find one simple negative instance.

Theories

Theories are sets of propositions. They can be likened to networks. The concepts are represented by the knots, while the threads connecting the latter correspond, in part, to definitions, empirical generalizations, correspondence rules, and hypotheses. This network floats above the plane of observation and is anchored to it by the observational concepts (Hempel, 1957; Quine, 1953; Hesse, 1970). It is usually required that the network contain non-observational concepts and hypotheses in order to qualify as a theory (Nagel, 1961; Hesse, 1967). The network analogy implies a certain systematicity of theories. This systematicity is given by the relation of deducibility between parts of the network. Hypotheses, together with correspondence rules, serve as premises for the deduction of empirical generalization. Thus, the relation between hypotheses and empirical generalization is somewhat analogous to that of the latter with the data or facts (Hesse, 1967). As an example, consider the following hypothesis: "When a response is followed by a reward, the probability of its recurrence increases." To this, we can add the correspondence rules: "brand purchase is a response," "brand satisfaction is a reward," "the probability of recurrence of brand purchase is measured by brand loyalty." From these three correspondence rules plus the hypothesis, we can deduce the empirical generalization "the brand loyalty increases with an increase in brand satisfaction." From this proposition we can now deduce test implications, i.e. singular statements that refer to directly observable facts, as shown in the previous section.

Confirmation of Theories

We have previously discussed the confirmability of propositions and come to some clearcut conclusions concerning their verifiability or falsifiability. In reality, the situation is much messier than that, primarily because of the "fallacy of affirming the consequent." The example of innovators which was used previously to demonstrate the impossibility of confirming universal propositions was relatively harmless, mainly because we were stating only a correlation rather than making a causal claim. Now let us give an example involving a hypothesis with causal ambitions. Suppose we want to test the hypothesis that "messages that are congruent with the values of the audience lead to positive attitude change." We can derive and test the implication "peer oriented messages will lead to positive attitude change with adolescents." The correspondence rules required to deduce this implication are: "Peer oriented messages are congruent with the values of adolescents," and "Attitude questionnaire X is a valid measure of attitudes at Time t and t+1." Now suppose that we obtain positive results. Naturally, we would be inclined to say that our hypothesis was confirmed. Suppose, however, that there were an empirical generalization of the following sort: "The administration of attitude questionnaires at

Time t leads to an increase in scores on the same questionnaire at time $t+1$." This proposition says that, in effect, the test results can be attributed to either hypothesis. Therefore, unless we control for the plausible rival hypothesis of test effects we cannot hope to validly test our value-congruence hypothesis (see Campbell, 1969).

The preceding example showed that it is exceedingly difficult, if not impossible, to confirm a theory; for every seemingly confirming instance has a confirming effect not only on the theory of interest, but also on a large number of alternative theories which would have predicted essentially the same result. This raises the problem of how we can choose among competing theories. One of the choice-criteria which we may use is the evidential strength of theories. The problem of the evidential strength of a theory can be viewed as a relation between a body of actual or potential evidence, formulated in observation statements, and a theory (Hempel, 1967). The criterion of evidential strength, however, most often does not help us to decide among competing theories, because if they have some validity at all they usually come to similar predictions (McGuire, 1969). This dilemma has been thought to be remediable by means of "crucial tests." In order to perform a crucial test one has to find a situation for which the two competing theories predict conflicting outcomes, i.e. one needs a test condition C for which "the first hypothesis (theory) yields the test implication 'If C then E_1 ,' and the second hypothesis (theory) yields 'If C then E_2 ,' where E_1 and E_2 are mutually exclusive outcomes. Performance of the appropriate test will then presumably refute one of the hypotheses (theories) and suggest the other." (Hempel, 1966:25-26) (term in parentheses added). The power of crucial tests, however, is somewhat diminished by the fact that strictly speaking it tells us only that one or more of the premises of the apparently refuted theory are wrong. But it does not tell us which one(s). Therefore, if we want to retain the hypothetical framework of the refuted theory we only need to claim that one or several of the correspondence rules were false, or even that a singular statement specifying the initial conditions was not accurate. Such a reasoning may be justified in a case where, for example, we have extended the theory to some previously ignored context for which we had to develop new correspondence rules that lack construct validation. In other situations, such an ad hoc procedure "rescues the theory from refutation only at the price of destroying, or at least lowering, its scientific status" (Popper, 1963, 1965:37). Generally speaking, the evidential strength of theories is not a decisive criterion for choosing among theories. The criterion of simplicity has been proposed as a complement if not an alternative to the criterion of evidential strength. It seems intuitively obvious that we will choose the simpler among competing theories having approximately equal evidential strength. Difficulties arise, however, when one tries to state clear criteria of simplicity (Hempel, 1966). This and many other problems still remain to be solved in the area of metatheory.

Conclusion

Above all else, the chief virtue of exploring the domain of metatheory is the resulting creation of a more constructively critical mental set for viewing scientific activity. Metatheory "... helps in raising fundamental scientific and philosophic questions, it helps asking them in the right ways, it discloses conceptual sickness and prescribes treatments for it, and it widens the horizon of research" (Bunge, 1959:26). These values can accrue to both the scientist researcher and the practitioner who relies upon the researcher as well as his own inductive and deductive cognitive processes. Applying metatheory to marketing and particularly consumer behavior research produces a number of benefits

whose end results can only mean increased sophistication and accuracy in marketing thought and practice. It is contended here, as suggested by Bunge, that the imposition of a metatheory thinking methodology on marketing research and practice will: (1) help detect, correct, and systematize previously unrealized inconsistencies in working assumptions; (2) help minimize such confusions as mistaking predictability and correlation for causation; (3) sensitize marketing men to the need to be more conceptually self exacting; e.g., to make explicit basic hypotheses assumed by cognitive propositions; (4) help sensitize researchers to the serious problems in attempting to measure quantitatively concepts which are inadequately elaborated. Examples of concepts which are sometimes poorly articulated are innovation, creativity, and cosmopolitaness. This problem is especially likely to occur since advances in quantitative skills often occur more rapidly than advances in qualitative knowledge; (5) keep the researcher and practitioner problem oriented, i.e., not allow methodology to replace or be confused with theory as is sometimes the case in the use of factor analysis where there is no discussion of relationships among variables in a cluster; and (6) stimulate the search for logical and rational accountings of phenomena made observable by advancements in methodological procedures.

It has been the authors' goal to leave the reader with an awareness of and sensitivity to a thinking methodology labeled metatheory involving the investigation, analysis, and description of various aspects of theory construction, the components of theory, the overall theory itself, and the use of theories. The desired consequence is a more constructively critical evaluation and more sophisticated work in the behavioral science aspects of marketing.

Footnotes

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2. Gerald Zaltman is Associate Professor of Behavioral Science, Director of Research, Graduate School of Management and Faculty Associate, the Center for the Interdisciplinary Study of Science and Technology, Northwestern University. Reinhard Angelmar and Christian Pinson are currently completing their doctoral requirements in the Marketing Department, Graduate School of Management, Northwestern University.
3. "Trait" corresponds to "isolated hypothetical construct" as introduced previously. We decided to use the term trait at this point because most of the relevant methodological literature available is in psychology and uses this term. We do not, however, want the reader to associate the substantive connotation, just the methodological.

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Rap Session Summary

ACR AS A RESEARCH STANDARDS BODY

Standards for Whom?

Although there was much discussion about the existing process for evaluating journal and conference papers, it was generally agreed that there was a way of providing a review of the scholarly work done by academics. However, there is a large amount of consumer behavior research which is done by groups whose professional interest is not in behavioral research but rather in influencing policy. It is this research which is more often picked up, misquoted, and misused by media and by policy makers. Consequently, it is this group for which standards seem to be most necessary at this time.

Methods of Relating Standards to the Task:

Four approaches to standard setting used by other groups were noted. The first is the ad hoc technical committee which reviews a given piece of research, and gives guidance on its adequacy for the decisions that called forth the research. The second is the recognition of researchers for the excellence of their research. The third approach is the establishment of some code or check list which deals with general research procedures. The fourth is a certifying body which tends to focus on the education of researchers and implies a certain amount of public damage done if ill prepared researchers are allowed to operate.

The conclusion of the group was fairly clear, supporting some variation of alternative one, the ad hoc technical committee, as being the only promising route for the present. The enforcement of any scheme is always a tricky matter. However, making available technical aid seems to be a safe move since its impact is only on those who want to use it.

Education - A Next Step:

Although it might be expected from a group primarily made up of educators, it seems that the ACR might well consider encouraging its members to make themselves available to local groups attempting to do consumer behavior research. Such involvement, although time consuming and potentially very frustrating, is appropriate to the ACR's informal organization and is at the most critical level.

It was suggested that we might explore the relationship between the ACR and such groups as the American Council on Consumer Interests, the Advertising Research Foundation, the American Marketing Association, and the like.

It was agreed that the topic of standards, particularly in the area noted, warranted some attention at subsequent meetings if we are to make good on our objective to stimulate research that focuses on a better understanding of consumer behavior.