

ADOPTION AND DIFFUSION RESEARCH
IN MARKETING

by

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ABSTRACT

Product innovation has emerged as the most significant strategy in today's dynamic market place. The post-war years have seen an unprecedented flow of new and improved products. Successful innovation, however, requires more than placing new products on the market. Consumer acceptance is also required. The problems of achieving consumer acceptance are reflected in the high failure rates for new products.

There are two main paths to more effective new product marketing and to increasing the probability of new product success. Effectiveness may be increased through better product testing and better evaluation of test results. Another approach involves a better understanding of consumers and their reactions to new products. The latter path, which is the least understood and the most obscure one, is being illuminated by borrowing concepts, generalizations and techniques from the interdisciplinary body of research called diffusion theory.

Since the turn of the century, researchers in a variety of behavior science disciplines have studied the process of social contagion by which new ideas, practices, and products spread through a society. The conceptual framework of the resulting diffusion theory is composed of the following four elements; (1) the innovation, (2) its communication from one

individual to another, (3) in a social system, (4) over time. The empirical research on diffusion of innovations has focused on the interaction of these four elements and their relationship to the adoption decision.

Though the massive portion of diffusion research has been conducted outside the area of marketing, there is a small but increasing volume of literature and unpublished research on adoption and diffusion in the marketing field. Diffusion theory is providing a useful framework for analyzing new product buying behavior and understanding the dynamics of new product adoption and diffusion. Researchers are exploring the adoption and diffusion process for new products and services in both consumer and industrial marketing contexts. Interest is developing in the application of diffusion theory in planning and executing new product marketing strategy. Quantitative models of new product adoption behavior are being developed.

The objective of this study is to provide a comprehensive review and synthesis of the existing body of diffusion research in marketing. The paper gives an overview of diffusion theory as a conceptual framework applicable to new product marketing, discusses current diffusion research in marketing and applications of diffusion theory by marketing practitioners, and presents a critical evaluation of the progress of diffusion research in the marketing field.

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CHAPTER I

PURPOSE AND SCOPE OF THE STUDY

Perspective

In spite of enormous sums of money spent for research and development, the probability of new product success is depressingly low. There is some range in existing estimates of new product failure rates, perhaps due to the types of new products studied and the length of time over which success or failure is estimated. Most studies on the rate of market failure indicate a significant and probably substantial percentage of new products fail.

The high rate of market failure suggests that either we do not completely understand how to design and introduce new products, or else we do not fully utilize what is known. Until recently, the approach to this problem has emphasized product testing and test marketing. While these are legitimate approaches, their predictive accuracy has been low. The development of more tightly controlled market experimentation procedures may serve to increase the probability of new product success.

Another approach to the problems of new product marketing involves a more comprehensive understanding of the process of new product adoption and diffusion. There is a need for marketers to expend their knowledge of the process by which an innovation is accepted or rejected by consumers.

A number of disciplines are providing valuable insights into the highly complex process of adoption and diffusion of innovations. During the last 60 years, a significant body of research has developed focusing on the diffusion process. The particular concern in this research effort derives not so much from the marketing literature as from other traditions of research. Marketing studies on adoption and diffusion are relatively few in comparison, although their numbers have been increasing during the past five years, and themselves lean on other traditions of research.

These "traditions of research" are basically twofold. The first is within the field of rural sociology and the second within the field of mass media research. Anthropologists have also had a long-standing interest in diffusion theory.

The rural sociology tradition of research emphasizes the diffusion of farming innovations within a defined social system. Considerable stress is placed upon informal communication systems as a key variable in adoption. Everett M. Rogers, a rural sociologist who expanded his research into the larger arena of

communication, is a pioneering researcher and the leading synthesizer of empirical research in adoption and diffusion of new concepts in social systems. Rogers has indexed over 1,500 publications in the field of adoption and diffusion.¹

The mass media tradition of research developed at the Columbia University Bureau of Applied Social Research. It began with the Albany voting study of the 1940's, out of which was formulated the "two-step flow of communications" hypothesis, and continued with the "Personal Influence" study of Elihu Katz and Paul E. Lazarsfeld. More recently, researchers of Columbia background have conducted the "physician" study. This study centers on one particular drug innovation and examines doctor innovators within four defined midwestern communities. Its concern is very much with the interpersonal aspects of adoption.

A conceptual framework and nomenclature that has been identified as diffusion theory has emerged out of the body of theoretical and empirical research on social change and the adoption and diffusion of new concepts. This conceptual basis has been developed to explain the process by which new concepts are communicated and adopted or rejected by adoption units

¹Based on the latest tabulation from the Diffusion Documents Centre, Michigan State University, September, 1968.

within or across social systems over time.²

The relevance of diffusion theory to the field of marketing is receiving increasing attention. Diffusion theory is providing a useful framework for analyzing new product buying behavior and understanding the dynamics of new product adoption and diffusion. Researchers are exploring the adoption and diffusion process for new products and services in both consumer and industrial marketing contexts. Interest is developing in the application of diffusion theory in planning and executing new product marketing strategy. In addition, studies have been undertaken to develop analytical models for measuring the probability of new product success early in the life cycle and to shorten the time span from new product introduction to maximum market adoption.

Purpose of the Study

Though the massive portion of diffusion research has been conducted outside the area of marketing, there is a small but increasing volume of literature and unpublished research on diffusion in the marketing field. At the present

²King, Charles W., "Adoption and Diffusion Research in Marketing: An Overview," in R.M. Haas ed., Science, Technology and Marketing, American Marketing Association, 1966, p. 667.

time, the total number of marketing studies relating to diffusion research would approximate 100 publications.³

The actual volume of diffusion research in industry is unknown although studies are underway to determine the extent of application of diffusion theory by marketing practitioners.

Despite the limited body of diffusion literature in marketing, there is already a need for a detailed synthesis of diffusion research to date in the marketing field. Such an undertaking would serve to:

- 1) Provide a synthesis of the existing body of research and a critical evaluation of the emerging research tradition;
- 2) Assist in the definition of the total research problem and the critical sub-topics to broadly guide the effort of the diffusion research community in marketing;
- 3) Facilitate increased communication with and, potentially, cooperation between, diffusion researchers.

A synthesis of efforts to date covering basic theoretical issues, methodological problems and questions of application would be of value to researchers entering the field and to those extending current projects.

³ King, Charles W., Adoption and Diffusion Research in Marketing: Recent Approaches and Future Perspectives, a paper presented at the American Marketing Association Fall Conference, 1968, p. 6, and Rogers, Everett M., Bibliography on the Diffusion of Innovations. Michigan State University 1967 and 1968 Supplement.

Summaries of diffusion research have been made in the agricultural field by Herbert F. Lionberger (1960)⁴ and in all the research traditions on the diffusion of innovations by Everett M. Rogers (1962)⁵. In addition to these books, Charles W. King has prepared two papers (1966)⁶ and (1968)⁷ which review the development and application of adoption and diffusion research in the field of marketing. The goal of this paper is to synthesize the existing body of diffusion research in marketing. An increasing volume of diffusion research is now underway among marketers exploring new dimensions and new product contexts.

This study presents a review of diffusion theory, surveys recent research and applications in marketing, evaluates progress to date and outlines future directions for diffusion research in marketing. The paper gives an overview of diffusion theory as a conceptual framework applicable to new product marketing, discusses current diffusion research in marketing and applications of diffusion theory by marketing

⁴Lionberger, Herbert F., Adoption of New Ideas and Practices (Ames: Iowa State University Press, 1960).

⁵Rogers, Everett M., Diffusion of Innovations (New York: Free Press of Glencoe, 1962).

⁶King, op. cit., 1966.

⁷King, op. cit., 1968.

practitioners, and presents a critical evaluation of the progress of diffusion research in the marketing field.

The central theme of the paper is that diffusion theory can make a significant contribution toward understanding the dynamics of new product adoption and diffusion.

Chapter Schema

Organizationally, this presentation is divided into the following major sections: an introduction to the conceptual elements of diffusion theory; a review of the development of adoption and diffusion theory and research; a survey of adoption and diffusion research in marketing; an evaluation of the progress of this research; and an examination of the future directions of diffusion research in the marketing field.

Having established the purpose and scope of this study in Chapter I, Chapter II outlines the conceptual elements that comprise the diffusion process. This section examines what research reveals about the way change takes place and the influences that operate in relation thereto, and deals with the elements of the diffusion process, adopter categories, sources of information, personal influence, and the personal, social, cultural and situational factors that condition the rate at which change takes place. The chapter presents an outline of diffusion theory as a conceptual frame-

work which can be applied to new product marketing.

Chapter III reviews the academic research traditions studying diffusion, and the interconnections among these research streams. The operations of the Diffusion Documents Center are described.

The development of adoption and diffusion research in marketing is documented in Chapter IV. Current research and applications of diffusion theory by marketing practitioners are discussed under a number of broad topic areas: perceptions of new products and the new product purchase decision among consumers; profile analysis of new product innovators or early buyers; the dynamics of interpersonal communications; quantitative models of new product adoption behavior; and the application of diffusion theory in industrial product contexts.

Chapter V evaluates progress to date in the development of the conceptual and methodological content of diffusion research in marketing, and the significance of these research findings in terms of marketing decision making.

The study concludes with a consideration of future perspectives for diffusion research in marketing and a summary reviewing the significance of the material covered in the thesis.

Source Data and Methodological Considerations

The source material used in the preparation of this thesis was derived both from primary and secondary research. The secondary research material consisted of the few reasonably up-to-date books dealing with diffusion theory and research, supported by periodical literature relating to the topic and a collection of unpublished papers dealing with current research. The books were used to gain some understanding of the basic principles of diffusion theory while the periodicals and research papers presented the evolving concepts of adoption and diffusion research in marketing.

The primary research consisted, for the most part, of communications with marketing academics and researchers. The objective was to learn about recent developments and details of on-going diffusion research projects in marketing.

CHAPTER II

CONCEPTS OF ADOPTION AND DIFFUSION THEORY

The social process by which new ideas and patterns of behavior spread and are accepted or rejected has been the subject of research by a variety of academic disciplines. Out of the body of this research has developed a conceptual framework and nomenclature that has been identified as "diffusion theory."

Everett M. Rogers, a sociologist and leading advocate of research in adoption and diffusion of new concepts in social systems, has synthesized and evaluated available research findings and theories on diffusion in his book Diffusion of Innovations. Rogers describes diffusion as a process involving four elements: (1) the innovation, (2) the communication of the innovation from one individual to another, (3) the social system or social structure in which communication takes place, and (4) the period of time over which the communication takes place.¹

In summarizing the concepts of diffusion theory, Rogers presents the following definitions.²

¹Rogers, Everett M., Diffusion of Innovations (New York: Free Press of Glencoe, 1962), pp. 12-20.

²Ibid., pp. 19-20.

An innovation is an idea perceived as new by the individual;

Diffusion is the process by which an innovation spreads;

The diffusion process is the spread of a new idea from its source of invention or creation to its ultimate users or adopters;

A social system is a population of individuals who are functionally differentiated and engaged in collective problem-solving behavior;

Adoption is a decision to continue full use of an innovation;

The adoption process is the mental process through which an individual passes from first hearing about an innovation to final adoption;

Innovativeness is the degree to which an individual is relatively earlier in adopting new ideas than other members of his social system;

Adopter categories are the classifications of individuals within a social system on the basis of innovativeness.

Reviewing the research on the adoption and diffusion of new concepts, we see that diffusion theory focuses on two broad issues:³

- 1) The process by which individual adopters or adoption units make the decision to adopt or reject a new innovation;
- 2) The process by which information about a new innovation or the acceptance or rejection of an innovation spreads or diffuses within or across social systems.

³King, Charles W. and John O. Summers, The New Product Adoption Research Project, Purdue University, 1967, p. 3.

The distinction between the adoption process and the diffusion process is that the adoption process deals with the adoption of a new idea by an individual adopter or adoption unit while the diffusion process deals with the spread of new ideas in a social system, or with the spread of innovations between social systems or societies. Although there is some disagreement among diffusion researchers as to whether the diffusion process ends when individuals in a social system (1) are aware of, or (2) have adopted the new idea, the second viewpoint is most prevalent. This latter view of the diffusion process implies that it includes the adoption process for the individuals in the social system.

Diffusion research is concerned with the interaction of the elements of the diffusion process and its relationship to the adoption or non-adoption decision.

The Nature of Innovation

One important element of the diffusion and adoption processes is the innovation itself. It is only in recent years that behavioral scientists have given much attention to the subject of innovation. Anthropologist H.G. Barnett alludes to innovation as the basis of cultural change, and

gives a definition of innovation as "any thought, behavior, or thing that is new because it is qualitatively different from existing forms."⁴

Everett M. Rogers broadens the definition even further by referring to innovation as "an ideal perceived as new by the individual."⁵ As compared to other kinds of ideas, the distinctive aspect of an innovation is that it is considered new by the individual who lacks previous knowledge and experience with the idea.

This view of an innovation as any new idea gives wide scope to the definition. Innovations could include social movements, news of a Kennedy assassination, clothing fads, compact cars, a new medical drug among physicians or a new brand of coffee. As these examples illustrate, an innovation may or may not involve a new material product.

A more restrictive definition of an innovation can be obtained by using a more specific term, such as "technical," "organization," etc. Technical innovations are defined by Rogers as "new developments or combinations of the material, as distinguished from the nonmaterial, culture."⁶ It is important to note that even in the case of technological innovations, it is the idea about the new product that is

⁴Robertson, Thomas S., "The Process of Innovation and the Diffusion of Innovation," Journal of Marketing, Vol. 31 (January, 1967), p. 14.

⁵Rogers, op. cit., p. 13.

⁶Ibid.

diffused as well as the object itself.

An immediate problem in studying innovations in a marketing context, is the development of an operational definition of innovation. The object of the innovation process in marketing is the "new product", but what is actually meant by "new product" is open to interpretation.

There is a lack of unanimity among writers concerning what is a new product and the definitions in the marketing literature cover several areas as illustrated by the following statements:⁷

A new product is something new and different, something no one has ever made before...;

A new product may be something a particular company has never made before...;

A styling change or an improvement in form or content makes a new product...;

Packaging has become an important element...;

A new product is a product that opens up an entirely new market, replaces an existing product, or significantly broadens the market for a new product...

Several writers have categorized products according to their newness into groups or levels of newness. Rural sociologists studying the adoption of new farm practices among farmers have classified innovations according to the

⁷King, Charles W., A Study of the Innovator and the Influential in the Fashion Adoption Process. Unpublished Doctoral Dissertation, Harvard University, 1964, p. 9.

amount of change required of the farmer.

Another approach to describing new products emphasizes the "newness" of products as perceived by the consumer. King defines a new product as "anything that is qualitatively different from existing forms as perceived by the consumer."⁸ This definition includes all qualitative differences from minor package changes through major technical developments. Utilizing King's approach, an innovation in the context of this study is loosely defined as any product that seems new and different to the consumer.

Innovation's Characteristics that Influence Rate of Adoption

Some innovations diffuse from first introduction to widespread use in a relatively short time, while others may require periods of up to fifty years. As a result of his extensive studies, Rogers concluded that certain consumer - perceived characteristics of a new product or innovation affect the rate at which it diffuses and becomes widely used.⁹ He suggests that relative economic or social advantage, compatibility, complexity, divisibility and communicability are probably the most important attributes. Moreover,

⁸Ibid., p. 12.

⁹Rogers, op. cit., pp. 124-133.

he emphasizes it is the potential adopter's cognizance (perception) of these characteristics that affects the rate of adoption.

Relative Economic or Social Advantage. Relative advantage is the degree to which an innovation is superior to the product or idea it is trying to replace in terms of economic or social utility. The relative advantage of an innovation is a matter of perception and it is the value of an innovation as perceived by the potential adopters that counts.

Compatibility with Existing Values. Compatibility is the degree to which an innovation is consistent with the existing values and past experience of adopters. An innovation that is not compatible with the cultural beliefs and values of a group will not be adopted so rapidly as one that is compatible. An example of the compatibility concept is the resistance to the use of birth control techniques among certain religious groups. Food and dietary habits are also deeply imbedded in a society's tradition and are closely related to cultural values. Innovations which clash with these values may be resisted stubbornly.

As an illustration of the compatibility concept in the marketing of a new product, Rogers cites the case of Analoz, a cherry-flavoured pill that combined analgesic-

anti-acid qualities and could be used without water.

The tablet was judged by a panel of consumers as clearly superior to competing products in terms of benefits. Yet, despite careful product planning, market testing and wide advertising support, Analoze did not take in four trial cities and had to be withdrawn.

During the post-mortem probing, it was concluded that the fatal flaw was the "works without water" feature as headache sufferers consciously or unconsciously associated water with a cure, and consequently had no confidence in a tablet that dissolved without water. It was concluded that consumers did not perceive the new product as being compatible with their existing values on the importance of water as part of a headache cure.

Complexity, or Understanding of an Idea. Another factor which may affect rate of adoption is the complexity of the innovation or degree to which an innovation is relatively difficult to understand and use. A new idea may be classified in a complexity - simplicity continuum with some innovations being clear in their meaning to members of a social system and others are not.

Although the research evidence is not conclusive, the generalization is suggested that the complexity of an innovation, as perceived by members of a group, affects its rate of adoption.

Divisibility. Divisibility is the degree to which an innovation may be tried on a limited basis. New Ideas that can be divided for small-scale trial will generally be adopted more rapidly. Some innovations are more difficult than others to divide for trial.

Evidence from several investigations indicates that relatively earlier adopters may perceive divisibility as more important than later adopters. The more innovative person has no precedent to follow while the later adopters are surrounded by those who have already adopted the innovation.

Communicability of a New Idea. Communicability is the degree to which the results of an innovation may be diffused to other members of the group. The results of some innovations are easily observed and communicated to others, while some are difficult to describe. One illustration is the case of pre-emergent weed killers that are sprayed on before the weeds emerge from the soil. The rate of adoption of this idea has been slow in spite of its relative advantages because there are no dead weeds which the user can show his neighbors.

The communicability of a new idea, as perceived by members of a social system, affects its rate of adoption.

The Diffusion Process

Given the innovation, we then need to pay particular attention to its diffusion. This is the process by which an innovation spreads from its source of invention or creation to its ultimate users or adopters.

The crucial elements in the spread or diffusion of an innovation as conceptualized by Rogers are (1) the innovation or new idea, (2) that it is communicated via certain channels, (3) among members of a social system, (4) over time. Rogers states that these elements are generally similar to those listed by Katz (1961) as essential in any diffusion study: (1) the tracing of an innovation, (2) over time, (3) through specific channels of communication, and (4) within a social structure.

According to Rogers, the elements in diffusion differ only in nomenclature from the essential parts of most general communications models. For example, Berlo's S-M-C-R model (1960) has four parts: (1) source, (2) message, (3) channel, and (4) receivers, to which might be added the effects of communication. This model corresponds to the elements of diffusion to the extent that the receivers are the members of a social system, the channels are the means by which the innovation spreads, the message is the new idea, the source is the origin of the innovation, and the effects are changes in knowledge,

attitudes, and behavior (adoption and rejection) regarding the innovation.

The essence of the diffusion process, as posited by Rogers, is the human interaction in which one person communicates a new idea to another person. The essential nature of communications is well documented within the research traditions on diffusion. Without communication, diffusion cannot take place. This communication can involve both exchange of information about the innovation and the flow of adoption (or rejection) of the innovation across adoption units within or across social systems.

The communications flow takes place through the following channels: (1) mass media, (2) personal contact, (3) change agents, and (4) impersonal contact. Mass media includes the various commercial sources such as radio, television, newspapers and magazines. Personal contact is exposure to other people. Such contact has been variously labelled personal influence, interpersonal influence, and interpersonal contact. Personal contact may involve the direct interaction of persons which affects the future behavior or attitude of the participants, or it may occur indirectly as one person simply notices and emulates the behavior of another. Change agents are the organizational representatives and sales personnel who have as their function the communication of information about new ideas and products

with the end objective of securing adoption. Impersonal contact occurs where an object itself communicates to individuals due to visibility or strategic location.

The individuals or adoption units comprise the social system and there is a continuum of types of adoption decisions ranging from individual choice to group decision.

The diffusion of ideas is affected by the norms of the social system and the status of the individuals in the social structure of the system. A norm is defined as "the most frequently occurring pattern of overt behavior for the members of a particular social system."¹⁰ These norms may range from traditional to modern orientations. Traditional norms tend to discourage the adoption of new ideas while modern norms encourage the use of innovations.

Individuals in a social system can have different roles in diffusing ideas. Those persons who often tell others about new ideas are referred to as "opinion leaders". Opinion leaders are individuals from whom others seek information and advice.

Time is another crucial element in the diffusion process. The time element is involved (1) in the innovation decision period through which an individual moves from

¹⁰Rogers, op. cit., p. 16.

first knowledge of the innovation, to persuasion of its usefulness, to its adoption and continued use; (2) in the rate of adoption of the innovation in a social system; and (3) in the innovativeness or the degree to which an individual is relatively earlier than other members of his social system to adopt new ideas.

The Adoption Process

The individual adoption process has been viewed as a type of decision making which can be divided into a series of stages. Rogers refers to the adoption process as "the mental process through which an individual passes from first hearing about an innovation to final adoption." This process is conceptualized in five stages or steps: (1) awareness, (2) interest, (3) evaluation, (4) trial, and (5) adoption.

The development of the concept of stages in the adoption process can be traced almost entirely in the rural sociological tradition of research which has studied the adoption of new farm practices. Initial research revealed that for any individual the adoption of a complex new farm practice was not a single act, and that the individual proceeded through a series of mental and physical decision stages. In subsequent research, a descriptive model of the decision process has been developed with five distinct but

related stages in the adoption process.¹¹ These stages as described by Rogers are as follows:

Awareness -- At the awareness stage the individual is exposed to the innovation but lacks complete information about it. The individual is aware of the innovation, but is not yet motivated to seek further information.

Interest -- At the interest stage the individual becomes interested in the new idea and seeks additional information about it;

Evaluation -- The individual mentally applies the innovation to his present and anticipated future situation, and then decides whether or not to try it;

Trial -- The individual uses the innovation on a small scale in order to determine its utility in his own situation;

Adoption -- The individual decides to continue full use of the innovation.¹²

The length of time required for an individual to pass through the adoption process from awareness to adoption is known as the "adoption period". The length of the diffusion process or "diffusion period" is measured from the date the first individual is aware of the innovation until it has reached complete adoption in a social system.

Rejection of an innovation can occur at any stage in the adoption process. Rejection is a decision not to

¹¹For example, see Herbert F. Lionberger, Adoption of New Ideas and Practices (Ames, Iowa: The Iowa State University Press, 1960), pp. 3-4; and Rogers op. cit., pp. 79-80.

¹²Rogers, op. cit., pp. 81-86.

adopt an innovation. A decision to cease use of an innovation after previously adopting is called a "discontinuance."

Adopter Categories

The fact that all individuals do not adopt a new practice or product at the same time means that adopters can be classified according to their adoption time in relation to others. Diffusion researchers have classified adopters into categories utilizing a variety of categorization systems and titles.

Most past diffusion investigations have found that adopter distributions approximate the cumulative normal probability distribution or S curve. Ordinarily, adoptions are very slow at first. Following an initial slow start, they increase at a rising rate until approximately half of the potential adopters have accepted the change. After this, acceptance continues, but at a decreasing rate.

Rogers utilized the implications of this generalization to construct a standard method of adopter categorization. Using two parameters of the normal distribution, the mean and the standard deviation, the continuum of innovativeness (the time continuum) is divided into five adopter categories: innovators, early adopters, the early majority, the late majority, and laggards.

Rogers' framework classifies the various adopter categories in terms of the following percentages: (1) Innovators - the first 2.5 per cent of adopters, (2) Early Adopters - the next 13.5 per cent of adopters, (3) Early Majority - the next 34 per cent of adopters, bringing the cumulative adoption to 50 per cent, (4) Late Majority - the next 34 per cent of adopters, and (5) Laggards - the last 16 per cent, including those who never adopt.

The criterion used for adopter categorization is innovativeness - the degree to which an individual is relatively earlier to adopt new ideas than other members of his social system. Using a "standard score" which compares an individual's time of adoption to the total system's average time of adoption, the individual is placed on the normal curve and labelled accordingly. This standardized approach has significant advantages when comparing diffusion research findings from one study to another.

Adopter Characteristics

The accumulated research provides a large body of findings from which conclusions and generalizations may be drawn concerning the characteristics of adopter categories. Rogers summarizes the more important and well-researched characteristics and presents them in the form of a number of general-

izations.¹³

1. Dominant values - the dominant values of each category are as follows:

- Innovators - "venturesomeness" or the willingness to accept risks. Innovators are the first individuals in a social system to adopt new ideas.
- Early Adopters - "respect", regarded by many others in the social system as a role-model. This adopter category, more than any other, has the greatest degree of opinion leadership in most social systems.
- Early Majority - "deliberate", willing to consider innovations only after peers have adopted. The early majority adopt new ideas just before the average member of a social system. They follow with deliberate willingness in adopting innovation, but seldom lead.
- Late Majority - "skeptical", overwhelming pressure from peers needed before adoption occurs. The late majority do not adopt until a majority of others in their system have done so.
- Laggards - "tradition", oriented to the past. Laggards are the last to adopt an innovation and they possess almost no opinion leadership. Decisions are usually made in terms of what has been done in previous generations.

2. Personal characteristics - The relatively earlier adopters in a social system tend to be younger in age, have higher social status, a more favorable financial position, more specialized activities, and a different type of mental ability

¹³Rogers, op. cit., pp. 172 - 186.

from later adopters.

3. Communication behavior - Earlier adopters utilize information sources that are more impersonal and cosmopolite or external to their social system, and that are in closer contact with the origin of new ideas. Earlier adopters use a greater number of different information sources than do later adopters.
4. Social relationships - The social relationships of earlier adopters are more cosmopolite than for later adopters. Cosmopoliteness refers to how oriented the individual is beyond his community. There are indications of considerable shifting of individuals in a social system from one adopter category to another over time.

Information Sources and Personal Influence

Communication is an essential element of the diffusion process. Conceptualizations of the role of information sources in the mass communications process have undergone substantial change during the last three decades.

In the 1930's, the view predominated that receivers of mass communications consisted of a mass of heterogeneous individuals who had no contact with each other regarding what was communicated to them from the mass media. The audience was viewed as "a mass of disconnected individuals hooked up to the media but not to each other."¹⁴ The mass media were considered an all-powerful influence on behavior.

A classic study of voting patterns in Albany, New York,

¹⁴Katz, Elihu, "The Two-Step Flow of Communication: An Up-to-date Report on a Hypothesis," Public Opinion Quarterly, Vol. 21 (Spring, 1957), p. 61.

by Lazarsfeld, Berelson and Gaudet (The People's Choice, 1944) suggested that this view needed revision. A panel of 600 voters in the 1940 presidential election revealed that the mass media had minimal effects on voting decisions. Very few panel members shifted voting intentions, and those that did tended to attribute the change to "other people" and not to the mass media.

The Albany study introduced the concepts of "opinion leaders" and the "two-step flow of communication." The two-step flow suggests that (1) information is communicated by the mass media to opinion leaders located in the different strata of society and (2) the opinion leaders in turn communicate with and influence others with whom they associate.

Lazarsfeld and his colleagues at the Columbia University's Bureau of Applied Social Research conducted a series of studies of communications effects, merging communications research approaches with sociology. The investigations included the Decatur study (Katz and Lazarsfeld, 1955) and the drug studies (Menzel and Katz, 1955 and Coleman, Katz and Menzel, 1957).

Studies have attempted to determine the relative importance of various information sources at different stages in the adoption process. Rogers has synthesized the research in Diffusion of Innovations (1962).¹⁵

¹⁵Rogers, op. cit., pp. 99-104; 179-182.

Among Rogers' generalizations is that, compared with mass communications, personal communication or 'word of mouth' is more important for later adopters than for the earlier ones. In the stages of the adoption process, the mass media are most important at the awareness stage while personal communications are most important at the evaluation stage.

Opinion Leaders

It has been established that all persons do not exert an equal influence on the adoption decisions of others. Those individuals who take the lead in influencing the opinions of others are called 'opinion leaders'. Opinion leaders play an important role in the adoption and diffusion of innovations.

According to Rogers, the diffusion process is more complex than the two-step flow of communication hypothesis which stated that ideas flowed through mass media channels to opinion leaders, and from them to their followers. Evidence now points to a multi-step flow of communication where opinion leaders may influence other opinion leaders who, in turn, influence their followers. Although the process is more complex than the two steps first suggested, there are two steps involved in information transmission from person to person at any one time.

Personal influence, defined as "communication involving a direct face-to-face exchange between the communicator and the receiver which results in changed behavior or attitudes on the part of the receiver," has been found to be important throughout the diffusion process and of relatively greater significance in certain situations and for certain individuals than for others.¹⁶ Personal influence from opinion leaders is most important at the evaluation stage in the adoption process and less important at other stages, and more important for relatively later adopters than for earlier adopters.

Change Agents

The change agent plays an important role in securing the adoption of innovations. Change agents are the representatives of organizations and agencies who attempt to influence adoption decisions and, in most cases, secure the adoption of new ideas.

In the rural sociology diffusion studies of farm innovations, it has been found that change agents such as salesmen and dealers are more important (1) at the trial stage than any other stage in the adoption process, and (2) for earlier adopters than for later adopters at the trial stage.¹⁷

¹⁶Rogers, op. cit., p. 218.

¹⁷Rogers, op. cit., p. 283

Diffusion Theory as a Conceptual
Framework Applicable to New Product Marketing

While the accuracy of the model of the individual adoption process of five stages as applied in the "real world" has been the subject of controversy, the empirical evidence indicates that the model is useful as an approximation of the decision process in farm practices adoption.¹⁸ The key question of whether the model has applicability in other contexts is being explored by a number of academics and researchers in the field of marketing. Charles W. King of Purdue University is a leading advocate of this research effort. King and others have been refining and expanding the concepts of diffusion theory into a conceptual framework applicable to new product marketing.

The diffusion studies undertaken by rural sociologists have taken the individual as the relevant adopting unit. While the individual may have been the appropriate orientation in much of this research, there are instances when focusing on a group as the unit of adoption produces more meaningful results. According to King, the adopter or "adoption unit" refers to the decision making unit in the adoption decision.¹⁹ In the context of this definition, the adopter

¹⁸King, op. cit., pp. 53-58.

¹⁹King, Charles W., Adoption and Diffusion Research in Marketing: Recent Approaches and Future Perspectives. Purdue University, 1968, p. 2.

or adoption unit may be a housewife purchasing a new food product, a physician prescribing a new drug, a husband and wife buying a new automobile, or a university committee adopting a new computer.

The adoption process, as defined by King, is the mental procedure involved when an individual adoption unit moves from first becoming aware of an innovation through evaluation of the new idea or product to an adoption or non-adoption decision.²⁰ The individual's adoption process may be described as consisting of a series of stages ranging from first awareness of an innovation, interest and information gathering, mental evaluation, trial (where practical) and final adoption or non-adoption. The existence of particular stages and the formality associated with movement from stage to stage may vary by innovation.

Adoption is the decision to purchase and/or use the innovation.²¹ King points out that the operational definition of adoption must be related to the product category. Thus, a purchase of a new automobile would constitute full adoption while the first purchase of a new brand of instant coffee may represent only a "trial" with complete adoption occurring only after repeated purchase.

²⁰Ibid.

²¹Ibid., p. 3.

The key element in the diffusion process as posited by King is the action of the process involving the communication of the innovation and its adoption or rejection within or across social systems over time. The social system is the aggregation of individual adoption units.

A series of change (or anti-change) agents operate within the social system and they assume unique roles in influencing the adoption and diffusion of an innovation. Within the population of adoption units, King identifies two broad categories of change agents, the innovator or early adopter and the transmitter, interpersonal communicator or opinion leader.²² In addition, the professional change agent, frequently the marketer in the new product context, employs formal strategies to accelerate adoption and diffusion of the innovation.

²²Ibid.

CHAPTER III

DIFFUSION RESEARCH TRADITIONS

The objective of this chapter is to provide a general familiarization with the research areas as well as the key projects relating to the development of the traditions in diffusion research.

Historical Perspective of Diffusion Research

Diffusion of innovation as a social phenomenon has been noted by scholars and other observers since antiquity. Not until more recently, however, has there been a growing interest in studying and defining the intricacies of the process of social contagion by which new ideas, tastes, and patterns of behavior spread through the society.

During the last 60 years, several academic disciplines have undertaken a substantial volume of research on the social process by which new ideas and patterns of behavior spread and are accepted or rejected within and across social systems. For example, rural sociologists have studied the adoption of new farm practices, anthropologists have researched the diffusion of fashions in mass culture, educational sociologists have studied educational innovations in school systems, medical sociologists have researched the ad-

option of new drugs by physicians, and marketers and communications researchers have studied adoption processes in consumer products and services. The historical development of this diffusion research can be divided into four periods: (1) pre 1920, (2) 1920-1940, (3) 1940-1960, and (4) since 1960.¹

Serious published research on diffusion theory can be traced to the nineteenth century and the beginning of the twentieth century. Early economists such as Rae (1834), Foley (1893) and Veblen (1912), and sociologists Tarde (1903) and Simmel (1904) commented on the process of fashion adoption. These contributions have become the core of modern day "fashion theory". Much of the early theory and empirical research focused on cultural diffusion and was associated with the development of anthropology. European anthropological research was concerned with the mechanisms of diffusion - ethnic movements, commerce, conquest, revolution, and the spread of concepts across cultures, while American anthropologists directed their attention to descriptive studies of the flow among primitive tribes of innovations such as the horse and new food crops.

During the 1920-1940 period, a significant body of em-

¹King, Charles W., "Adoption and Diffusion Research in Marketing: An Overview," in R.M. Haas ed., Science, Technology and Marketing, American Marketing Association, 1966, pp. 667-668.

pirical research on diffusion emerged. Studies explored the spatial aspects of diffusion such as the movement of concepts from the metropolis to the suburb, the effect of natural and legal barriers on diffusion, and the movement from region to region of the country. Research investigations in this period included studies of the spread of the city manager form of municipal government, the correlates of innovativeness in adopting the radio, and the spread of amateur radio transmitters from the coasts inland and from larger to smaller urban centers.

Diffusion research expanded considerably in the years 1940 to 1960. Following earlier studies of farming practices conducted under the auspices of the United States Department of Agriculture's Federal Extension Service, Ryan and Gross published in 1943 a classic study of hybrid seed corn adoption in Iowa. Building upon these investigations, rural sociologists conducted over 100 studies during the next two decades on the adoption of a wide range of new farm practices including hybrid seed corn, contour farming, livestock medication, 2,4-D weed spray, insecticides and fertilizers.

The Bureau of Applied Social Research was also founded during this period by Paul Lazarsfeld at Columbia University. The Bureau became another center of diffusion research and

conducted the famous study of voting in Erie County, New York, which documented the role of friends, relatives, and the social network in influencing voting behavior. The Decatur, Illinois study of opinion leadership was undertaken in 1944 and later published in 1955. Then followed the New England and Midwestern drug studies by Katz, Manzel and Coleman. In addition to these studies, diffusion research was undertaken by the Bureau on automobile purchasing, fads and popular music.

Since 1960 there has been an impressive increase in the volume of diffusion research. An indication of the rapid growth in the number of diffusion studies is provided by the fact that there were 405 entries in Everett M. Rogers' first bibliography of 1962 on this subject, 600 in the 1964 edition, 870 in 1965, 1,000 in 1966, and 1,243 titles in 1967. The 1967 edition of the Bibliography on the Diffusion of Innovations by Rogers, together with the 1968 Supplement, listed just over 1,500 entries. Although the increased number of entries is in some measure attributable to improved bibliographic search procedures, the absolute increase in diffusion research has been substantial.

Diffusion research is also moving in international and cross-cultural directions. There is a strong trend to re-

search in non-United States settings and, since 1960, almost as many publications on diffusion were completed outside of the U.S. as within. Fewer than 70 studies were documented in countries other than United States before 1960.² This trend towards internationalization of the field will facilitate cross-cultural comparisons of diffusion behavior as researchers gather data from widely varying social climates. It will also be an important factor in developing hypotheses about the diffusion of innovations that are generally true regardless of the geographic and cultural locale of the study.

Two additional trends in the contemporary period are the development of a greater awareness of diffusion research findings and increased participation of various disciplines in the research field.

Contributions of Various Research

Traditions

The breadth of research interest in the diffusion of innovations is illustrated by the identification of 20 main research traditions in the most recent compilation of diffusion research publications by the Diffusion Documents

²Rogers, Everett M. and J. David Stanfield, "Adoption and Diffusion of New Products: Emerging Generalizations and Hypotheses," in F.M. Bass and others, ed., Applications of the Sciences in Marketing Management, (New York, J. Wiley, 1968), p. 230.

Center at Michigan State University.³ A research tradition has been defined as a series of related studies in a field in which previous studies affect those that follow. The tradition producing the most publications is Rural Sociology, with almost five times more empirical studies listed than the next largest category.

The body of diffusion research that now exists is the cumulative output of the many research traditions. The traditions of anthropology, early sociology, rural sociology, and medical sociology have made most of the important contributions to the development of diffusion theory. The educational and industrial diffusion traditions have also contributed a large number of studies. In addition, an increasing volume of diffusion research has been undertaken in the fields of mass communications and marketing.

Anthropology

The earliest studies on diffusion were conducted in the field of anthropology. The early anthropological research has had considerable influence on later studies in sociology, rural sociology and medical sociology. Anthropologists have tended to concentrate more on the exchange of ideas across cultures rather than on the spread of ideas

³Rogers, Everett M., Bibliography on the Diffusion of Innovations, Michigan State University, 1967 and 1968 Supplement, pp. i-ii.

within societies.

Anthropological works that directly influenced many later diffusion studies, both in anthropology and in other traditions, include Wissler's study (1923) of the diffusion of horses from the Spanish explorers to American Indian tribes, Kroeber's studies (1923) of social change, Linton's summary (1936) of anthropological knowledge of diffusion, and Sharp's analysis (1952) of the effects of the adoption of the steel axe by an Australian native tribe, which is typical of the emphasis of anthropological research on the social consequences of innovation.

Barnett's book entitled Innovation: The Basis of Cultural Change is probably one of the best-known writings in the anthropology tradition on diffusion. This work is an anthropological and psychological analysis of the adoption of new ideas by individuals. Barnett's discussion of why individuals adopt new ideas is more theoretical than empirical and the concept of the adoption process is not specifically utilized.

In recent years, empirical research in anthropology has centered on technical assistance programs and the importance of local cultural values in successful utilization of assistance.

Early Sociology

The tradition referred to as "early sociology" by Rogers traces its beginning to Tarde (1903). Tarde set forth several pioneering ideas that have been developed and tested by later diffusion researchers. He suggested that the adoption of new ideas followed a normal, S-shaped distribution over time in which only a few individuals adopt the idea at first, then great numbers of individuals accept the innovation, and finally the rate of adoption slackens. Tarde also emphasized the process by which the behavior of opinion leaders is followed by other individuals.

Simmel (1904) presented one of the first detailed commentaries on the adoption of fashion styles. Simmel's vertical flow hypothesis (the 'trickle down' theory) states that the upper socio-economic classes adopt fashions first as symbols of distinction and exclusiveness. The lower classes, in turn, emulate and follow the upper classes. At a certain level of adoption by the lower levels, the styles become vulgarized and are discarded by the upper class in favor of new styles. This leads to a new wave of emulation. Simmel's scheme characterizes fashion as a recurring process. It provides an explanation of how new fashions are introduced and acquire sanction, an account of their spread, and an explanation of their disappearance.

The first empirical research in early sociology involved the analysis of secondary data and included adoption studies of the city manager plan of government, political attitudes, postage stamps, compulsory school laws and patents for cotton machinery. Bowers' study (1937) of the adoption of amateur radios was one of the first investigations to use consumer research techniques (mail questionnaires).

The significant contribution of the early sociological tradition has been its raising of basic conceptual issues which guided the work of later researchers.

Rural Sociology

Rural sociologists have produced the most prolific research on the diffusion of new ideas, almost all of which deals with the adoption and diffusion of farm innovations. The origin of this tradition dates back to the 1920's when the United States Department of Agriculture's Federal Extension Service undertook to finance basic research in adoption behavior. Typical of the studies of this period are those of Wilson who investigated the effectiveness of various extension methods in securing the adoption of recommended innovations.

It was not until the early 1940's, however, that diffusion and adoption became a major research area in rural so-

ciology. In 1941, Kollmorgan conducted a study of adoption patterns among German-Swiss and non-German Swiss farmers in Tennessee. The following year, Hoffer studied the reluctance to adopt among Dutch celery growers in Michigan. In 1943, Ryan and Gross published their classic study on the diffusion of hybrid seed corn in Iowa which, according to Rogers, influenced the methods, findings and interpretations in the rural sociology tradition more than any other study.⁴

Major findings from the Ryan and Gross study included the following: (1) the first use of hybrid seed corn followed a bell-shaped but not exactly normal distribution over time; (2) users of hybrid seed were classified into four adopter categories, and the social characteristics, such as age, social status, and cosmopolitaness, of both the earliest and the latest adopters were then determined; (3) three stages in the adoption process were recognized by the researchers - awareness or first hearing about the new idea, trial or first use, and adoption or 100 per cent use; (4) most users first heard of hybrid seed from a salesman, but neighbors were the most influential source in leading to adoption.

In 1946, Coleman employed sociometric analysis to investigate the importance of peer influence upon farmer adop-

⁴Rogers, Everett M., Diffusion of Innovations (New York: Free Press of Glencoe, 1962), p. 33.

tion decisions of soil conservation measures among Illinois farmers.

Two of the contemporary leaders in the rural sociology field, Lionberger and Wilkening, undertook research on the adoption of new farm practices during the late 1940's. Lionberger first concentrated on decision processes of low income farmers and then on the importance of community norms, social status and personal influence in adoption. Wilkening studied a variety of areas including social psychological models integrating attitudes, values, membership and reference groups with adoption.

Since the mid 1950's, there has been a proliferation of published research by rural sociologists. Lionberger reviewed over 100 studies of rural sociological research on the diffusion of ideas completed before 1959 in his survey Adoption of New Ideas and Practices (1960). Roger's book Diffusion of Innovations (1962) reviewed 286 studies in this tradition. The 1968 Supplement to the Bibliography on the Diffusion of Innovations listed 410 empirical research studies by rural sociologists.

The leading advocate of this research effort in recent years has been Everett M. Rogers. In addition to establishing the Diffusion Documents Center at Michigan State University as a central depository for publications on diffusion,

Rogers has made important contributions in the synthesis of diffusion research across traditions.

The rural sociological tradition has significantly advanced the knowledge of diffusion and adoption, particularly in the agricultural context. The research carried out by rural sociologists has resulted in an impressive body of empirical evidence which may serve as a foundation for a general theory of the diffusion and adoption of new ideas, as well as a guide to future research in rural sociology and other traditions.

Mass Communications

The tradition in mass communications has evolved from the research at the Bureau of Applied Social Research at Columbia University, founded by Lazarsfeld in the early 1940's. This research has largely concentrated on personal influence and the two-step flow of communications.

Lazarsfeld's study of the 1940 voting behavior in Erie County, New York, discovered the impact of friends, relatives and the social network in influencing voting behavior. From this study (The People's Choice, 1944) the concept of the "two-step flow of communications" and the role of the opinion leader was developed.

The two-step flow and personal influence were pursued further in the voting studies of 1944 and 1948. The Katz

and Lazarsfeld Decatur, Illinois study in 1944 (Personal Influence, 1955) investigated personal influence in the areas of politics, marketing, fashion and movies.

Out of this composite research effort at the Bureau of Applied Social Research came revision of the traditional mass media communication model in which the communications researchers of the 1930's perceived the media of radio and print as having an all pervasive influence on mass audiences. Also, out of this research came the conceptual basis for the classic drug study in the medical sociology tradition by Menzel, Coleman and Katz (1955).

Medical Sociology

Although the medical sociology tradition on the diffusion of innovations did not begin before the 1950's, it has developed one of the most well-known bodies of diffusion research literature. The innovations studied have included new drugs or techniques adopted by doctors and public health measures adopted by the public. The methodology employed has emphasized both the survey and the sociometric method.

Two of the earliest studies in the medical sociology tradition were those of Caplow (1952) and Caplow and Raymond (1954) on the degree of influence of opinion leaders in the diffusion of drugs among doctors.

The most widely known research in this tradition was conducted by three sociologists, Katz, Menzel and Coleman, at Columbia University's Bureau of Applied Social Research. The study analyzed the diffusion of a new antibiotic that appeared in 1953. The significance of this investigation has been compared to that of the Ryan and Gross analysis of hybrid seed corn in terms of its contributions to the knowledge of the diffusion of new ideas.

As an extension of earlier research done at Columbia on opinion leaders and the "two-step flow" concept, the project involved a study of the flow of personal influence within the medical social network and its impact on the adoption of the new drug. The investigation was carried out in several communities and involved the use of sociometric techniques to measure interactions and designate opinion leaders, and the relationship of the influence patterns to patterns of adoption. Out of this research has developed a whole series of conceptual papers on diffusion and adoption among physicians.

More recent studies in medical diffusion research have concentrated on the adoption of new health measures by the public, such as the acceptance of Salk polio vaccine, the public use of X-rays, and the adoption or rejection of fluoridation of water supplies. Most of these studies have analyzed correlates of innovativeness (i.e. the degree to which

an individual is relatively earlier in adopting new ideas than the other members of his social system). High social status, education and scientific orientation have been positively correlated with early adoption.

Education

The education diffusion tradition has produced a large number of studies but the research in this field has been of less significance in terms of its contributions to understanding the diffusion process. The center of education diffusion studies has been the Teachers College, Columbia University.

Diffusion research in the educational field began in the 1920's under the guidance of Paul Mort who developed the concept of "adaptability" (or innovativeness) as the capacity of a school to take on new practices and discard outmoded ones. This became the key concept guiding the tradition and most of the research projects have centered on factors related to adaptability for innovations among schools.

Industrial Research

Economic historians, industrial economists and others have investigated the adoption of new industrial ideas. The industrial research tradition has concentrated on measuring the firm's innovativeness and defining correlates of innovativeness. The case study, often based on historical company

records, has been the most common methodological approach although in recent years mathematical and statistical analyses have been utilized.

In 1949 Danhof classified industrial firms into four adopter groups: (1) Innovators - the first firms to adopt a new idea, (2) Initiators - the early adopters following the Innovators, (3) "Fabians" - the late adopting majority, and (4) Drones - the last firms to adopt. Following publication of Danhof's typology of four adopter categories, several researchers have tried to determine empirically the correlates of innovativeness for the industrial firm.

The Carter and Williams study (1959) of English industrial firms classified the firms as to innovativeness. A number of factors were found to be positively correlated with innovativeness, including favorable attitudes toward science and scientists, cosmopolitanism of executives, high information reception, high growth rate and low resistance to innovation on the part of foremen and unions.

Later studies investigated the relationship of risk, profitability, and innovativeness in a variety of industrial contexts.

Marketing

Marketing research as an emerging diffusion tradition refers to the body of research on adoption and diffusion

conducted by independent research agencies, research departments of corporations, and academics in the field of marketing. Actually, the traditions of rural sociology, mass communications and medical sociology have all pursued the diffusion process within the context of new product adoption - the domain of marketing research - under the financial support of major companies and government agencies.

The question of whether a diffusion tradition exists in marketing that is comparable in terms of conceptual development and methodology to the contributions of other research traditions is examined in subsequent chapters.

The Diffusion Documents Center

The Diffusion Documents Center at Michigan State University was established in 1964 as part of a research project sponsored by the United States Agency for International Development to investigate the diffusion of agricultural and other innovations in three developing countries. Since its inception, the Center has gathered all the research publications on diffusion that can be obtained within the United States and from other countries. A bibliography of all the studies in the Center has been compiled and published annually since 1964.

All of the publications in the Diffusion Documents Center are concerned with the diffusion (i.e., spread or com-

munication) of innovation(s) (defined as ideas perceived as new by the individuals involved) among the members of a social system over time.⁵ Publications included are of two general types: (1) empirical publications reporting data gathered about the diffusion of ideas, and (2) non-empirical publications in which no new data concerning the diffusion of innovations are included, such as bibliographies, summaries of findings reported in other studies, and theoretical writings. About 78 per cent of the items in the 1967 Bibliography on Diffusion of Innovations, compiled at the Diffusion Documents Center, are in the first category. Table 1, page 52, gives the number of empirical diffusion research publications for each of the research traditions.

In addition to the publication of an annual bibliography, the Diffusion Documents Center operates an information storage and retrieval system. A detailed content analysis has been prepared of empirical research reports in the Center. These materials have been classified and punched on IBM cards, and analyzed in terms of a number of variables including the type of innovation studied, the locale and method of data-gathering, the research tradition of the writer, and the nature of the findings. Using IBM scoring

⁵ Rogers, Everett M., Bibliography of the Diffusion of Innovations, Michigan State University, 1967, p. iv.

TABLE I

EMPIRICAL DIFFUSION RESEARCH PUBLICATIONS IN THE
DIFFUSION DOCUMENTS CENTER, CLASSIFIED BY
RESEARCH TRADITION, 1968

	<u>Total</u>	<u>Percentage</u>
Anthropology	71	6.31
Agricultural Economics	39	3.46
Communication	98	8.70
Education	76	6.75
Early Sociology	9	0.80
Extension Education	95	8.44
Geography	9	0.80
General Economics	15	1.33
General Sociology	71	6.31
Industrial Engineering	7	0.62
Journalism	10	0.89
Marketing, Market Research and Consumer Behavior	70	6.22
Medical Sociology	83	7.37
Psychology	20	1.78
Public Administration	4	0.35
Rural Sociology	410	36.41
Statistics	5	0.44
Unclassifiable	29	2.58
Others	5	0.44
Totals	1126	100.00

Source: Bibliography on the Diffusion of Innovations, 1967
and 1968 Supplement.

procedures, the Center can produce a print-out with the titles of all studies that employ certain methodologies or that consider any particular variable in which an enquirer may be interested.

Considerable use is being made of the Diffusion Documents Center by researchers. For example, during the period from July, 1966 to June, 1967, about 344 individuals personally utilized materials at the Center, and an additional 222 written requests for information or materials were received. During the same period, over 1,000 copies of the diffusion bibliography were distributed upon request.

Despite the facilities and publications of the Diffusion Documents Center, there is evidence that diffusion researchers are only partially aware of each other's work. A study of interdisciplinary communication undertaken at this Center indicates that there has been very little communication among the research traditions in the past, although there is a trend in recent years towards a wider degree of interdisciplinary contact.⁶ It is suggested that this trend may be indicative of a growing awareness by diffusion researchers that their findings show a general type of consistency which is independent of their disciplinary affilia-

⁶Rogers, Everett M. and J. David Stanfield, "Adoption and Diffusion of New Products", in F.M. Bass and others, ed., Applications of the Sciences in Marketing Management. (New York, J. Wiley, 1968), p. 230-234.

tion, the specific type of respondents studied, or the nature of the innovation, and that "diffusion research is thus emerging as a single body of concepts and relationships, even though the investigations are conducted by researchers in many scientific disciplines."⁷

⁷Ibid., p. 234.

CHAPTER IV

ADOPTION AND DIFFUSION RESEARCH IN MARKETING

Chapter III has examined the important and unique contributions of the various research traditions to the development of adoption and diffusion theory. This chapter reviews the accumulating body of literature and unpublished research on diffusion that is being generated by marketers. Particular attention is focused on the conceptual and methodological content of recent research.

Diffusion Research in Marketing Contexts by other Academic Disciplines

Although a substantial volume of diffusion research has been conducted in marketing related contexts, most of it has not been undertaken by marketers - that is, by marketing research agencies, advertising agencies, research departments of companies, nor by academics in marketing and consumer behavior. For example, birth control practices have been studied by demographers and sociologists; new farm practices, homemaking practices, health care, and synthetic fiber usage have been investigated by rural sociologists; and interpersonal influence, broadcast and media impact, leisure and re-

creational trends have been researched by general sociologists. None of this research, however, has been interpreted in terms of marketing strategy development.

The classic Decatur study of personal influence, although financed by McFadden Publications for eventual use in editorial and advertising promotion, was conducted by the Bureau of Applied Social Research at Columbia University. Similarly, the drug studies by Menzel, Katz and Coleman were financed by Charles Pfizer and Company to improve new drug product marketing but were performed by sociologists at the Bureau of Applied Social Research.

Diffusion Research in Marketing: An Overview

The extent of adoption and diffusion research in the marketing field is indicated by the latest tabulation of diffusion studies from the Diffusion Documents Center. The 1968 Supplement to the Bibliography on the Diffusion of Innovations lists 70 empirical studies (about 6 per cent of the total) for the research tradition classified as "Marketing, Market Research and Consumer Behavior." Thus, the number of diffusion studies completed by marketers is a very small portion of the total research effort. In comparison, combining all studies done by sociologists, regardless of their special area of interest (that is, rural, medical, early and general), there

are 573 empirical publications, or over half of the total. Even when the list of marketing studies is extended to include more recent unpublished research, together with the non-empirical publications by marketers listed in the 1968 bibliographical supplement, the total volume would not likely be greatly in excess of 100 publications.

Diffusion research has been completed by commercial marketing researchers, but it is not available to the Diffusion Documents Center. The actual volume of diffusion research in industry is extremely difficult to ascertain because of the confidential nature of much of this research. Surveys to-date indicate that research in diffusion and application of the findings is limited to a very few firms.¹

Though the massive portion of diffusion research has originated outside the area of marketing, an increasing volume of literature and unpublished research is being produced by marketers. Some measure of this growth is given by the figures from the Diffusion Documents Center. The Bibliography on the Diffusion of Innovations published in 1962, the first such bibliography compiled by Rogers, did not include a separate classification for marketing because of the limited volume of published diffusion research by marketers. The 1967 edition of the same bibliography listed 45 empirical

¹King, Charles W., "Adoption and Diffusion Research in Marketing: An Overview," in R.M. Haas ed., Science, Technology and Marketing. Proceedings of the Fall Conference of the American Marketing Association, 1966, pp. 673-676.

studies (approximately 4.8 percent of the total) for the category "Marketing and Consumer Behavior." This figure has increased to 70 empirical studies, or 6 percent of the total, in the 1968 bibliographical supplement.

Of particular significance in the context of this study is the question of whether a diffusion research tradition exists in the field of marketing in terms of the concept of the "research tradition" as set forth by Rogers and others. Summarizing the situation in 1964, King made the following observations:²

A tradition comparable to the other research areas is some time away in marketing research. Industry researchers and, to some extent, academics in marketing perceive their roles as applied scientists applying the concepts of economics and the behavioral sciences to problems of the firm to generate profits. Therefore, theory development may lag behind empiricism. In turn, the "state of the art" in marketing based diffusion research is relatively unsophisticated compared with the older disciplines. A small number of commercial and academic marketers undoubtedly have expertise in adoption research. A somewhat larger number appear to have a nodding acquaintanceship with the literature and the traditions but no real personal sophistication in the area. The largest sector of the marketing community appears essentially uninformed on the level of sophistication in other areas. In addition, the great bulk of marketing research effort is shrouded in confidentiality. Traditionally, companies and agencies have refused to publish research findings.

²King, Charles W., A Study of the Innovator and the Influential in the Fashion Adoption Process. Unpublished Doctoral Dissertation, Harvard University, 1964, p. 47.

Since 1964, marketers have been producing an accumulating body of diffusion research. Several significant trends have marked this development:³

- 1) Most of the diffusion research literature in marketing has been produced in the last five years;
- 2) An expanding group of marketing academics is now conducting research in the area;
- 3) An increasing number of marketing practitioners is interested in the application of diffusion theory in planning marketing strategy and tactics.

These trends, according to King, "clearly reflect the emergence of a research tradition provided the momentum can be maintained."⁴

Early Research in Diffusion Theory

Several projects typify the early diffusion research by marketers. Whyte noted the importance of social communication and social influence in the adoption of home air conditioners in the early 1950's.⁵ The Opinion Research Corporation has studied the problem of product innovation from

³King, Charles W., Adoption and Diffusion Research in Marketing: Recent Approaches and Future Perspectives, Purdue University, 1968, p. 6.

⁴Ibid.

⁵Whyte, William H. Jr., "The Web of Word of Mouth," Fortune, Vol. 50 (November, 1954), pp. 140-143, 204-212.

what is termed a "theory of social change."⁶ The ORC studies profiled the "high mobiles" - families who were geographically, economically, socially and psychologically mobile - and used this group's consumptive behavior to predict new product success.

In 1954, Whyte investigated the adoption and diffusion of air-conditioning unit ownership in Philadelphia. The study analyzed the impact of the social network on the adoption of air conditioners in Philadelphia row houses. The new row-house neighborhoods had the largest concentration of air conditioners and represented centers of adoption while older working class neighborhoods had the lowest propensity to adopt. Within the high adoption neighborhoods, ownership was not uniform but clustered around certain blocks. The random clusterings were found to be the result of a powerful communications network which had two important elements: (1) the social traffic - the location of conditioners within a block

⁶Opinion Research Corporation, America's Tastemakers: A New Strategy for Predicting Change in Consumer Behavior. Princeton, New Jersey, 1969.

_____, Consumer Values: How They Help Predict Market Change in a Mobile Society, Princeton, New Jersey, 1959.

_____, The Initiators, Princeton, New Jersey, 1960

reflected the pattern of social movement in the block which was not with row houses on either side of the street, but on either side of the alleyway, and (2) the catalytic presence or absence of leaders - some blocks had several leaders while others had none.

The impact of social status and upward mobility aspirations was apparent within the high adoption communities. The older, working-class neighborhoods had very few air conditioners while the blocks with highest adoption were populated with young, white collar people in the middle income range. In general, the investigation recognized the significance of word of mouth communication in the adoption of a new product, but did not give detailed information on the characteristics of innovators or leaders.

The Opinion Research Corporation study in 1959 aimed at building a theory of consumer change and related values, mobility and personal resources to consumer adoption of 75 growth products in an exploratory survey of families. Searching for a common variable in consumer change, the ORC identified mobility and the "high mobile" person.

The most reliable predictors of change in a mobile society are the people who are themselves highly mobile.⁷

⁷A summary of the ORC project is provided in Cohen, Reuben, "A Theoretical Model for Consumer Market Prediction," Sociological Inquiry, Vol. 32, 1962, pp. 43-50.

To explore the theory, a field test was conducted in Ridgewood, New Jersey, with 82 married families, and "first year adopted" scores for 75 growth products that moved into large scale markets since 1940 were used. A cumulative adoption score was compiled for each family based on the reported time of adoption for the 75 products, and the families were classified into high, medium and low adoption categories.

The high mobiles were early adopters in six out of seven times. Precise criteria used to identify the high mobiles were not reported. According to the ORC, the high mobiles are not to be identified by any one or two main characteristics, but rather it is the pattern of their mobility that serves to distinguish them. The overall image given of a high mobile is that of an upper middle class consumer "in motion" - travelling, changing residence, moving up the occupational scale, getting more education, highly gregarious and active in the social network.

A second major variable analyzed was the value systems of the high mobiles. These reflected strong differences with the values of the mass market. The values to which the high mobiles were strongly committed correlated closely with their purchases of products judged compatible with those values. Assuming the high mobiles were predictors of changing tastes,

then the new growth products should be forecast by their trends.

The resources of the consuming family as measured by family income constituted the third independent variable.

From these measures of mobility, values and resources, an equation was developed to predict consumer adoption. Using the product adoption score as the criterion or independent variable, the ORC study obtained partial correlation coefficients of .46, .30, and .51 with mobility values and resources respectively. The multiple linear correlation coefficient (M.V.R. with the product adoption score) was .74.

More Recent Research in Diffusion Theory

Since the early studies of Whyte and the Opinion Research Corporation, the major diffusion research projects by marketers have focused on a widening range of topics in both consumer and industrial product contexts. This research can be categorized into several broad topic areas for the purpose of integrating and synthesizing the theoretical work and empirical investigations:

- (1) Perceptions of new products and the new product purchase decision among consumers;
- (2) Profile analysis of new product innovators

- (3) The dynamics of interpersonal communications and new product adoption;
- (4) Quantitative models of new product adoption behavior;
- (5) Industrial marketing and diffusion theory.

Perceptions of New Products and the New Product
Decision Making Process

The attitudes of consumers toward new products, the consumers' perception of product "newness", and the new product purchase decision represent a critical starting point for research on the adoption and diffusion of new products. As hundreds of "new" products are introduced annually, increasing attention and exploration is being given to the questions of what is the meaning of "newness" as perceived by the buyer of the "new" product, how do consumers rank different "new" products in terms of "newness", what are the dimensions used by consumers in measuring "newness", and how does perceived product "newness" influence buying decisions.

The New Product Adoption and Diffusion Research Program at Purdue University, under the direction of Charles W. King, has investigated four major dimensions of newness:⁸

⁸ King, Charles W. and John O. Summers, The New Product Adoption Research Project: A Survey of New Product Adoption Behavior Across a Wide Range of Consumer Products Among Marion County, Indiana Homemakers, Purdue University, 1967 p.13-14.

- (1) Perceived "difference" from existing products. This represents a measure of the degree to which the new product is dissimilar to those products with which the consumer is already familiar;
- (2) Change from "status quo" behavior. This dimension refers to the implied changes in the consumer's behavior patterns which are a necessary result of her adoption of the product.
- (3) Recency of the new product's introduction. Recency of introduction refers to the consumer's perception of how long the product has been on the market;
- (4) Perceived adoption level. Three separate components appear to make up this dimension: (a) Where does the consumer place herself in the adoption process; (b) What level of adoption does she perceive the product to have obtained within her social environment; and (c) What level of adoption does she perceive the product to have obtained within the total market?

The first three of these dimensions, according to King, appear to contribute to perceived risk associated with trying the product while the fourth dimension, the perceived adoption level, may reflect both reference group influence and relevant information availability.

Perceived Risk

The concept of perceived risk was advocated as a possible approach to the conceptualization of consumer behavior in Bauer's paper, Consumer Behavior as Risk Taking (1960).

Bauer's theme is that:

Consumer behavior involves risk in the sense that any action of a consumer will produce consequences

which he cannot anticipate with anything approximating certainty.⁹

and 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 are in some meaningful sense incalculable.

A series of studies have explored the role of perceived risk in new product trial and experimentation following the introduction of the concept by Bauer. This work is brought together in a recent book by Cox, Risk Taking and Information Handling in Consumer Behavior, containing 24 papers by 13 contributors which represents the results of a program of research on risk taking and information handling that has been underway at the Harvard Business School since 1959-1960.¹⁰

The perceived risk concept argues that consumers discern some degree of peril, either financial, physical or social, in the purchase of many products or services, and that much of consumer behavior might be understood when viewed as an attempt to handle risk associated with the purchase of a product.

Cox views perceived risk as a function of two elements,

⁹Bauer, Raymond A., "Consumer Behavior as Risk Taking," in R.A. Hancock ed., Dynamic Marketing for a Changing World, Proceedings of the 43rd National Conference of the American Marketing Association, June 1960, p. 390.

¹⁰Cox, Donald F., ed. Risk Taking and Information Handling in Consumer Behavior (Boston: Harvard University, 1967).

uncertainty and consequences.¹¹ Uncertainty means subjective uncertainty as perceived by the consumer and may relate to identifying buying goals (their nature, acceptance levels and importance) or to matching goals with purchases. The consequences may relate to functional or performance goals, psychosocial goals and to the means invested (money, time and effort) to attain those goals. Since perceived risk is a function of uncertainty, reduction of the amount of perceived risk can be achieved by increasing certainty through information handling and/or reducing the consequences.

Although most buying situations are considered to contain some type and degree of perceived risk, no claim is made that consumer behavior is goverened by continuous attempts to reduce perceived risk. Instead, consumers are considered to "handle" risk by which they appraise buying situations and assess the nature and degree of perceived risk. They then act in accordance with the level and nature of perceived risk in relation to their tolerable and desirable levels. The consumer may decide that a particular situation is sufficiently risky (according to her standards) that steps must be taken to reduce the risk by seeking additional information. While most of the research to date has focused on

¹¹Ibid., p. 7.

uncertainty and risk reduction, it is known that consumers often use buying situations to increase uncertainty and sometimes to increase perceived risk.

The series of studies on perceived risk at Harvard University have been concerned with the interaction of consumer characteristics with information characteristics on consumer information handling - the acquisition, transmission and processing of information by consumers. A paper by Cox, Risk Handling in Consumer Behavior, offers the hypothesis that risk handling usually involves information handling (rather than attempts to modify seriousness of consequences), and suggests that consumers develop characteristic styles of reducing uncertainty - a function of dominant personality needs and buying goals, cognitive needs and styles, and a result of buying maturity and experience.¹² The investigation by Cox is an exploratory study but it has helped to develop insights and hypotheses that have received additional testing, and it has helped elaborate further the perceived risk concept.

Cunningham's studies, The Major Dimensions of Perceived

¹²Cox, Ronald F., "Risk Handling in Consumer Behavior - An Intensive Study of Two Cases," in D.F. Cox ed., Risk Taking and Information Handling in Consumer Behavior (Boston: Harvard University, 1967), pp. 34-81.

Risk¹³ and Perceived Risk as a Factor in the Diffusion of New Product Information,¹⁴ outline and develop operational measures of perceived risk. Cunningham tested these measures in a survey of 1,200 housewives (the field research was conducted in 1963 and 1964) using three products sold through supermarkets: headache remedies, fabric softeners and dry spaghetti. The main contribution of this study is that it represents the first attempt to measure directly, in a large-scale survey, risk perceived by consumers in three different household product categories. Cunningham demonstrates that perceived risk can be measured; that product categories vary in degree of perceived riskiness (a "perceived risk hierarchy"); that even a product such as dry spaghetti may be high in perceived risk for some consumers; and that consumers vary considerably in the amount of perceived risk in any category of products. The findings suggest that consumers perceiving high risk in the purchase of an unknown brand may try to reduce this risk through information seeking as well as being more likely than low risk perceivers to claim that others come to them for advice. The evidence also supports the picture of the high risk perceiver as one who is recognized for her ex-

¹³Cunningham, Scott, M., "The Major Dimensions of Perceived Risk," in D.F. Cox ed., Risk Taking and Information Handling in Consumer Behavior, pp. 82-108.

¹⁴_____, "Perceived Risk as a Factor in the Diffusion of New Product Information," in R.M. Haas ed., Science, Technology and Marketing, Proceedings of the Fall Conference of the American Marketing Association, 1966, pp. 698-721.

pertise in a given product category and is thus sought out by others for information.

Consumer Attitudes Toward the New Product Trial Experience

From data collected in the Survey of New Product Adoption Behavior Across a Wide Range of New Consumer Products Among Marion County Indiana Homemakers, King and Summers have found consumers to generally report positive attitudes toward new product trial and experimentation though attitudes did vary across product categories.¹⁵ This research is part of the New Product Adoption Research Program currently underway at Purdue University.¹⁶

A consumer survey of 1,000 randomly selected female homemakers in Marion County was conducted in the Spring of 1967. The study measured consumer predispositions and perceptions related to four broad categories: (1) packaged foods, (2) household cleaners and detergents, (3) cosmetic and grooming aids, and (4) women's clothing fashions. Predispositions

¹⁵King, Charles W. and John O. Summers, "Technology, Innovation and Consumer Decision Making," in R. Moyer ed., Changing Marketing Systems, Proceedings of the American Marketing Association Winter Conference, 1967, pp. 63-68.

¹⁶The New product Adoption and Diffusion Research Program under the direction of Charles W. King has been undertaken to develop a better understanding of the dynamics of new product adoption and diffusion behavior at both the consumer and industrial product levels. The research program involves four related projects dealing with adoption and diffusion in consumer and industrial settings. For a detailed description of this project see King, Charles W., and John O. Summers, The New Product Adoption Research Project, Purdue University, 1967.

and perceptions regarding new products are considered to be critical factors underlying a consumer's new product adoption decision, and may be the result of individual psychological differences across consumers, socio economic factors, past consumption and new product trial experiences.¹⁷ Positive or negative attitudes towards new products and the new product trial experience will influence the speed with which consumers become aware of new products, the volume of information they collect, the processing of information and the decision process.

King and Summers analyzed the following consumer predispositions and perceptions related to new products:

- (1) Predisposition toward new product trial
 - (a) Venturesomeness and new product trial
 - (b) Excitement associated with new product trial
 - (c) Interpersonal communications about new products
- (2) Perceptions of new products
 - (a) Price of new products
 - (b) Quality of new products
 - (c) Perceived risk associated with new products

The empirical findings supported a number of conclusions:

- (1) A Significant portion of consumers (over one-third) enjoyed experimenting and testing new products in the categories of packaged food products and household cleansers and detergents. For cosmetics and personal grooming aids the figure was 23 percent, but the women's clothing fashions only

¹⁷King, op. cit., p. 63.

8 percent reported enjoying testing and experimenting with new fashions. The fact that consumers do not enjoy testing and experimenting in women's clothing fashions is attributed to several factors including the high financial and social costs associated with a poor product selection. On the other hand, negative experiences with new products in packaged foods and household cleaning products would have low social and financial costs.

(2) An intrinsic dimension of excitement is associated with the process of new product trial and experimentation. A substantial group of consumers reported new product trials to be "exciting" in all product categories, although the percentages varied with the highest level of excitement being associated with new packaged food product trial. This factor was not measured in the women's clothing fashion context.

(3) The level of interpersonal communication was found to be high for all product categories. Interpersonal communication is especially significant for sharing product trial experiences - both successes and failures.

(4) New products are perceived to be higher in price compared with products currently on the market by a considerable proportion of consumers, and especially for women's clothing fashions where 54 percent of the sample reported new items to be higher priced. Perceptions of quality of new products compared with established products did not match the high price perceptions.

(5) Measurements of the uncertainty and importance of product performance indicate that less than 20 percent of the respondents were unsure that the new product would be at least satisfactory in the three categories of packaged food products, household cleansers and detergents, and cosmetics and personal grooming aids, while in women's clothing fashions, over 30 percent of the consumers were unsure. Data on the perceived consequences and seriousness of an unsatisfactory product performance showed that less than 12 percent of the sample considered an unsatisfactory product performance to be serious in the categories of packaged food products, household cleaners and detergents, and personal products, while in women's clothing fashions 36 percent considered unsatisfactory product performance to be serious.

In summary, positive predispositions and perceptions were found to exist regarding new products in the categories of packaged food products, household cleaners and detergents, and cosmetics and personal grooming aids, but in the category of women's clothing fashions, the new product adoption experience was generally perceived unfavorably.

Implications for Marketing Strategy

An understanding of the dimensions of consumers' perceptions of newness which are positively related to adoption behavior in a product category could produce a number of impor-

tant implications for specific short and long term marketing strategies, and may:¹⁸

- (1) Indicate that market segments vary in their perceptions of attitudes toward product "newness", eg. innovators versus other consumers, and may require specific advertising programs directed at key segments over the product life cycle;
- (2) Make possible more accurate measurement of the degree of "newness" and the probability of rapid adoption of a particular new product proposal before commercial introduction;
- (3) Suggest specific advertising and promotion copy content to maximize positive imagery and minimize negative aspects of a particular product's "newness";
- (4) Suggest marked differences in consumer tastes and preferences across adopter groups. The innovator, for example, may report significantly different taste preferences in blind product taste tests than do other consumers.

Perceptions of risk associated with new products, the perceived uncertainty of satisfactory new product performance and the perceived consequences of new product failure can serve as significant barriers to new product adoption.

The New Product Adoption Research Project at Purdue University will use multiple regression analysis to study the dimensions of product newness within and across product categories. Separate analyses will be made for innovators and non-innovators, and opinion leaders and non-opinion leaders

¹⁸King, Charles W. and John O. Summers, The New Product Adoption Research Project, Purdue University, 1967, p. 39.

to determine whether these groups perceive product newness differently.

Profiling the Innovator or Early Buyer

A general finding in diffusion research is that innovators possess distinguishing characteristics from later adopters. The rural sociological and medical sociological research traditions have cumulated a substantial body of findings on factors related to innovativeness.

Several marketing studies have investigated the consumer innovator profiling the characteristics of innovators or early buyers and discriminating between them and later buyers or non-buyers. The exploratory survey of the Opinion Research Corporation has related values, mobility and personal resources to consumer adoption.¹⁹ Bell has investigated socio-economic characteristics of innovators for different types of durable goods.²⁰ Frank and Massy have related socio-economic and consumption variables to innovativeness in the food product category.²¹ King has studied the innovator in

¹⁹Cohen, Reuben, "A Theoretical Model for Consumer Market Prediction," Sociological Inquiry, Vol. 32, 1962, pp. 43-50.

²⁰Bell, William E., "Consumer Innovators: A Unique Market for Newness," in S.A. Greyser ed., Toward Scientific Marketing, Proceedings of the Winter Conference of the American Marketing Association, 1963, pp. 85-95.

²¹Frank, Ronald E., and William F. Massy. "Innovation and Brand Choice: The Folger's Invasion," in S.A. Greyser ed., Toward Scientific Marketing, Proceedings of the Winter Conference of the American Marketing Association, 1963, pp. 96-107.

the fashion adoption process.²² Pessemier, Burger and Tigert researched the characteristics of early buyers of a new branded detergent.²³ Robertson has studied the characteristics of Touch Tone telephone innovators.²⁴ King and Summers are currently completing analyses that profile innovators or early buyers for a wide range of consumer products.²⁵

The concept of innovative behavior is related to the tendency, within a given social system, of some consumers to adopt new products earlier than other consumers. Innovators are those individuals within a community who adopt the innovation first. In the agricultural sociology literature, innovators are designated as the first 2.5 percent of the community's members to adopt the new product, while in the

²²King, Charles W., "The Innovator in the Fashion Adoption Process," in L.G. Smith ed., Reflections on Progress in Marketing, Proceedings of the Winter Conference of the American Marketing Association, 1964, pp. 324-339.

²³Pessemier, E.A. and others, Can New Product Buyers be Identified? Purdue University, 1967.

²⁴Robertson, Thomas S., "Consumer Innovators: The Key to New Product Success," California Management Review, Vol. 10 (Winter, 1967), pp. 23-30.

²⁵King, Charles W. and John O. Summers, The New Product Adoption Research Project, Purdue University, 1967.

"physician study" of Coleman, Katz and Menzel, the terms innovator and early adopter are used interchangeably without apparent percentage definitions. Within the marketing literature, innovators have been defined as the first 10 percent of a given market who purchase an innovation in the Bell study of consumer durable goods.²⁶ A 10 percent innovator figure has also been used in the Robertson study of the Touch Tone Telephone.²⁷ In King's research on the fashion adoption process, two adopter groups were analyzed: (1) innovators or early buyers - representing the first 35 percent of the Fall season's buyers, and (2) all other consumers - later buyers and consumers that did not buy in the Fall season.²⁸

The first people to buy a product are not a random assortment of all the people who will eventually purchase the product. Research findings on the personal characteristics, communication behavior and social relationships of adopter categories indicate distinct differences between innovators and the remaining members of the consumer population. Innovators play a distinct role in regard to the communications flow on innovation. Such innovators are differently exposed

²⁶Bell, op. cit., p. 86

²⁷Robertson, op. cit., p. 24.

²⁸King, Charles W., "The Innovator in the Fashion Adoption Process," in L.G. Smith ed., Reflections on Progress in Marketing, American Marketing Association, 1964, p. 328.

to this flow and handle their communications contact differently than the remaining consumer population.

The rural sociological findings as summarized by Rogers, findings in medical sociology, and findings from the innovative behavior studies within the marketing discipline have given considerable emphasis to socio-economic variables related to innovativeness, such as age, education, income and social status. Available data from research on the introduction of new farm practices and new products suggest that the innovator is younger, more educated, higher in income, and higher in social status than other members of his community.

The Tastemaker Study of the Opinion Research Corporation tested the hypothesis that early adopters are highly mobile individuals. The typical high mobiles were found to be families who travelled extensively, read for intellectual experience, had advanced in their jobs, rose to higher income levels, moved around and met many types of people, stressed education for their children and tried to improve their own.

A study of consumer innovators by Bell examined 13 socio-economic characteristics of innovators and early adopters for different types of consumer durable goods - color television, stereophonic equipment, food disposals, dishwashers, automatic clothes-dryers, air-conditioning and hi-fidelity equipment.²⁹

²⁹ Bell, op. cit., pp. 85-95.

Innovators were designated as the first 10 percent of a given market who purchased an innovation, while people who purchased the products after a 10 percent market saturation had been reached but before the products reached 50 percent saturation were classified as early adopters. Using the Chi-square statistic, the analysis showed a significant difference between innovators and early adopters on all but three variables. When the innovators were compared with the mass market, all variables showed a significant difference. Innovators were found to be younger in age, more highly educated, higher in family income and greater in home ownership.

In research on the diffusion of a new product, Frank and Massy attempted to determine the nature and extent of differences between households which adopted a newly introduced brand of coffee and those which continued with established brands.³⁰ Using the Chicago Tribune's Consumer Panel purchase records of 538 families over the period 1958-1960, the study analyzed 13 socio-economic and 7 purchasing characteristics which might be related to the degree to which a household would adopt the new brand (Folger's Coffee). Two-way multiple discriminant analysis was used to obtain the results reported. The findings suggested that the socio-economic characteristics

³⁰Frank, op. cit., pp. 96-107

of households did not play as important a role in influencing innovative behavior as did the household's purchasing characteristics for regular coffee. Of the four factors which were found to have exerted the greatest effect, three had to do with rates of purchasing activity. Noting previous research on the introduction of new products and farm practices which emphasized socio-economic indicators, Frank and Massy made the following comments:³¹

It may be that for changes of this sort a household's reference group (defined by such proxy variables as income and occupation) are of relatively greater importance than in the case of a new brand of coffee for at least two reasons: (1) Changes of the former type are apt to have repercussions over a broader range of a person's activities than are the latter, and (2) changes of the former type are apt to be associated with a greater degree of ambiguity as to the appropriate behavior than are the latter.

King investigated the effectiveness of various types of variables in predicting innovative consumer behavior in fashion adoption.³² An exploratory survey was conducted in the Metropolitan Boston area in the fall of 1962 to explore the hypothesis that the innovator or early buyer of women's millinery may represent a unique market segment, and to determine whether the early buyer could be differentiated from other consumers.

³¹Ibid., p. 106

³²King, op. cit., pp. 324-339.

In discussing the question of whether particular types of variables, e.g. socio-economic variables, are more important or effective in predicting early buyer versus other consumer adopter categories, King makes the following observations:³³

At the theoretical level, the multi-collinearity between economic, psychological, sociological, and attitudinal variables is widely recognized, but the cause and effect relationships are widely disputed. At the pragmatic level, identifying the general types of variables most predictive of innovative consumer behavior could make market segmentation on the basis of time of adoption more feasible. For example, if selected socio-economic variables were adequately predictive of innovative behavior, analysis of markets on these socio-economic dimensions could identify key target areas with the highest concentration of fashion innovators. In turn, if types of variables on which there is less aggregated market data are found to be correlated with innovative behavior, these findings might suggest measuring markets on these characteristics in addition to the usual socio-economic dimensions.

King's study of fashion adoption analyzed a wide range of variables hypothesized to be correlated with women's adoption behavior in millinery. The 59 variables selected for analysis were based on the adoption research in rural sociology, medical sociology, mass communications, marketing research, on fashion research and on preliminary analysis of fashion adoption behavior. Variables used included socio-economic characteristics, psychological characteristics, com-

³³Ibid., p. 329

munications characteristics, activity patterns, attitudes toward fashion and hats, perceptions of reference groups' hat wearing behavior and attitudes, and attitudes and behavior in hair care. The data analysis involved two phases. Based upon the independent multiple discriminant analysis of different sets of variables, specific individual variables were isolated for further analysis from the initial set of 59 measures. A broad profile of the fashion innovator in millinery emerged from the data. Compared with other consumers, the early buyer is: (1) older; (2) higher in social status as measured by education and total family income; (3) more psychologically compatible with fashion involvement due to higher self confidence, exhibition and change orientation; (4) more involved in personal interactions and social visiting; (5) more involved in all activities and particularly in activities in which fashion consciousness and hat wearing might be appropriate; and (6) more interested in personal appearance and more committed to hat wearing as measured by hair care, exhibition, wearable hat ownership and frequency of hat wearing compared with friends.

King concluded that innovator or early buyer in the fashion adoption process within the millinery context appears to represent a unique market segment compared with other consumers, and that the innovator is differentiated from other consumers by differences in life styles rather than by isola-

ted variables. These findings suggest that the fashion industry's traditional reliance upon the early buyer's purchase patterns as predictive of style trends for the season should be re-evaluated, and that fashion marketing strategy should be built around the unique market segments on the time of adoption dimension, e.g., early buyers versus other consumers. The early buyers' life style may generate different tastes and style preferences compared with the other consumers' environment. Therefore, the actual product requirements of the early buyer may differ from the requirements of other consumers even though the function of the early buyer in displaying the season's styles early in the season is clearly a learning cue for the mass market.

A more recent study by Pessemier, Burger and Tigert analyzed data collected on the characteristics of early, late and non-buyers of a new product introduction in the laundry detergent classification.³⁴ The data was obtained from diary records maintained by 265 subject housewives for seven months in the Lafayette, Indiana area, and from two questionnaires - one prior to the product introduction and one at the end of the diary period.

On the basis of findings derived from the literature on adoption and diffusion, it was hypothesized that the following

³⁴Pessemier, op. cit., pp. 1-20

variables would discriminate among early, late and non-buyers of the new laundry detergent: (1) early buyers would be more trial-prone towards brands in the product class and be heavier users of the product class than the late or non-buyers; (2) early buyers would actively transmit information about their experiences with the brand and class while late buyers would be information receivers; and (3) early, late and non-buyers could be identified on the basis of demographic characteristics, mass media exposure factor scores, activity, interest and opinion factor scores, and several "product" variables.

The sample size of 265 housewives did not allow assigning subjects to the five classifications described by Rogers, i.e. innovators, early adopters, early majority, late majority and laggards. An early buyer was defined as one who purchased the product during the first 70 days after introduction; all remaining subjects who brought were classified as late buyers. Fifty-seven variables were used to examine differences between subjects in the three buyer categories. These include socio-economic variables; trial-proneness variables; activity, interest and opinions factor scores; product variables; informational variables; media exposure factor scores; and social activities.

Results of cross-classification, regression and discriminant analysis of differences between early, late and non-

buyers showed that triers and non-triers of the new detergent were significantly different in regard to specific product and trial-proneness variables. On the other hand, given that the consumer made at least one purchase, differences between early and late trial tended to lie along socio economic dimensions. In the relationship between new product brand preference and type of buyer, the non-buyer showed the least amount of preference for the new brand and the early buyers had the greatest preference. Data on the relationship between trial proneness and type of buyer provides evidence that the early buyers were significantly less confident about their past brand purchases than the late buyers and that the late buyers were less confident than the non-buyers. Such a result would indicate a predisposition to try new brands on the part of the early and late buyers. The early buyers clearly identified themselves as experimenters to a significantly greater degree than did the late or non-buyers, but the early buyers did not perceive themselves as innovators. There appears to be a perceived difference between experimenting and innovating, and it would seem that early buyers view their buying time for new detergents as being concurrent with others.

The results confirm a finding reported by adoption researchers relating to information transmission and reception. Compared to late and non-buyers, the early buyers showed a

higher degree of transmission of product information. A larger percentage of the late buyers were information receivers.

Early buyers had lower educational background, lived in smaller houses, were in higher income groups, had husbands who had worked for more employers, and were less likely to be buying items on credit. With the exception of the income relationship, early buyers, compared to late buyers appeared to be typical of the lower socio economic classes. The degree to which these findings can be generalizable to other product categories or even to other brands within this product category has not been tested. The particular brand studied was very heavily promoted and free sampled as well.

Robertson investigated predispositional characteristics of innovators who adopted the Touch-Tone (push button) telephone.³⁵ Innovators in the sample of 100 families in the middle class, suburban township of Deerfield, Illinois, were found to be more venturesome, more socially integrated, more socially mobile, and more financially privileged, but somewhat less cosmopolitan than noninnovators. Innovators were found to be significantly higher on venturesomeness. They more readily took new product risks as revealed in their actual purchases of innovations, in their stated willingness

³⁵Robertson, op. cit., pp. 23-30

to buy hypothetical innovations, and in their self-conceptions in regard to new product purchase behavior. Innovators for the Touch-tone innovation were more likely to have purchased other home appliance innovations. Innovators were more socially integrated within their neighborhoods - they interacted with more people, perceived themselves to be more popular, and perceived the neighborhood to be more socially oriented. Innovators were less cosmopolitan; they were somewhat more oriented toward their local community. This finding differs from the studies of farmer and physician innovators who were found to be more cosmopolitan in outlook, i.e. they looked beyond their communities to cosmopolitan sources of information on innovation. It is suggested that consumer information sources for home appliances are so diffuse that one need not look beyond the local community, but for consumer products which are of more specialized interest, the innovator might be more cosmopolitan. Innovators were more socially mobile, and aspired to further advancement. Innovators had higher discretionary income than their neighbors and perceived themselves to be richer. Innovators were also found to be less concerned with the extra cost of the Touch-Tone innovation.

In the New Product Adoption Research Project, King and Summers are currently completing analyses that profile inno-

vators or early buyers on 300 characteristics for each of eight product categories, packaged food products, household cleansers and detergents, cosmetic, and personal grooming aid, drugs and pharmaceutical products, women's clothing fashions, large appliances, small appliances and man-made fibers.

Dynamics of Interpersonal Communication and New Product Adoption

Building upon the conceptual framework developed by the Bureau of Applied Social Research at Columbia University, marketers have explored the role of interpersonal communications in the new product adoption context.³⁶ Nicosia has studied the role of interpersonal communication in auto insurance purchasing.³⁷ King has researched the role of the fashion opin-

³⁶The Bureau of Applied Social Research produced or supported these classic studies related to interpersonal communications:

Paul F. Lazarsfeld, Bernard Berelson and Hazel Gaudet, The People's Choice, New York: Columbia University Press, 1948; Elihu Katz and Paul F. Lazarsfeld, Personal Influence, Glencoe; Free Press, 1955; Herbert Menzel and Elihu Katz, "Social Relations and Innovations in the Medical Profession: The Epidemiology of a New Drug," Public Opinion Quarterly, 19: 337-352, 1955; and Herbert Menzel, Elihu Katz and James Coleman, "The Diffusion of an Innovation Among Physicians," Sociometry, 20: 253-270, 1957.

³⁷Nicosia, Francesco M., "Opinion Leadership and the Flow of Communication: Some Problems and Prospects," in L. George Smith ed., Reflections on Progress in Marketing, Proceedings of the American Marketing Association, Winter Conference, 1954, pp. 340-358.

ion leader in the fashion adoption process.³⁸ Feldman has explored the dynamics of interpersonal communication in the selection of a physician by the patient.³⁹ Arndt and Meyers have investigated the dynamics of interpersonal communication in new product adoption with controlled field experiments.^{40,41} Silk has studied overlap of opinion leadership across a series of topics in dental care.⁴² More recently, King and

³⁸King, Charles W., "Fashion Adoption: A Rebuttal to the 'Trickle Down' Theory." in Stephen A. Greyser ed., Toward Scientific Marketing, Proceedings of the Winter Conference of the American Marketing Association, 1963, pp. 108-125.

³⁹Feldman, Sidney P. and Merlin C. Spencer, "The Effect of Personal Influence in the Selection of Consumer Services," in Peter D. Bennett ed., Marketing and Economic Development, Proceedings of the Fall Conference of the American Marketing Association, 1965, pp. 440-452; and Sidney P. Feldman, "Some Dyadic Relationships Influencing Consumer Choice," in Raymond M. Haas ed., Science, Technology and Marketing, Proceedings of the Fall Conference of the American Marketing Association, 1966, pp. 758-775.

⁴⁰Arndt, Johan, Word of Mouth Advertising: The Role of Product-Related Conversations in the Diffusion of a New Food Product, an unpublished doctoral dissertation, Harvard University, 1966.

⁴¹Myers, John G., "Patterns of Interpersonal Influence in Adoption of New Product," in Raymond M. Haas ed., Science, Technology and Marketing, Proceedings of the Fall Conference of the American Marketing Association, 1966, pp. 751-757.

⁴²Silk, Alvin, "Overlap Among Self-Designated Opinion Leaders: A Study of Selected Dental Products and Services," Journal of Marketing Research, August, 1966, pp. 255-259.

Summers have concluded a study of opinion leadership overlap across six major product categories - packaged food products, women's clothing fashions, household cleansers and detergents, cosmetics and personal grooming aids, large appliances and small appliances.⁴³

Interpersonal communication has been defined as "the process of information exchange between 2 or more people," and may involve visual, oral or written communication.⁴⁴ A distinction is made between personal influence and interpersonal communication - two terms which are often used interchangeably. Though the concepts are closely related, interpersonal communication refers to an exchange of information via interpersonal channels while personal influence refers to the effect of interpersonal communication on future behavior.

The concept of the opinion leader or influential - individuals who exercise a disproportionate share of influence on the behavior of others - has been a key focus of attention in the study of interpersonal communications. Accurately measuring the effect of interpersonal communications in a particular context, however, may be methodologically difficult or

⁴³ King, Charles W. and John O. Summers, Overlap of Opinion Leadership Across Consumer Product Categories, Purdue University, 1968, 35 p.

⁴⁴ King, Charles W., The New Product Adoption Project, Purdue University, 1967, p. 16.

impossible except under controlled experimental conditions. Because the transmission of information is much easier to measure than influence, King has used the terms transmitter or communicator as being more descriptive of individuals who are sought for information or who volunteer information in interpersonal communication.⁴⁵ King's terminology eliminates the implication that the person providing information has a direct and potentially measurable independent effect on the attitudes or behavior of the receiver as suggested by the terms, opinion leader and personal influential. Operationally, however, the difference is one of semantics since the measurements used to determine opinion leadership have been measurements of information transmission.

A variety of methods have been used to identify opinion leadership in numerous contexts. The "self-designating" technique developed by Katz and Lazarsfeld and improved upon by Rogers and Cartano relies on the respondent to evaluate his own influence. This measure does not qualify opinion leaders on actual measurable influence levied but relies largely on the individual's self perception of his communication role relative to his friends. More sophisticated sociometric methods use popularity of group members and perceived competence of group members as proxy measures for ac-

⁴⁵Ibid., p. 7.

tual influence levied in specified contexts. Each of these methods has its own particular advantages and disadvantages.

Research interest on interpersonal communication was first given major impetus by the classic 1940 voting study of Lazarsfeld, Berelson and Gaudet (1948) which discovered that friends, co-workers and relatives were the most important sources in affecting voting decisions. From this research emerged the concept of opinion leadership. In the Decatur project, Katz and Lazarsfeld (1955) found interpersonal communication to be involved more frequently and to have greater impact than any of the mass media in the switching of brands in small food products, soaps, cleansers and household goods. Since these two classic studies, marketers have developed an increasing interest in interpersonal communications.

In his study of the ownership of air-conditioners in Philadelphia row houses, Whyte (1954) observed that although white collar neighborhoods were very homogeneous in terms of age and socio-economic status, ownership of air conditioners was clustered within neighborhoods rather than distributed throughout the blocks. These clusters of ownership were interpreted by Whyte as evidence of a "powerful communication network."

King (1963) noted personal influence to be an important variable in fashion adoption. Based on a survey of adoption in women's millinery, the empirical data indicated that reliance on personal interactions in information receiving and

transmitting was high, particularly in the general fashion context. The early buyer, high income respondents were not more influential than their late buyer, high income counterparts. The data indicated that the percentage of respondents qualifying as influentials (opinion leaders) within the early buyer and late buyer groups was essentially identical. In contradiction to the traditional 'trickle down' theory of fashion adoption, the early buyers were no more likely to be influentials than late buyers. When the early and late buyer groups were weighted according to their relative importance in the buying market, the early buyers were not the dominant personal influentials in the adoption process. In contrast, the fashion influentials were concentrated in the later buyer groups.⁴⁶ Analysis of the data also revealed that the vast majority of receiving and influencing interactions by both early and late buyer were between individuals of the same social status.

The findings in King's study led to the rejection of the traditional 'trickle down' theory and the development of a counter theory - a "mass market" or "trickle across" scheme of fashion adoption in which the transmission of information

⁴⁶King, Charles W., "Fashion Adoption: A Rebuttal to the 'Trickle Down' Theory," in Stephen A. Greyser ed., Toward Scientific Marketing, Proceedings of the Winter Conference of the American Marketing Association, 1963, p. 121.

and personal influence "trickle across" or flows primarily horizontally within social strata rather than vertically across strata. In this scheme of modern adoption behavior, the major consumer change agents - the innovators and the influentials - play key roles in directing fashion adoption and represent discrete market segments within social strata. The innovator is the earliest visual communicator of the season's styles for the mass of fashion consumers, while the influential appears to define and endorse appropriate standards. When new fashions are introduced across social strata, adoption processes are operative simultaneously within different strata. The "trickle across" scheme of fashion adoption suggests that the fashion manufacturer and merchandiser should segment the market on a "functional" basis by cultivating the innovators and influentials - the key links to the volume fashion market - and utilize them in expediting the fashion flow.

Interaction Patterns in Interpersonal Communication

King and Summers have also analyzed interaction patterns in interpersonal communication from data gathered in the fashion adoption survey of women's apparel in Boston.⁴⁷ Two areas investigated in the Boston study were measures of absolute

⁴⁷For a summary of this research, see King, Charles W. and John O. Summers, Interaction Patterns in Interpersonal Communication, Purdue University, 1967, pp. 1-50.

involvement in interpersonal communications and message content.

The study of absolute involvement resulted in two important findings: (1) two-thirds of the respondents were involved in interpersonal communication either as transmitters or receivers and (2) approximately 40 percent of those involved participated both as transmitters and receivers. These findings suggest that a major sector of the population is involved in visual or oral communication about fashion. The data also indicate a multi-step flow of communication in which transmitters do not merely monitor mass media and interpret that information to their receivers by interpersonal exchange. Rather, transmitters were also found to be receivers gathering information from still other transmitters.

In addition to documenting the importance and volume of interpersonal communication in fashion adoption, King and Summers examined the dynamics of the process involving questions such as, who transmits information to whom and what types of fashion information are most likely to be communicated? Analysis of the topics discussed in interpersonal communication showed the emphasis placed on personalized fashion information (i.e., What would look good on the respondent, what friends are wearing, style coordination, and styles for a particular occasion. Personalized fashion information re-

presented 45 percent of the topics discussed. However, information on general fashion trends (i.e., Popular styles, colors and materials for the season), which typically originates with the mass media, was also an important topic of discussion. General fashion trends received 32 percent of the total mention which suggests that information originating from the mass media gets a considerable amount of attention in interpersonal communications. From these results it was concluded that interpersonal communications performs two roles: (1) relaying, reinforcing and interpreting information from the mass media and (2) supplementing this information from the mass media with personalized fashion information originating in the social network.

Different communication media provide different types of information to service the consumer's varied fashion information needs. The mass media accelerate the spread of fashion awareness and information ... Interpersonal communication, both oral and visual, complement mass media and retail store fashion information transmission. Through oral communication, the consumer can verify and expand her inventory of general fashion information. Through visual monitoring of fashion apparel worn by other women in various social settings, the consumer can follow changing fashion trends. Particularly, important, oral and visual communication provide the consumer detailed information on her social group norms regarding fashion behavior appropriate for various types of social activity ... Although the mass media may be efficient in disseminating information about general fashion trends, it may be much less effective in providing the consumer with personalized

fashion information, much of which may originate in her social network.⁴⁸

The analysis of family versus non-family interactions, and age and social status as factors in the flow of fashion information indicated the following: (1) Comparing the fashion information flow within the family with that from informal personal sources outside the family, 50 percent of the interpersonal dyads involved relatives. There was little difference between topics discussed in family and non-family interactions. The data measured the frequency of topics mentioned which does not reflect the depth of the personalized exchange or the actual impact of family versus non-family discussion on fashion behavior; (2) A tendency to discuss fashion with family members of approximately the same age was indicated as 44 percent of identified family interactions were between family members who were one category or less apart (a maximum of 8 years difference) and among those who went outside this age range, there was no significant tendency to look either up or down the age scale for fashion information; and (3) 80 percent of the interpersonal interactions identified were between participants within one status category indicating that people tend to obtain fashion information from others of similar status.

⁴⁸Ibid., p. 22.

Generalized Opinion Leadership

In more recent empirical research on opinion leadership, King and Summers have explored the concept of generalized opinion leadership.⁴⁹ Generalized opinion leadership refers to the degree to which opinion leaders exert their influence in more than one narrowly defined area or, stated another way, the amount of overlap among opinion leaders in different topic areas.

Researchers have disagreed about whether opinion leadership is generalized and relevant empirical research is scarce. Katz and Lazarsfeld's Decatur study concluded that the fact that a woman is a leader in one area has no bearing on the likelihood that she will be a leader in another. Marcus and Bauer reanalyzed the Decatur data and found opinion leadership overlaps which were significant for fashion and public affairs, fashion and marketing or shopping, and marketing and public affairs. Prior to the work of King and Summers, the only recent research directly exploring opinion leadership overlap in the marketing context was Silk's study of opinion leadership for five specific dental products and services - dentist, electric toothbrush, mouthwash, toothpaste, and regular toothbrush.⁵⁰ Silk was unable to obtain

⁴⁹ King, Charles W. and John O. Summers, Overlap of Opinion Leadership Across Consumer Product Categories, Purdue University, 1968, 35 p.

⁵⁰ Silk, Alvin J., "Overlap Among Self-Designated Opinion Leaders: A study of Selected Dental Products, "Journal of Marketing Research, Vol. 2 (August, 1966), pp. 255-250.

any statistically significant overlap but the trend of the data did suggest some generalized opinion leadership across topic areas. Silk's analysis, however, was inconclusive because of the small sample size and measurement procedure.

The data analyzed in the King and Summers' study of opinion leadership were collected in the Survey of New Product Adoption Behavior as part of the New Product Adoption and Research Project at Purdue University. Opinion leadership was measured using the self-designating method for six broad product categories and the overlap of opinion leadership studied. The product categories covered a significant range of the consumer's shopping experience and represented a heterogeneous set in terms of risk, frequency of purchase, financial investment, visibility and social impact. The six product categories included: (1) packaged food products, (2) women's clothing fashions, (3) household cleansers and detergents, (4) cosmetics and personal grooming aids, (5) large appliances and (6) small appliances.

The analysis of overlap of opinion leadership across the six consumer product categories resulted in several significant findings.⁵¹ Involvement in interpersonal communication and opinion leadership was found to be widespread as evidenced by the fact that only 31 percent of the 976 respondents did

⁵¹King, op. cit., p. 30.

not qualify as opinion leaders in any of the six product categories. Opinion leadership overlap across the product categories was high; 46 percent of the sample qualified as opinion leaders in 2 or more product categories, 28 percent qualified in three or more categories, and 13 percent qualified in 4 or more product categories. Opinion leadership overlap was found to be highest between product categories which involved similar groups of interests. In the 2-way overlap analysis, the categories of large appliances and small appliances recorded the highest overlap reflecting an appliance interest syndrome. The overlap of women's clothing fashions and cosmetics and personal grooming aids reflected the fashion orientation of the individuals. The third major overlap category, packaged food products and household cleansers and detergents, reflected the homemaker interest of the influentials. The lowest degree of overlap was between household cleansers and detergents and cosmetics and personal grooming aids.

The clear documentation of substantial overlap of opinion leadership in the King and Summers study represents the first comprehensive research on opinion leadership overlap across consumer products.

Some Further Empirical Research Findings

Research has explored the importance of interpersonal communication over a wide range of contexts. Studies of the adoption of new farm practices have generally reflected the important role of personal communication in the adoption decision. Personal communication has found to be (1) more important than other information sources in the evaluation stage of the decision process; (2) more important for later adopters than for early adopters; and (3) more important as the uncertainty and perceived risk of the adoption context increase.

Studies in medical sociology by Menzel and Katz (1955) and Menzel, Katz and Coleman (1957) found interpersonal channels to be important sources of information for physicians adopting new drugs, particularly in situations of uncertainty. Additional research has focused on the detail man as a professional interpersonal communicator to the medical profession. Bauer and Wortzel (1966) have summarized the research findings on the role of the detail man in drug marketing.⁵² Their review of the full range of studies available led to the conclusion that doctors more or less uniformly, but with variations, report that both their first source of information about a drug and the source that convinces them to prescribe

⁵²Bauer, Raymond A., and Lawrence H. Wortzel, "Doctor's Choice: The Physician and His Sources of Information About Drugs," Journal of Marketing Research, Vol. 3. (February, 1966), pp. 40-47.

it is more likely to be a commercial than a noncommercial one. Detailing activities by pharmaceutical companies are the predominant source of commercial information used by the physician.

Feldman (1965) studied the role of interpersonal communication in the selection of a family physician.⁵³ Feldman found that new residents to a community used informal personal sources such as friends, neighbors and co-workers in over 62 percent of the physician-selection situations. Within the sub sample of newcomers who relied on interpersonal sources in physician selection, 41 percent had requested additional advice from the referents on other product and service selections.

Nicosia (1964) has investigated the buying of auto insurance and personal communication.⁵⁴ He reported that approximately 20 percent of the sample had influenced two or more friends, relatives, and neighbors about their buying of auto insurance.

Cunningham (1967) explored the effects of perceived risk in interpersonal communication concerning consumer products.⁵⁵

⁵³Feldman, loc. cit.

⁵⁴Nicosia, loc. cit.

⁵⁵Cunningham, Scott M., "Perceived Risk as a Factor in Informal Consumer Communications," in D.F. Cox, ed., Risk Taking and Information Handling in Consumer Behavior (Boston: Harvard University, 1967, pp. 265-288.

Based on a study of 1,200 housewives, he examined the relationships between perceived risk and the existence, amount, content, and nature of word of mouth activity. Cunningham also studied relationships between perceived risk and opinion leadership, and between word of mouth activity and generalized self-confidence. One of his major conclusions is that product related discussion is used as a method of risk reduction, with the high risk perceivers involved in selective information seeking.

Myers (1966)⁵⁶ and Arndt (1966)⁵⁷ have also found interpersonal communications to be of significance in disseminating information about new products. Arndt investigated the effects of product-related conversations on the short term purchasing behavior of consumers. The evidence suggests that consumer action may be influenced significantly by word of mouth as the receivers of favorable word of mouth were three times as likely as the receivers of unfavorable word of mouth to purchase the new product. The results also indicated that unfavorable comments had more impact on the buying decision than favorable comments. The impact of unfavorable word of mouth was particularly pronounced when perceived risk was high.

⁵⁶Myers, loc. cit.

⁵⁷Arndt, loc. cit.

Kelly (1967) has conducted exploratory research concerning the role of both formal and informal information sources on the patronage decision process associated with a new retail outlet.⁵⁸ Viewing the patronage decision process from a diffusion perspective, Kelly considers shoppers as moving through five stages (awareness, interest, trial decision, evaluation and patronage) to a patronage decision. This patronage decision process is an information processing activity. Data gathered from a study of the role of information in the patronage decision process at a new dairy products store indicates that personal influence is second only to personal, in-store experience in the determination of patronage decision outcomes. Newspaper advertising was found to be less important in establishing patronage patterns. Of the three sources producing initial awareness, visual notice was the single most important source of initial awareness of the new retail outlet. One half of the respondents first learned of the existence of the test store by actually seeing it. Nearly a third of the respondents first learned of the store from a friend, neighbor or relative through word-of-mouth communication. Advertising was the least important

⁵⁸ Kelly, Robert F., "The Role of Information in the Patronage Decision: A Diffusion Phenomenon," in M.S. Moyer ed., Marketing for Tomorrow Today, American Marketing Association, 1968, pp. 119-127.

source of initial awareness. When asked what sources of information was the most influential in their decision to try the new store, respondents indicated word-of-mouth twice as often as advertising and over three times more often than visual notice. Visual notice became relatively less important once awareness was achieved. Word-of-mouth played an important part in stimulating consumer interest and encouraging store trials.

In summary, it is evident that interpersonal communication is a powerful vehicle for disseminating information and for influencing the adoption decision. Research in interpersonal communication has extended to the measurement of personal influence in voting patterns, the diffusion of farm practices, the acceptance of medical innovation, as well as the analysis of consumer-oriented areas such as fashion leadership and marketing leadership. Research in measuring personal influence has been concerned largely with identifying and classifying the opinion leader and the opinion seeker. Less effort has been devoted to exploring relationships within individual seeker-leader dyads or interactions. Comparability of interpersonal communication research is often difficult because most researchers have defined and measured phenomena to fit the context and requirements of their immediate goals. Future research in interpersonal communication

might explore the dynamics of opinion leadership in interpersonal interactions, i.e. What topic contents are more suitable for interpersonal communication? What are the dynamics of transmission, e.g. telephone versus face-to-face conversations? What types of information content are more frequently transmitted? Additional research could involve identification of opinion leaders for specific product categories in terms of profile analysis along demographic, psychological, sociological, media exposure, product interest and attitude dimensions.

Quantitative Models of New Product Adoption Behavior

Several researchers have developed quantitative models of new product adoption behavior which integrate diffusion theory into the conceptual framework. For example, Bass has developed a new product growth model for consumer durables and Bass and King have applied the Bass model to a series of new product purchase data.⁵⁹ Fourn and Woodlock and, more recently, Massy have also attempted to develop models of the adoption process for new products.⁶⁰ Kelly has applied diffusion theory in predicting patronage levels over time for

⁵⁹See Frank M. Bass, A New Product Growth Model for Consumer Durables, Purdue University, 1967, 33 p., and Frank M. Bass and Charles W. King, The Theory of First Purchase of New Products, Purdue University, 1968, 17 p.

⁶⁰Fourn, Louis A. and J.W. Woodlock, "Early Prediction of Market Success for New Grocery Products," Journal of Marketing Vol. 25:2 (October, 1960), pp. 31-38; and William F. Massy, Forecasting the Demand for New Convenience Products, Stanford University, 1968, 21 p.

new retail outlets.⁶¹ Carman has attempted to develop a model for predicting fashion cycles.⁶²

One of the advantages of a model is that it permits the researcher to focus upon those aspects of the behavior under study which appear to be particularly sensitive or important. The model is an abstraction of the real behavior which can hopefully lay here the interactions among factors governing the process under study. By doing this, the model can suggest what kind of information should be collected in order to monitor the behavior process and indicate how the information should be processed, presented and interpreted.

Models of Consumer Purchasing Behavior

The construction of stochastic models for describing and forecasting purchasing behavior for frequently purchased products has been under way some ten years now, and interesting

⁶¹Kelly, Robert F., "The Diffusion Model as a Predictor of Ultimate Patronage Levels in New Retail Outlets," in Raymond M. Haas ed., Science, Technology and Marketing, Proceedings of the Fall Conference of the American Marketing Association, 1966, pp. 738-749; and Robert F. Kelly, "Estimating Ultimate Performance Levels of New Retail Outlets," Journal of Marketing Research, Vol. 4 (February, 1967), pp. 13-19.

⁶²Carman, James M., "The Fate of Fashion Cycles in Our Modern Society," in Raymond M. Haas ed., Science, Technology and Marketing, Proceedings of the Fall Conference of the American Marketing Association, 1966, pp. 722-737.

results have been attained. Unfortunately, few of these models seem to meet the information needs of managers of new product marketing efforts.

Major developments in the field of stochastic representations of purchasing behavior have involved models for choice of brand within a particular product class. These models concentrate on the problem of brand choice, given that a purchase does occur. They attempt to specify the probability law for selection of one brand or another, assuming that a purchase of the product class does in fact occur.

The simplest model for brand choice is the stationary, homogeneous multinomial law. Consumers are assumed to make selections according to fixed probabilities, which are the same for all families and do not change over time. Then the share of each brand in the market can be described in terms of a multinomial distribution.

Subsequent work has modified the stationarity assumption of purchasing behavior models as different families are known to have different brand-choice probabilities and the probabilities are known to change in response to market forces and continuing experience with the product. The first attempts to attack the stationarity assumption were made by users of the homogeneous first-order Markov Process. Brand choice proba-

bilities are assumed to depend on the brand last purchased so the stationarity assumption is shifted from the brand-choice vector to the matrix of transition probabilities. Several types of nonstationary models have been developed since that can be applied to the problem of brand choice. The problem of predicting when a purchase will occur is not considered as part of these models.

Work on models for describing the incidence of purchases of a certain product is much less extensive than that dealing with the problem of brand choice. Three types of models have been used to date: one type deals with the distribution of total quantity of product purchased by consumers; the second type of model focuses on the question of purchase timing; and the third type concentrates upon the speed of penetration of newly introduced products.

Models of the incidence of purchases are illustrated by the work of Fournier and Woodlock (1960) and (1963).⁶³ They use penetration models in which the percentage of families in the population who have tried the product once, twice, three times, and so on, are used as dependent variables. The model specifies the form of the growth for these percentages and the model's parameters are estimated from panel data. The levels of penetration in future periods can be obtained by extrapolating the growth curves.

⁶³Fournier, loc. cit.

Practitioners in the field have acquired considerable experience with the use of penetration models for handling the practical problems of monitoring new product introductions. By comparing the product's pattern of penetration in successive depth of repeat classes with norms previously established through experience with similar products, it is often possible to identify marketing problems before they become serious and to make rough forecasts even where the growth curve itself cannot be extrapolated accurately beyond the range of the available data.

Recent Models of the New Product Adoption Process

Bass has developed a growth model for the timing of initial purchase of new products which he tested empirically against data for eleven consumer durables.⁶⁴ The model applies to the growth of initial purchases of new classes of products rather than new brands or new models of older products. The basic assumption of the model is that the timing of a consumer's initial purchase is related to the number of previous buyers. The probability of first purchase at any time is a linear function of the number of previous buyers. The behavior rationale for this assumption stems from concepts in the literature on new product adoption and diffusion,

⁶⁴Bass, loc. cit.

particularly as they apply to the timing of adoption. The model implies exponential growth of initial purchases to a peak and then exponential decay and, in this respect, it differs from other new product growth models.

To test the model, regression estimates of the parameters were developed using time series data for eleven different consumer appliances. The data appeared to be in good agreement with the model. For every product studied the regression equation described the general trend of the time path of growth very well and, in addition, provided a very good fit with respect to both the magnitude and the timing of the peaks for all of the products.

Bass and King have applied the Bass model to a series of new product purchase data gathered from the New Product Research Project at Purdue University.⁶⁵ The model described the adoption rates and the timing and magnitude of the peak of first purchase rather well in each case.

Massy has developed a Stochastic Evolutionary Adoption Model (STEAM).⁶⁶ The model utilizes consumer panel data obtained during test markets or introductory periods to predict the post-introduction short-run equilibrium volume for the new product or brand (i.e., the sales volume after the introductory period of steeply rising sales rates).

⁶⁵Bass and King, loc. cit.

⁶⁶Massy, loc. cit.

The model incorporates methods for estimating its parameters from panel data covering the first part of the introductory period and a method by which the future purchase history of each panel household can be simulated and the results projected into a total market forecast. The simulation is of the discrete, microanalytic, Monte Carlo type. Its operating characteristics (probability distributions) are obtained by fitting STEAM equations to empirical data.

STEAM has been successfully applied to data on the introduction of several frequently purchased products producing a reasonably close prediction of sales rate up to three years after product introduction on the basis of six months of consumer panel data. Additional research will be needed before it can be said with confidence that linking a stochastic model of the STEAM type and a microanalytic Monte Carlo simulation can produce good forecasts for new frequently purchased consumer products.

Kelly has delineated a model for predicting eventual levels of penetration and patronage for a new retail outlet.⁶⁷ On the basis of empirical data which indicated patterns for initial trial and repeated patronage for a new retail outlet to be much like those associated with new product adoption, eventual levels of penetration and patronage for a test store were estimated using measurements of actual penetration and

⁶⁷Kelly, loc. cit.

patronage levels for the first few periods of the store's operation.

The estimates of patronage levels assume no significant changes in a store's offerings or promotion. If changes in marketing practices are introduced in a store, the same projection techniques can be applied to the first purchase data available after the changes to determine whether store performance has improved.

A comparison of estimates with store performance suggests that the penetration-patronage model derived from diffusion literature may have operational value as a predictor of ultimate performance levels for new retail outlets.

Industrial Marketing and Diffusion Theory

The industrial product diffusion context is a potentially fruitful area for the application of diffusion theory. Two projects illustrate the increasing attention that is being given to the application of diffusion theory in the industrial marketing field.

At the present time, King and Ness have an extensive project underway to study the dynamics of adoption and diffusion of new architectural concepts among professional architects.⁶⁸

⁶⁸For an outline of the project, see Charles W. King and Thomas E. Ness, The Adoption and Diffusion of New Architectural Concepts Among Professional Architects: A Project Outline. Purdue University, 1968.

The research is focusing on the process of initial adoption of new building concepts by professional architects, and the spread or diffusion of new concepts through the architectural community with the architect as a critical change agent interacting with other elements of the building industry. A pilot study involving 2 hour interviews with 120 professional architects in Chicago has indicated that diffusion theory is applicable to this adoption context. The identity and roles of the architectural innovators and influentials have been mapped. The study is now being expanded to five other design centers, Washington D.C., Boston, New York, San Francisco and Los Angeles. Issues to be explored include the role that characteristics of the innovation play in its acceptance or rejection, the roles and relative importance of intervening change agents (i.e. clients, contractors, and building material suppliers) in promoting or retarding innovation, the processes by which new concepts are communicated throughout the architectural community, and the role of the architectural firm in promoting innovation and the acceptance of new concepts.

A second study currently underway at Purdue University is directed at the adoption and diffusion of computer systems in higher education.⁶⁹ The broad objective of the research pro-

⁶⁹King, Charles W., A.V. Bruno and D.I. Fuente, Diffusion of Computer Systems in Higher Education, Purdue University, 1968, 65 p.

gram is to provide a research foundation to guide more efficient introduction and utilization of computer technology by colleges and universities. Toward this end, the project will attempt to apply the conceptual framework of diffusion theory in exploring the process by which colleges and universities initially adopt a computer system and the process by which computer usage spreads within the institution after computer facilities are available.

The marketing literature has few references to studies of the diffusion process in industrial markets. Economists, however, have been concerned with the decision by which industrial firms adopt a new product or process and with its diffusion through an industry. Mansfield and others have studied characteristics of firms - such as size, liquidity, and growth rate- and of innovations - such as amount of investment required and divisibility - that influence rates of intrafirm adoption and interfirm diffusion. These studies have yielded interesting but sometimes conflicting evidence about the influence of such variables as size of firm and liquidity. For example, it appears that larger firms are more likely to be among the first to adopt a new product or process if the innovation requires substantial investment. On the other hand, small firms are more likely to adopt a new product or process when the innovation makes existing plant or technology obsolete. In addition, smaller firms

move through the adoption process more quickly once initial positive interest has been stimulated.

The economist's contributions to our understanding of industrial buying behavior has the limitation of overlooking the influence process by which firms become aware of and evaluate new products. A fuller understanding of industrial markets will require a careful look at both influence processes and economic problem-solving behavior.

The two research projects underway at Purdue University represent one of the first major applications of diffusion theory in the industrial product field. Earlier work by Levitt showed that communication theory has some applicability to industrial markets.⁷⁰ But more research aimed at testing particular concepts for their validity in the industrial market is needed. Specific issues need to be explored including the role characteristics of the innovation play in its acceptance or rejection, the role and relative importance of intervening change agents, and the processes by which new concepts are communicated to firms within an industry.

⁷⁰Levitt, Theodore, Industrial Purchasing Behavior: A Study of Communications Effects (Boston: Harvard University, 1965).

CHAPTER V

EVALUATION OF THE PROGRESS OF DIFFUSION
RESEARCH IN MARKETING

An evaluation of the progress of diffusion research in marketing should include consideration of the conceptual content and research methodology, as well as the value of the research findings in terms of "real world" marketing decision making.

Conceptual Content and Research Methodology

The conceptual framework employed by most diffusion researchers in marketing has been based upon the significant body of research on the diffusion process which has developed from several disciplines in the social sciences, and particularly the contributions from rural sociology as synthesized by Everett M. Rogers. Academics and researchers in marketing are adding to the framework and the supporting research methodology.

Up to this point, however, the concepts and methodologies employed in researching diffusion problems in marketing have, to a large extent, been direct transfers from other disciplines. For example, survey research and profile analysis of innovators versus non-innovators dominates the diffusion

literature in rural sociology and the diffusion literature in marketing. Similarly, many of the same types of selected variables are explored. The transfer of concepts has not always been accompanied by critical appraisal of the applicability of those concepts to the new research context.

The application of basic concepts using similar methodologies does have the advantage of providing comparability of findings across research contexts. However, the environment of the mass consumer or the industrial firm is sufficiently different from that of the farmer to suggest that additional concepts and variables may be needed to thoroughly explore the diffusion process in the mass market.

In several adoption and diffusion studies by diffusion researchers in marketing, sample sizes have been small and, perhaps too frequently, based on college students or college community members. Field research procedures have loosely controlled or undefined in many projects. Socio-economic measures of respondents, operational definitions of innovators and other adopter categories, and measurement of information seeking behavior have varied widely across studies making cross comparisons of data difficult. Standardizing research methodology and measuring practices where practical would assist the development of an integrated diffusion research tradition in marketing.

The New Product Adoption and Diffusion Research Program

represents a major departure from the syndrome of small sample, pilot studies which are characteristic of much of the diffusion research in marketing. The research program at Purdue University involves several related projects dealing with adoption and diffusion in consumer and industrial settings. As such, it is the first large scale, field systems diffusion research in marketing which is comprehensive in terms of conceptual framework, variables measured and sample sizes employed. This particular project has received financial support from the Ford Foundation, E.I. DuPont de Nemours, the Purdue Research Foundation and the Herman C. Krannert Graduate School of Industrial Administration, Purdue University. While further large scale, field systems research is needed to explore complex processes in consumer decision making, high development costs, uncertainty of final research findings and other factors will no doubt limit such research to a few commercial or academic environments.

Diffusion Research and Marketing Decision Making

The study of the dynamics of product adoption and diffusion holds promise of important implications for short and long term marketing strategies in several areas. For example, the uniqueness of the innovative behavior situation has implications for the entire new product marketing program. If innovators do, in fact, possess different characteristics

from non-innovators, these differences should be recognized and taken into account in the marketing programs for new products. Implications for advertising and sales strategies are present, as well, perhaps, as for other elements of the marketing mix such as pricing and channel selection. Promotion policies, for example, would take account of innovator traits at introduction and later adopter traits beyond a certain level of market penetration.

At the present time, varying advertising strategies are frequently used depending upon the stage in the product life cycle. The product is first advertised to gain awareness of its existence, identity and benefits. It is then often advertised with heavy emotional appeals to gain market acceptance. As acceptance is gained strategy is altered to build consistency of image, acceptance and repeat purchase. Finally, strategies are employed to counter market decline. All of this takes place without every really considering whether different people with different characteristics are buying the product at each stage of its life cycle. The obvious implication is that depending upon the stage of the product life cycle, different advertising strategies should be utilized to appeal to changing adopter characteristics.

Implications further arise for speeding the innovation diffusion process via media and communications channel selection. It has been found that great reliance is placed upon

personal contact communications and it is assigned a higher level of importance by respondents than normally attributed by marketing management. Marketers should therefore look for the optimum combination of all communications channels. Reliance should not be placed exclusively on mass media and change agent influence. Personal and impersonal contact channels should be utilized to their fullest extent in the diffusion process.

Diffusion research in marketing has introduced new concepts which are potentially applicable to new product strategy. Progress in defining strategies to move products, however, has been limited. There is a continuing need for effective dialogue between research and action to bridge the gap between the findings of diffusion researchers and the needs of marketing decision makers.

Application of Diffusion Research by Marketing Practitioners

The level of application of diffusion theory by practitioners in planning marketing strategy has been investigated as part of a survey of industry expertise in adoption and diffusion theory.¹ Interviews were conducted during 1967-1968

¹The project is part of the New Product Adoption Research Program underway at Purdue University.

with marketing line executives, marketing planners, brand managers, marketing researchers and advertising and agency executives in over 100 major firms. The project has studied procedures used in new product introductions and commercialization, the volume of diffusion research actually performed and the state of knowledge about the adoption and diffusion process for various product categories within marketing organizations.

The evidence to date suggests that knowledge and application of diffusion theory among marketing practitioners is limited to a very small segment of the marketing community. Rarely is there any formal conceptual delineation of the individual decision process by which new products are adopted or rejected and the diffusion process by which information about the new product is communicated. The dynamics of consumer adoption of the product are seldom monitored over time after initial introduction.

Although the application of diffusion theory is not widespread, a few major firms have researched the buying process using concepts from diffusion theory and the findings have been utilized in the marketing of new products. Some specific examples are as follows:

- (1) The General Electric Company has explored the identity and the role of the early adopter of small electric appliances and has developed strategies directed at this segment. In addition, the company has established a continuing consumer panel which makes possible regular monitoring of consumer adoption behavior.

(2) The E.I. DuPont de Nemours Company's corporate advertising research group has applied concepts from diffusion theory in planning strategies for a variety of new industrial products. As an example, Peter D. Day of DuPont has reported on research directed at identifying stages of adoption of new fibers and fabric finishes at each level in the home furnishings and apparel industries. Further, Day has explored the characteristics of innovative firms at various levels in these industries and has identified critical variables used by adopting firms in evaluating new products.

(3) Several major public utility firms have commissioned major research studies focusing diffusion theory on the adoption of new communication devices and new household devices, e.g. gas fired grills and touch-tone telephones.

(4) The major auto manufacturers have frequently profiled early buyers of new models to detect market segments they have penetrated initially and to study their changing consumer profile over the model year.

(5) The major auto manufacturers have also attempted to formally employ interpersonal communication in initial introduction of new models. The Cougar reportedly was actively promoted to barbers early in its introduction to stimulate discussion of the new Cougar by barbers with their customers. At least one manufacturer has attempted to modify the auto operations manual and to provide more high-interest communicable information for the owner to transmit in interpersonal communications.

(6) In the packaged food and household cleanser and detergent fields, several manufacturers have probed the early buyer profiles in exploratory research.

CHAPTER VI

SUMMARY AND FUTURE PERSPECTIVES

The volume of diffusion research in marketing, the diversity of topics researched and the effectiveness of selected studies and applications are impressive, especially in terms of the state of adoption and diffusion research in marketing five years ago. A growing number of researchers in marketing are becoming involved in exploring the adoption and diffusion process for new products, new services and new concepts in the mass market.

Diffusion theory, as it has developed from a variety of disciplines in the behavioral sciences, refers to the conceptual framework developed to explain both the process by which individual adopters or adoption units decide to adopt or reject a new innovation, and the process by which information and acceptance or rejection of an innovation spreads within or across social systems. Diffusion theory provides a useful framework for analyzing new product behavior. Diffusion research in marketing has introduced new concepts which are now being formally employed by a few large firms in the planning and execution of specific new product marketing strategies and tactics.

The foundation for a diffusion research tradition within

marketing is taking shape, but a wide range of research questions need to be explored and interrelated within and across product categories in both consumer and industrial product contexts. Answers are needed to such questions as:¹

- (1) What is the meaning of "newness" as perceived by the buyer of the "new" product? How do these perceived dimensions vary across product categories and across market segments?
- (2) Who are the innovators, the influentials and/or the "non-participants" in the adoption process across product categories? What are their relationships? Are the innovators also influentials?
- (3) What are the dynamics of information seeking and processing across product categories? Though substantial data exist in other traditions, research based on mass market adoption contexts is limited.
- (4) What are the dynamics of interpersonal communications about new products? What type of information is transmitted via the interpersonal network ... under what conditions ... with what types of distortion? While researchers have studied the opinion leader in some depth, the dynamics of the interaction dyad are still little understood.

Further development of diffusion research in marketing could be broadly guided by defining the total research problem and critical sub-topics.

The developing research tradition in marketing needs to systematically explore the dynamics of the diffusion process

¹King, Charles W., "Adoption and Diffusion Research in Marketing: An Overview," in R.M. Haas ed., Science, Technology, and Marketing, Proceedings of the Fall Conference of the American Marketing Association, 1966, pp. 681-682.

and test exploratory findings in large scale, field systems research. A reasonably standardized research methodology is necessary to make possible comparisons of findings across studies, product classes, geographical areas and researchers. A set of common definitions for concepts, dependent and independent variables frequently used in empirical studies would greatly improve cross study comparisons.

The development of an integrated diffusion research community should be based on increased communication with and, potentially, cooperation between diffusion researchers. Improved communication between diffusion researchers could be facilitated by a symposium to review research to date and to outline future directions for diffusion research in marketing. Symposia of a similar nature have been held among diffusion researchers within rural sociology and education sociology, and have had significant impact on the subsequent development of those traditions.

The record of diffusion research in marketing is one of a small but increasing volume of literature and unpublished research. Charles W. King, a leading advocate of diffusion research in marketing, has succinctly described the path that lies ahead.

The challenge facing the diffusion researcher in marketing is to measure the interactions of a complex set of cultural and marketing variables in terms of how they influence adoption and diffusion

behavior ... A diffusion research tradition can make a unique contribution to more efficient new product marketing and to understanding the diffusion process in the mass consumer market context and in the diffusion of innovations among firms in the industrial marketing context.²

²Ibid., pp. 682-684.

BIBLIOGRAPHY

A. BOOKS

- Arndt, Johan. Insights into Consumer Behavior. Boston, Mass.; Allyn and Bacon, 1968.
- _____, Word of Mouth Advertising: A Review of the Literature. New York: Advertising Research Foundation, 1967.
- Barnett, Homer G., Innovation: The Basis of Cultural Change. New York: McGraw-Hill, 1953.
- Bass, Frank M., Charles W. King and Edgar A. Pessemier, Applications of the Sciences in Marketing Management. New York: J. Wiley, 1968.
- Britt, Stewart Henderson, Consumer Behavior and the Behavioral Sciences: Theories and Applications. New York; J. Wiley, 1966.
- Coleman, James S., Elihu Katz and Herbert Menzel. Medical Innovation: A Diffusion Study. New York: Bobbs-Merrill, 1966.
- Cox, Donald F. Risk Taking and Information Handling in Consumer Behavior. Boston: Harvard University, 1967.
- Dexter, Lewis A. and David M. White, ed. People, Society and Mass Communications. Glencoe, Ill.: The Free Press, 1964.
- Kassarjian, Harold H. and Thomas S. Robertson. Perspectives in Consumer Behavior. Glenview, Ill.: Scott, Foresman, 1968.
- Katz, Elihu and Paul F. Lazarsfeld. Personal Influence: The Part Played by People in the Flow of Mass Communications. Glencoe, Ill.: The Free Press, 1955.
- Lazarsfeld, Paul F., Bernard Berelson and Hazel Gaudet. The People's Choice. New York: Columbia University, 1948.
- Levitt, T. Industrial Purchasing Behavior: A Study of Communications Effects. Boston: Harvard University, 1965.
- Lionberger, H.F. Adoption of New Ideas and Practices. Ames: Iowa State University Press, 1960.

- Massy, William F., Ronald E. Frank and Thomas M. Lordahl. Purchasing Behavior and Personal Attributes. Philadelphia: University of Pennsylvania Press, 1968.
- _____, D.B. Montgomery and D.G. Morrison. Stochastic Models of Buying Behavior. Cambridge, Mass.: The M.I.T. Press, to be published in 1969.
- Nicosia, Francesco M. Consumer Decision Processes: Marketing and Advertising Implications. Englewood Cliff, N.J.: Prentice-Hall, 1966.
- Rogers, Everett M. Diffusion of Innovations. New York: Free Press of Glencoe, 1962.
- Zaltman, Gerald. Marketing: Contributions from the Behavioral Sciences. New York: Harcourt, Brace and World, 1965.

B. ARTICLES AND PAPERS

- Arndt, Johan. "Perceived Risk, Sociometric Integration, and Word of Mouth in the Adoption of a New Food Product," in R.M. Haas ed., Science, Technology and Marketing, Proceedings of the Fall Conference of the American Marketing Association, 1966, pp. 738-749.
- _____. "Role of Product Related Conversations in the Diffusion of a New Product," Journal of Marketing Research, Vol. IV (August, 1967), pp. 291-295.
- _____. "Word of Mouth Advertising and Informal Communication," in Donald F. Cox, Risk Taking and Information Handling in Consumer Behavior, Boston, Harvard University, 1967.
- _____. New Product Diffusion: The Interplay of Innovativeness, Opinion Leadership, Learning, Perceived Risk and Product Characteristics. Graduate School of Business, Columbia University, Unpublished Paper, 1968.
- _____. Profiling Consumer Innovators. Graduate School of Business, Columbia University, Unpublished Paper, 1968.
- _____. "A Test of the 'Two-Step Flow of Communication' Hypothesis in a New Product Diffusion Context". Journalism Quarterly, Vol. 45, 1968, pp.

- Bass, Frank M. "A Dynamic Model of Market Share and Sales Behavior," in Stephen A. Greyser ed., Toward Scientific Marketing, Proceedings of the Winter Conference of the American Marketing Association, 1963, pp. 263-276.
- _____. A New Product Growth Model for Consumer Durables, Herman C. Krannert Graduate School of Industrial Administration, Purdue University, Paper No. 175, 1967.
- _____. and Charles W. King. The Theory of First Purchase of New Products, Herman C. Krannert Graduate School of Industrial Administration, Purdue University, Paper No. 213, July, 1968.
- Bauer, Raymond A. "Consumer Behavior as Risk Taking," in R.A. Hancock ed., Dynamic Marketing for a Changing World. Proceedings of the 43rd National Conference of the American Marketing Association, 1960, pp. 389-398.
- _____. "Risk Handling in Drug Adoption," Public Opinion Quarterly, Vol. 25, 1961. pp. 546-559.
- _____. and Lawrence H. Wortzel. "Doctor's Choice: The Physician and His Sources of Information About Drugs," Journal of Marketing Research, Vol. III (February, 1966), pp. 40-47.
- Bell, William E. "Consumer Innovators: A Unique Market for Newness," in Stephen A. Greyser ed., Toward Scientific Marketing, Proceedings of the Winter Conference of the American Marketing Association, 1963, pp. 85-95.
- Brooks, Robert C. Jr. "Word-of-Mouth Advertising in Selling New Products," Journal of Marketing, Vol. 22 (October, 1957), pp. 154-161.
- _____. "Relating the Selling Effort to Patterns of Purchase Behavior," Business Topics, Vol. II (Winter, 1963). pp. 73-79.
- Carman, James M. "The Fate of Fashion Cycles in Our Modern Society," in Haas, R.M. ed., Science, Technology and Marketing. Proceedings of the Fall Conference of the American Marketing Association, 1966, pp. 722-737.

- Cohen, Reuben. "A Theoretical Model for Consumer Market Prediction," Sociological Inquiry, Vol. 32, 1962, pp. 43-50.
- Cox, Donald F. "The Audience as Communicators," in S.A. Greyser ed., Toward Scientific Marketing, Proceedings of the Winter Conference of the American Marketing Association, 1963, pp. 58-72.
- Cunningham, Scott M. "Perceived Risk as a Factor in Product-Oriented Word-of-Mouth Behavior: A First Step," in L.G. Smith, ed., Reflections on Progress in Marketing, American Marketing Association, 1964, pp. 229-238.
- _____. "Perceived Risk as a Factor in the Diffusion of New Product Information," in R.M. Haas ed., Science, Technology and Marketing, Proceedings of the Fall Conference of the American Marketing Association, 1966, pp. 698-721.
- _____. "The Major Dimensions of Perceived Risk," in Donald F. Cox, Risk Taking and Information Handling in Consumer Behavior. Boston, Harvard University, 1967, pp. 83-87.
- _____. "Perceived Risk as a Factor in Informal Communications," in Donald F. Cox, Risk Taking and Information Handling in Consumer Behavior, Boston, Harvard University, 1967, pp. 265-269.
- Engel, James F., David A. Knapp and Deanne E. Knapp. "Sources of Influence in the Acceptance of New Products for Self-Medication: Preliminary Findings," in R.M. Haas ed., Science, Technology and Marketing, Proceedings of the Fall Conference of the American Marketing Association, 1966, pp. 776-782.
- Evans, Franklin B. "A Sociological Analysis of the Selling Situation: Some Preliminary Findings," in W.S. Decker ed., Emerging Concepts in Marketing. American Marketing Association, 1963, pp. 476-482.
- Feldman, Sidney P. "Some Dyadic Relationships Associated with Consumer Choice," in R.M. Haas ed., Science, Technology and Marketing, Proceedings of the Fall Conference of the American Marketing Association, 1966 pp. 758-775.

- Feldman, Sidney P. and Merlin O. Spencer. "The Effect of Personal Influence in the Selection of Consumer Services," in P.D. Bennett ed., Marketing and Economic Development, Proceedings of the Fall Conference of the American Marketing Association, 1965, pp. 440-452.
- Fourt, Louis A. and J.W. Woodlock. "Early Prediction of Market Success for New Grocery Products," Journal of Marketing, Vol. 25: 2 (October, 1960), pp. 31-38.
- Frank, Ronald E. and William F. Massy, "Innovation and Brand Choice: The Folger's Invasion," in Stephen A. Greyser ed., Toward Scientific Marketing, Proceedings of the Winter Conference of the American Marketing Association, 1963, pp. 96-107.
- _____, William F. Massy and Donald G. Morrison. "The Determinants of Innovative Behavior with Respect to a Branded, Frequently Purchased Food Product," in L. George Smith, ed., Reflections on Progress in Marketing, Proceedings of the Winter Conference of the American Marketing Association, 1964, pp. 312-323.
- Gorman, Walter P. The Diffusion of Color Television Sets into a Metropolitan Fringe Area Market. Paper presented at the Southern Marketing Association, New Orleans, 1967.
- Haines, George H. "A Study of Why People Purchase New Products," in R.M. Haas ed., Science, Technology and Marketing. Proceedings of the Fall Conference of the American Marketing Association, 1966, pp. 685-597.
- _____. "A Theory of Market Behavior After Innovation," Management Science, Vol. 10 (July, 1964), pp. 634-657.
- Katz, Elihu. "The Two-Step Flow of Communication: An Up-to-date Report on an Hypothesis," Public Opinion Quarterly, Vol. 21 (Spring, 1957), pp. 61-78.
- _____. "The Social Itinerary of Technical Change: Two Studies on the Diffusion of Innovation," Human Organization, Vol. 20 (Summer, 1961), pp. 70-82.

- Kelly, Robert F. "The Diffusion Model as a Predictor of Ultimate Patronage Levels in New Retail Outlets," in R.M. Haas ed., Science, Technology and Marketing, Proceedings of the Fall Conference of the American Marketing Association, 1966, pp. 738-749.
- _____. "Estimating Ultimate Performance Levels of New Retail Outlets," Journal of Marketing Research, Vol. IV (February, 1967), pp. 13-19.
- _____. "The Role of Information in the Patronage Decision Process - A Diffusion Phenomenon," in Marketing for Tomorrow Today, American Marketing Association, 1968, pp. 119-129.
- King, Charles W. "Fashion Adoption: A Rebuttal to the 'Trickle Down' Theory." in Stephen A. Greyser ed., Toward Scientific Marketing, Proceedings of the Winter Conference of the American Marketing Association, 1963, pp. 108-125.
- _____. "The Innovator in the Fashion Adoption Process." In L. George Smith ed., Reflections on Progress in Marketing, Proceedings of the Winter Conference of the American Marketing Association, 1964. pp. 324-339.
- _____. Communicating with the Innovator in the Fashion Adoption Process. Herman C. Krannert Graduate School of Industrial Administration, Purdue University, Institute Paper No. 121, 1965.
- _____. "Adoption and Diffusion Research in Marketing: An Overview," in R.M. Haas ed., Science, Technology and Marketing, Proceedings of the Fall Conference of the American Marketing Association, 1966, pp. 665-684.
- _____. Adoption and Diffusion Research in Marketing: Recent Approaches and Future Perspectives. A paper presented at the American Marketing Association Fall Conference, 1968.
- _____. , Albert V. Bruno and David I. Fuente. Diffusion of Computer Systems in Higher Education, Herman C. Krannert Graduate School of Industrial Administration, Purdue University, 1968.

King, Charles W., and Thomas E. Ness. The Adoption and Diffusion of New Architectural Concepts Among Professional Architects: A Project Outline, Herman C. Krannert Graduate School of Industrial Administration, Purdue University, 1968.

_____. and John O. Summers, "Dynamics of Interpersonal Communications: The Interaction Dyad," in Donald F. Cox ed., Risk Taking and Information Handling in Consumer Behavior, Harvard University Press, 1967, pp. 240-264.

_____. Interaction Patterns in Interpersonal Communication, Herman C. Krannert Graduate School of Industrial Administration, Purdue University, Institute Paper No. 168, 1967.

_____. The New Product Adoption Research Project: A Survey of New Product Adoption Behavior Across a Wide Range of New Consumer Products Among Marion County, Indiana Homemakers - A Project Description. Herman C. Krannert Graduate School of Industrial Administration, Purdue University, Institute Paper No. 196, 1967.

_____. Overlap of Opinion Leadership Across Consumer Product Categories, Herman C. Krannert Graduate School of Industrial Administration, Purdue University, 1968.

_____. Technology, Innovation and Consumer Decision Making, Herman C. Krannert Graduate School of Industrial Administration, Purdue University, 1968.

Lazer, William and William E. Bell. "The Communications Process and Innovation," Journal of Advertising Research, Vol. 6: 3 (September, 1966), pp. 2-7.

Mansfield, Edwin. "Intrafirm Rates of Diffusion of an Innovation," Review of Economics and Statistics, Vol. 45 (November, 1963), pp. 348-359.

_____. "Technical Change and the Rate of Imitation," Econometrica. Vol. 29 (October, 1961), pp. 741-766.

Marcus, Alan S. and Raymond A. Bauer. "Yes, There are Generalized Opinion Leaders," Public Opinion Quarterly, Vol. 28 (Winter, 1964), pp. 628-632.

- Mason, Robert. "Information Sources by Influentials in the Adoption Process," Public Opinion Quarterly, Vol. 27 (Fall, 1963), pp. 455-466.
- _____. "The Use of Information Sources in the Process of Adoption." Rural Sociology, Vol. 29 (March, 1964), pp. 40-52.
- Massy, William F. "Stochastic Models for Monitoring New-Product Introductions." in F.M. Bass and others, ed., Applications of the Sciences in Marketing Management. J. Wiley, 1968, pp. 85-111.
- _____. Forecasting the Demand for New Convenience Products, Paper presented to the Educator's Conference of the American Marketing Association, Denver, Colorado, August, 1968.
- Menzel, Herbert and Elihu Katz. "Social Relations and Innovation in the Medical Profession: The Epidemiology of a New Drug." Public Opinion Quarterly, Vol. 19, 1955, pp. 337-352.
- _____, Elihu Katz and James Coleman. "The Diffusion of an Innovation Among Physicians," Sociometry, Vol. 20, 1957, pp. 253-270.
- Montgomery, D.B.A. A Probability Diffusion Model of Dynamic Market Behavior. Sloan School of Management, Massachusetts Institute of Technology, Working Paper No. 205-66 May, 1966.
- Myers, John G. "Patterns of Interpersonal Influence in the Adoption of New Products," in R.M. Haas ed., Science, Technology and Marketing, Proceedings of the Fall Conference of the American Marketing Association, 1966, pp. 750-757.
- Nicosia, Francesco M. "Opinion Leadership and the Flow of Communications," in L. Smith ed., Reflections on Progress in Marketing, Proceedings of the Winter Conference of the American Marketing Association, 1964, pp. 324-358.
- Opinion Research Corporation. American's Tastemakers: A New Strategy for Predicting Changes in Consumer Behavior, Princeton, New Jersey, 1959.

Opinion Research Corporation. Consumer's Values: How They Help Predict Market Change in a Mobile Society, Princeton, New Jersey, 1959.

_____. The Initiators, Princeton, New Jersey, 1960.

Pessemier, Edgar A., Philip C. Burger and Douglas J. Tigert. "Can New Product Buyers be Identified?," Journal of Marketing Research, Vol. IV (November, 1967), pp. 349-354.

Popielarz, Donald T. "An Exploration of Perceived Risk and Willingness to Try New Products," Journal of Marketing Research, Vol. IV (November, 1967), pp. 368-372.

Rehder, Robert R. "Communication and Opinion Formation in a Medical Community: The Significance of the Detail Man." Academy of Management Journal, Vol. 8 (December, 1965), pp. 282-291.

Robertson, Thomas S. "The Process of Innovation and the Diffusion of Innovation," Journal of Marketing, Vol. 31 (January, 1967), pp. 14-19.

_____. "Consumer Innovators: The Key to New Product Success," California Management Review, Vol. X (Winter, 1967), pp. 23-30.

_____ and James N. Kennedy. "Prediction of Consumer Innovators: Application of Multiple Discriminant Analysis," Journal of Marketing Research, Vol. V (February, 1968), pp. 64-69.

Rogers, Everett M. Bibliography on the Diffusion of Innovations, Department of Communication, Michigan State University, Diffusion of Innovations Research Report No. 6, 1967.

_____. Supplement to the Bibliography on the Diffusion of Innovations, Department of Communication, Michigan State University, Diffusion of Innovations Research Report No. 6a, September, 1968.

_____ and J.D. Stanfield. "Adoption and Diffusion of New Products: Emerging Generalizations and Hypothesis," in Frank M. Bass and others ed., Applications of the Sciences in Marketing Management, J. Wiley, 1968, pp. 227-250.

- Shaw, Steven J. "Behavioral Science Offers Fresh Insights on New Product Acceptance," Journal of Marketing, Vol. 29 (January, 1965), pp. 9-13.
- Silk, Alvin J. "Overlap Among Self-Designated Opinion Leaders: A Study of Selected Dental Products and Services," Journal of Marketing Research, Vol. 2 (August 1966), pp. 255-259.
- Simmel, George. "Fashion," American Journal of Sociology, Vol. 62 (May, 1957), pp. 541-558. (Reprinted from the International Quarterly, 1904, pp. 130-155).
- Starch, Daniel. "Do Ad Readers Buy the Product," Harvard Business Review, Vol. 36 (May-June, 1958), pp. 49-58.
- Stuteville, John R. "The Buyer as a Salesman," Journal of Marketing, Vol. 32 (July, 1968), pp. 14-18.
- Webster, Frederick E. Jr. "Modeling the Industrial Buying Process," Journal of Marketing Research, Vol. 2 (November, 1965), pp. 370-376.
- _____. "Interpersonal Communication and Salesman Effectiveness," Journal of Marketing, Vol. 32 (July, 1968), pp. 7-13.
- _____. "On the Applicability of Communication Theory to Industrial Markets," Journal of Marketing Research, Vol. V (November, 1968), pp. 426-428.
- Whyte, William H. Jr. "The Web of Word of Mouth," Fortune, Vol. 50 (November, 1954), pp. 140-143.

DISSERTATIONS

- Allvine, Fred C. The Patronage Decision-Making Process. Unpublished Doctoral Dissertation, Indiana University, 1966.
- Arndt, Johan. Word of Mouth Advertising: The Role of Product Related Conversations in the Diffusion of a New Food Product, Unpublished Doctoral Dissertation, Harvard University, 1966.

- King, Charles W. A Study of the Innovator and the Influential in the Fashion Adoption Process. Unpublished Doctoral Dissertation, Harvard University, 1964.
- Ozanne, Urban Bouvard. Family Decision-Making Processes and Degree of Innovativeness Among Scottish Central-Heating Adopters. Unpublished Doctoral Dissertation, Indiana University, 1964.
- Robertson, Thomas S. An Analysis of Innovative Behavior and Its Determinants, Unpublished Doctoral Dissertation, Northwestern University, 1966.
- Sim, Ah Ba. The Development and Testing of a Field Instrument for Research into the Study of Attitudes and Preferences Involved in the Purchase of Homes, Unpublished Masters Thesis, University of British Columbia, 1968.
- Summers, John Oliver. The Identity of Women's Clothing Fashion Transmitter, Unpublished Doctoral Dissertation, Purdue University, 1968.