

CHARACTERISTICS OF OWNERS AND NONOWNERS
OF PERSONAL COMPUTERS

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Mary Dee Dickerson

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By

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CHAPTER I

INTRODUCTION

Personal computers are entering the home, and the effects of the computer on everyday life are beginning to emerge. Statland (1979) states that

In the 1970's it was estimated that one out of every six men, women and children had their daily lives affected by a computer. This statistic should change to one out of every two lives that will be affected on a daily basis by 1984--the magic year designated so long ago by George Orwell as the advent of the automated society (p. 7).

The significant issues include the determination of how these changes will take place and the ultimate impact on everyday life in the 1980's as the computer moves into a more prominent role in society. Quality of life will take on new dimensions as a result.

One reason that computers are at the center of public attention is that they seem to do so many things that people also do. Computers manipulate symbols that have meaning; they store information; they answer questions; they participate in the decision-making process; and they do mathematical computations. Computers seem to possess an intelligence not found in other machines. Another reason why people are being reminded of computers is that they now play such an important role in our society. For example, computers send out bills, guide space probes, entertain and educate children, as well as help control the ballistic missiles with nuclear warheads that can destroy the world. The future shapers and movers of society must acquire an understanding

of the capabilities and limitations of computer information-processing systems (Sanders, 1980).

Home computers are expected to penetrate the marketplace significantly during the 1980's. By the 1990's, they may be commonplace in homes. These personal computers may be used initially for paying bills, maintaining financial records, and as fullscreen calculators. However, as software and advanced data networks evolve and become less costly, the home terminal might well be the ultimate two-way communication device. This device would enable people to become educated at home, have access to materials at their public library, learn what the maximum tax obligation should be each year, and even order basic shopping necessities.

Computers will also be the information appliance. Home entertainment will expand in the 1980's from separate radio, audio and television devices to a combined home information center. These devices will be ~~linked to each other and the telephone system~~ by a small, inexpensive computer. The linkage of these units will produce the home information appliance. This new appliance will provide entertainment in its traditional ~~passive mode and a new interactive mode~~ providing educational programs, hobby instructions, personal information file recall, and the transactions of personal and business finances. The home appliance system will provide household environmental control and energy maximization. The system will also provide home security and medical alert activity when necessary.

The implications on society are profound. More consumers will be able to work, shop and educate themselves with greater freedom from the burdens of a time consuming queue or duplicated forms and applications.

Home terminals, video cassettes and interactive visual devices will mean reduced commuting; less in-store buying; potentially, less petroleum products' consumption and increased leisure time (Tomorrow Begins Today, 1980).

One of the most innovative computer applications affecting private individuals is the Prestel system developed in the United Kingdom. Prestel is a large data base which includes the latest news and weather information, airline schedules, tax information, want ads, public welfare information, and retail store sales information. This information is stored in a large central computer system. A page of this information can be requested from a home computer connected to a telephone or cable television and the requested page can be returned over the line to a receiving screen. If the viewer wants a permanent copy, the page can be printed by the home computer system. In short, users can browse through the electronic newsletter, magazine, and/or encyclopedia and select the sections that interest them. Thus, users can tailor the information to their individual needs (Smith, 1979).

Subscribers to the QUBE cable television system in Columbus, Ohio, are permitted to choose incoming programs from 30 channels. The cable can also be used to communicate out-going messages; in other words, subscribers can talk back to the tube. By pressing a button, a viewer can respond to a politician, evaluate the features in a local newspaper and give an opinion on a contestant in a talent program. Responses can be recorded and tabulated by a computer. National "town meetings" can be called to provide political leaders with the instant electronic votes of citizens on important issues.

Satellite communications between ill or injured persons in remote

areas and specialists in urban areas should be in widespread use in the late 1980's. Medical aides in remote areas can administer the emergency treatment recommended by a specialist backed up by diagnostic computing resources. Instrumented hospital beds in remote clinics may regularly be linked with computers and/or intensive-care monitors at an urban hospital (Sanders, 1980).

Educational institutions and methods of teaching will change due to computer technology. Papert (1978) states that there will be 5 million private computers in people's homes and available to students within two years; by 1982, he predicts, 80 percent of upper-middle class families will have computers capable of playing important roles in the intellectual development of their children. Albrecht (1978) states

In schools, computers will be more common than carousel slide projectors, movie projectors and tape recorders. They will be used from the moment school opens through lunch period, and as far into the day as the principal will keep the school open (p. 48).

Professor of Computer Science at the University of California at Los Angeles, Estrin (1978) states

The computers provide an intensely visual, multi-sensory learning experience that can take a youngster in a matter of a few months to a level he might never reach without it, and certainly would not reach in less than many, many years of study by conventional methods (p. 48).

Central to the development of new markets is the identification of potential computer users. This identification will be the crux to market strategies necessary to broaden the actual and potential personal computer sales. Presently, the marketing of personal computers is moving toward the home programmer and the consumer market.

The consumer innovator can be defined as one of the relatively small groups of consumers who are the earliest purchasers of a new

product. Researchers have found that consumer innovators are much more interested than either later adopters or non-adopters in the product category that they are among the first to purchase. Contrary to what might be expected, the consumer innovator does not seem to be an impulsive purchaser; rather, the innovator seems to give greater deliberation to the purchase of new products than non-innovators according to Engel, Blackwell and Kollat (1978).

Who is the consumer innovator? What differences exist between adopters and non-adopters of personal computers? How do activities, interests, and opinions differ between owners and nonowners? How are experiences with computer technology perceived as people interact with new methods of conducting everyday affairs? Can any differences be identified by life pattern characteristics? Do males and females view the use of a personal computer differently?

The adoption of personal computers will result in change within the environments in which people live. Challenges of the 80's (1979, p. 50) reports that "No longer an isolated haven where the family lives out its private life, the home is fast becoming a vehicle for bringing the outside world to people's finger tips." A prime tool in this transformation will be the home computer. How will people adapt to the new computer technology? What effects will computer technology have upon the coping abilities of users? Ultimately, the quality of life of individuals and families will be different.

The home economics profession can play a leadership role in the understanding of internal changes brought about because of computer technology. The profession holds as part of its mission an integrated approach to helping people understand their environments, i.e. social,

physical, economic, political and aesthetic (Crabtree, 1979).

Marketing and consumer behaviorists are interested in knowing how these changing environments will impact upon the decisions of individuals and families in their adoption of personal computers. Understanding of the motivations which influence the decision to actually purchase a personal computer for the home are basic to market penetration and segmentation.

On the premise that personal computers will be accepted as a home appliance, investigation of the differences between owners and nonowners in relationship to life patterns seems necessary. Though occasional articles featuring reports about new test markets for banking and cable television selection have been found, the researcher has found no studies exploring differences between users and nonusers of personal computers.

Purposes and Objectives

The purpose of this study was to investigate differences between users and nonusers of personal computers. Activities, interests and opinions were determined. Experiences with products, services and activities which interface with computer technology irrespective of computer expertise were also determined.

The specific objectives of this study were as follows:

1. To analyze the relationship of demographic variables upon the ownership or nonownership of personal computers, and
2. To assess whether activities, interests and opinions differ between users and nonusers, and
3. To assess differences between users and nonusers in terms of experiences with other forms of computer technology.

Hypotheses

The null hypotheses tested by collection and analysis of the data were as follows:

- H₁ There is no significant difference between users and nonusers of personal computers with respect to age, income, sex, educational attainment, place of residence, type of housing, presence of children, geographic region, and/or occupation.
- H₂ There is no significant difference between activities, interests, and opinions of personal computer users and nonusers.
- H₃ There is no significant difference between users and nonusers in their experiences with computer technology.

Assumptions and Limitations

In the preparation of this study, the following assumptions were made. It was assumed that:

1. The sample population was representative of users. Nonusers were assumed to be potential users of personal computers.
2. The use of activities, interest and opinion relationships would better explain differences between personal computer ownership and nonownership than using only demographic data.
3. Owners of personal computers would exhibit a greater propensity to change in methods used to accomplish everyday activities than nonowners reflecting a more contemporary state of mind.

The study was limited to known computer owners and to a group deemed nonowners but who were also potential owners. No attempt was made to sample all segments of the population. The rationale for

selecting specific activity, interest and opinion statements, as well as the rationale for the experience category, is discussed in Chapter III.

Definitions

These definitions are presented to clarify the terminology used in this study.

Activities: An activity is a manifest action such as viewing a medium, shopping in a store, or telling a neighbor about a new service. Although these acts are usually observable, the reasons for the actions are seldom subject to direct measurement. (Reynolds and Darden, 1974, p. 87).

Interests: An interest is some object, event, or topic in the degree of excitement that accompanies both special and continuing attention to it. (Reynolds and Darden, 1974, p. 87).

Microcomputer: The smallest category of computer, consisting of a microprocessor and associated storage and input/output elements. Examples are home or personal computers. (Sanders, 1980, p. 613).

Opinions: An opinion is a verbal or written 'answer' that a person gives in response to stimulus situations in which some 'question' is raised. It is used to describe interpretations, expectations, and evaluations . . . such as beliefs about the intentions of other people, anticipations concerning future events, and appraisals of the rewarding or punishing consequences of alternative courses of action. (Reynolds and Darden, 1974, p. 87).

Summary

This chapter presented a description of how home or personal computers will impact upon one's life during the 1980's and beyond. Ownership of a home computer will influence the way individuals make decisions, educate their children, and in the way they conduct every day activities. Little datum exists regarding differences between activities, interests, and opinions of owners and nonowners of personal computers. This study also included an experience category to assess interaction with computer technology. This chapter also included purposes, research objectives and hypotheses for the study.

CHAPTER II

REVIEW OF LITERATURE

The review of literature reported is concerned with the development of innovation, diffusion and adoption theories within a social system as well as for an individual. The relationship between psychographic research and innovation theories is developed.

The Meaning of Innovativeness

The theory of innovative behavior presented by Rogers and Shoemaker (1971) is built around certain social processes. The major process is interpersonal communication and its associated influence over the attitudes and behavior of individuals.

The diffusion of a new product is, to a considerable extent, determined by a communication process in which individual experiences with the product are disseminated verbally through a particular social system. While it is considered that the mass media mostly generate awareness, it is chiefly the favorable personal recommendation of a social contact which is thought to be instrumental in influencing an individual to adopt.

Individuals who will not display a communication dependence will be those who do not utilize interpersonal information in their decision making. This provides insight into the nature of innovativeness. Communication is not the only variable intervening between personal

characteristics and time of adoption; there are also interest and other situational factors. On the basis of a study of generalized innovators (cross-sectionally defined and measured) Summers (1971) suggests:

. . . innovativeness may be a function both of situational variables, such as income and product involvement, and behavioral considerations. It may be that situational factors are unique to specific products and product categories and serve to constrain the individual's innovativeness to particular areas while his behavioral (sociological, psychological) make-up influences his basic tendency to innovate (p. 316).

What then is the nature of innovativeness? Since the diffusion of innovations is a communication process, it seems intuitively appealing to define the construct in communication terms. Midgley (1977) has advanced one possible definition of innovativeness. He states, "Innovativeness is the degree to which an individual makes innovation decisions independently of the communicated experience of others" (p. 49). The term "communicated experience" is information passed verbally between individual consumers. Furthermore, it is generally based on actual experiences with the new product in everyday usage.

Innovative Diffusion

Few concepts in the behavioral sciences have as much immediate relevance to consumer behavior as innovativeness. The propensities of consumers to adopt novel products, whether they are ideas, goods or services, can play an important role in theories of brand loyalty, decision-making, preference, and communication. Consumer behavior would consist of a series of routinized buying responses to a static set of products if there were no such characteristic as innovativeness. It is the inherent willingness of a consuming population to innovate that gives the marketplace its dynamic nature. On an individual basis, every

consumer is, to some extent, an innovator. Most people over the course of their life time adopt some objects or ideas that are new in their perception (Hirschman, 1980).

Rogers (1962) discusses four elements in the analysis of the diffusion of innovations. He defines the first of these as ". . . an idea perceived as new by the individual" (p. 13). The major emphasis is placed upon the newness of the idea to the individual and little importance is placed upon the time lapse from first use of discovery.

Communication is the second element. Diffusion is the process by which an innovation spreads from its source of invention or creation to its ultimate users or adopters. Human interaction is the essence of the diffusion process as one person communicates a new idea to another person. The diffusion process consists of: (1) a new idea, (2) individual A who knows about the innovation, and (3) individual B who does not yet know about the innovation. The social relationships of A and B have a great deal to say about the conditions under which A will tell B about the innovation, and the results of this telling.

The third element is the diffusion within a social system. A social system is defined as population of individuals who are functionally differentiated and engaged in collective problem-solving behavior. The members of a social system are individuals but they may represent informal groups, industrial firms or schools.

The norms of the social system and the status of individuals A and B in the social structure of the system affect the diffusion of ideas. The importance of this social structure in the analysis of diffusion was emphasized by Katz (1966) when he stated,

. . . it is about as unthinkable to study diffusion without some knowledge of the social structures in which potential adopters are located as it is to study blood circulation without adequate knowledge of the structure of veins and arteries (p. 436).

Ideas enter the social system from some source. The idea may be invested or created within the system or it may enter from an external source. One individual is more cosmopolite than another because he/she received the new idea from a source outside of the social system. Cosmopoliteness is the degree to which an individual's orientation is external to a particular social system (Rogers, 1962).

A norm is defined as the most frequently occurring pattern of overt behavior for the members of a particular social system. The norms in the social system may be traditional and not encourage the adoption of new ideas; or they may be modern and encourage the use of innovations. An individual's innovativeness varies directly with the norm of his/her system on innovativeness (Rogers, 1962).

A social system with modern norms is more technologically developed, cosmopolite, literate, rational, and empathetic. The traditional-modern dimension has been measured at both the individual level and for a social system. A common finding according to Rogers (1962) is that innovativeness of individuals is related to a modern rather than a traditional orientation. Community norms appear to explain variation in individuals' innovativeness not explained by other variables such as social characteristics.

The fourth component of innovative diffusion involves the period of time in which diffusion takes place. [Under certain conditions, B may decide to adopt the new idea.] Adoption is a decision to continue full use of an innovation. This implies that the adopter is satisfied with the innovation.

Rogers and Shoemaker (1971) define rate of adoption as:

The relative speed with which an innovation is adopted by members of a social system. This rate of adoption is usually measured by the length of time required for a certain percentage of the members of a system to adopt an innovation (p. 28).

In a study of time and the rate of adoption of innovations Olshavsky (1980) tested the hypothesis that the rate of adoption of innovations in consumer markets is increasing over time. His study investigated the phenomenon of shortened product life cycles for a set of 25 home appliance products due to the rapidly accelerating technological developments. The results of his study clearly support the increase in rate of adoption over time that occurred for these products. Olshavsky's study has implications for consumer behavior researchers because it represents a dramatic change in consumption patterns that challenges some long-standing concepts and assumptions about consumer behavior. Olshavsky and Granbois (1979) report that more and more rapid adoption rates may preclude any type of decision process, which in turn suggests that other types of purchase methods, such as conformity, imitation, and recommendation, may be occurring.

The adoption process should be distinguished from the diffusion process which is the spread of a new idea from its source of invention or creation to its ultimate users or adopters. A major difference is that diffusion occurs among persons while adoption is an individual matter (Rogers, 1962).

Adoption of an Innovation

Rogers (1962) cites three major divisions of the adoption of an innovation by an individual. He identifies these as: (1) antecedents,

(2) process, and (3) results. Antecedents are those factors present in the situation prior to the introduction of an innovation. Antecedents are of two major types. One, is the actor's identity and the second, are his/her perceptions of the situation. The actor's identity is comprised of a sense of security, dominant values, mental ability and conceptual skill, social values, social status and cosmopolitaness. The actor's perception of the situation offsets his/her adoption behavior. The social norms on innovativeness serve as incentive or restraints on his/her behavior.

Individuals in a social system with a modern norm will act differently from the way they would where the norms are traditional. The economic constraints and incentives and the characteristics of the unit (such as farm, business or school) also affect adoption behavior.

Information sources are important stimuli to the individuals in the adoption process. The individual becomes aware of the innovation mainly by impersonal and cosmopolite sources such as the mass media. At the evaluation stage, the individual forms his perceptions of the characteristics of the innovation. Localite and personal information sources are more important at the evaluation stage (Rogers, 1962).

The conclusion of the adoption process is either adoption or rejection of the idea. An innovation may be adopted at the conclusion of the adoption process and may be (1) used continuously, or (2) rejected at a later date, a discontinuance. The innovation may be rejected at the end of the adoption process, but adopted at a later date. It is also possible that the innovation will be continuously rejected. Labay and Kinnear (1981) applied an adoption and diffusion framework to explore the consumer decision process in the adoption of solar energy systems.

They found that as respondents progressed from being a member of the general population through knowledge of solar energy systems toward adoption, the systems became less of a novelty. Thus, they felt the systems were less observable to others.

Dominant Values of Innovators

The five classifications of individuals within a social system may each be regarded as a situational field. These five segments of the social system serve as frame of reference in the understanding the varying intensities of innovativeness among individuals. The five categories are innovators, early adopters, early majority, later majority and laggards (Rogers, 1962).

The dominant value of innovators is venturesomeness. Innovators appear to gain interpersonal security by being more venturesome than other members of a social system. Innovators are often viewed as deviants from the system's norms. Innovators often operate within situational fields external to the social system. In terms of the situational field within which innovators operate, they may not perceive their decisions as venturesome. Innovators frequently bypass change agents and use more cosmopolite sources of new ideas.

The dominant value of those individuals in the early adopter category is respect from their peers. They rate higher in opinion leadership within a social system than other categories, although this depends, in part, upon the norms of the system.

Tradition is the dominant value of laggards. When viewed in terms of the total social system, laggards are deviants. However, their deviancy does not derive from too rapid adoption of innovations, but

from their unwillingness to accept new ideas even after they have become widely used in the social system. Laggards derive their security by resisting innovation (Rogers, 1962).

Life-Style Research

Since the 1950's, motivational research has evolved into what is now called psychographic research, lifestyle research and even (incorrectly) motivation research. Plummer (1971) describes lifestyle research as follows:

Lifestyle research is designed to indicate the differences between heavy users and light or nonusers of a product in terms of their life styles or their activities; i.e., how they spend their time; their interests; what is of importance in their immediate surroundings; their opinions; where they stand on important issues; and their demographics. A wide range of activities, interests, and opinions is covered in lifestyle research through statements that have been developed from previous research (p. 36).

In a study of lifestyle patterns and commercial bank credit card usage, Plummer (1971, p. 41) provides additional insights in the differences existing between users and nonusers of commercial bank charge cards along "life style" dimensions. The evidence was derived from direct study of the lifestyle of users and nonusers rather than from inferences drawn from measurements of social class and income segments as reported by Matthews and Slocum (1970). The Plummer study of bank charge card users shows explicitly how activity, interests and opinion data can produce results that did not emerge when only demographic data are available.

These lifestyle patterns emerging from the Plummer study indicate that credit card users are higher income, better educated, middle-aged and professional. Matthews and Slocum report their conceptualization of

the upper-middle and upper classes as "achievement-oriented" and as "decision-makers". Users' life styles appear to offer a more explicit portrayal using the methodology of Plummer.

Questions about activities, interest, and opinions shed light on topics other than products and media. They can give additional meaning to the standard demographic classifications by showing how the executive's wife differs from the homemaker in a blue-collar household. They further define the generation gap. They add to what is known about sex differences. They further describe the opinion leader, the new product tryer, the political activist, and the lady who thinks there is too much advertising to children on television. For almost any identifiable type of behavior there is at least the possibility of new insights when the behavior is viewed in the context of opinions, interests, and activities (Wells and Tigert, 1971).

Since activity, interest, and opinion (AIO) items are self-administering to literate respondents, data are obtained through either personal contact or established mail panels. For many purposes, established mail panels yield satisfactory returns at a good cost as activity, interest, and opinion questionnaires as long as 25 pages have yielded usable returns from 75 to 80 percent mail panel samples (Wells and Tigert, 1971).

The theory of life styles is based upon a theory of human behavior according to Kelly (1955). Kelly states that people try to predict and control their lives. To do this, they form "constructs" or patterns to construe the events happening around them and use such constructs to interpret, conceptualize, and predict events.

People develop their set of constructs to minimize incompatibilities

or inconsistencies. This is why a person who agrees with the statement, "I buy many things with a credit card" is also likely to agree with the statement, "I will probably have more money to spend next year".

Responses to A10 statements make it possible to measure patterns among groups of people called life styles. A10 measures or psychographics are the operational form of life styles. Plummer (1974) believes that the new construct, lifestyle patterns, combines the virtues of demographics with the richness and dimensionality of psychological characteristic, and depth research.

Experiences

Further insight into experiences can be gained from understanding what Kelly (1955) refers to as an experience collary. As stated above, Kelly (1955) believes that people form constructs to interpret, conceptualize and predict events in their lives. Experience is made up of the successive construing of events. However, experience is not constituted only by the succession of events themselves, but rather, it is the successive construing and reconstruing of what happens, as it happens, that enriches the experience of one's life.

Emphasis is placed upon construing the replicative features of experience. Kelly (1955) states:

The person who merely stands agog at each emerging event may experience a series of interesting surprises, but if he makes no attempt to discover the recurrent themes, his experience does not amount to much. It is when man begins to see the orderliness in a sequence of events that he begins to experience them (p. 74).

The person who takes events for granted and who does not seek new light to throw upon them, adds very little to his store of experiences as the years go on. Sometimes it is said that a person learns from

experience. From the standpoint of the psychology of personal constructs, however, it is the learning which constitutes experiences (Kelly, 1955).

An analysis of experience, then, becomes a study of the field of fact which one has segmented into meaningful events. Kelly identified these as: (1) the way those events are construed, (2) the kinds of evidence against which one has checked the validity of his predicting, (3) the progressive changes which the constructs have undergone, and (4) most of all, the more permeable and durable constructs which have subsumed the whole environment.

Few consumer researchers have discussed the value of experiences. However, information and experience have been identified in a model of relationships between beliefs, attitudes and intentions described by Engel, Blackwell and Kollat (1978). Their model suggests that experiences and information enter the model as evaluative criteria and as beliefs. Little emphasis is placed upon how or where the information or experience was derived.

Families play a role in helping individuals arrive at their experience and information constructs. First, they form the experience base that influences individual evaluative criteria and beliefs. Personality and motives are indirectly influenced. Second, they affect the decision making process that is involved in the purchase of goods and services. Family role structure may influence the decision making process for consumption decisions of a family. Either parent may exhibit domineering traits which influence the purchase decisions. Families which have a more open communication environment and democratic structure usually involve children in their decision processes (Engel, Blackwell, and Kollat, 1978).

Self-concept also contributes to the richness of one's experience.

Carl Rogers (1951) states:

The self-concept, or self-structure, may be thought of as an organized configuration of perceptions of the self which are admissible to awareness. It is composed of such elements as the perceptions of one's characteristics and abilities; the percepts and concepts of the self in relation to others and to the environment; the value qualities which are perceived as associated with experiences; and objectives, goals, and ideas which are perceived as having positive or negative valence (p. 492).

The self becomes a value to be enhanced, with the result that certain goal objects become internalized as permanent incentives according to Engel, Blackwell and Kollat (1978). Maslow's hierarchy of needs hypothesizes that motives are organized in such a way as to establish priorities. The higher-order motives are of particular significance in understanding cross-cultural differences in consumer behavior. The higher-ordered motives of self-actualization, esteem and status, belongingness and love are keyed to self-maintenance and enhancement.

Tybout and Yalch (1980) employed a labeling technique to explore processes underlying the effects of experience. Their study involved the self-perception theory extended by Bem (1972) where individuals employ their own behavior and the circumstances in which that behavior occurs as cues to guide their subsequent actions. They found that labeled individuals both behaved and perceived themselves in a manner consistent with their labels. These findings suggest that strategies to influence behavior, such as labeling, are likely to be particularly effective in situations where individuals have an initial interest in the focal behavior.

The Computer Society (1980) reported that those outside the "electronic priesthood" often have trouble grasping the principles of the new

microtechnology or comprehending the accomplishments of the minuscule computers. Consequently, people tend to anthropomorphize the computer; they are superstitious about it. A fear exists that the world runs not for man but for the existence and welfare of computers as depicted by many science fiction writers.

Although more and more everyday activities are performed using some form of computer application, little is known about specific experiences people have had with computer technology. Some reluctance to use or actual fear to use computers exists among many people. However, they are probably experiencing the benefits of computer technology with or without their knowledge as they conduct their everyday activities. These include those which most people perform for themselves such as financial transactions, shopping, convenience durables, or participation in new electronic games and other electronic entertainment products or services.

Priority Patterns

Priority patterns have been used to study acquisition and ownership patterns for consumer goods. The priority pattern concept implies that consumers tend to think of their household goods purchases in terms of sets to be acquired in a particular order over time. The acquiring of goods in accordance with a priority pattern is not simply an individual process; it is also a group phenomenon (McFall, 1969).

Ownership frequencies of commodity sets provide valuable clues on the developments of past purchases priorities of consumer. Future purchases, however, can be validly predicted only from priority patterns derived from consumers' expressed buying intentions (McFall, 1969).

In the classical sense, the acquisition of a durable is a discretionary purchase according to Kasulis, Lusch and Stafford (1979). There is sufficient discretionary income for everyone to be in the market for a durable at one time or another. Priority patterns of acquisition of goods continue to be of research significance not only for consumption behavior but also for the purpose of studying the adoption of innovations.

Consumers have sets of needs and values which are satisfied by sets of products, or, more correctly, by sets of product attributes. Each product owes its existence not merely to the physical nature of the product itself, but also to its ability to satisfy a consumer need. A fixed scale would exist for a set of product attributes if all consumers had the same priority pattern.

Kasulis, Lusch and Stafford (1979) completed a study of consumer acquisition patterns for durable goods. Priority patterns were established for 12 heterogeneous durables. The examination of priority patterns of acquisition may be an attempt to determine which durables are perceived more as necessities and which are considered frills, bought only as additional discretionary dollars become available. Patterns were established for home owners and for renters and differences noted.

Consumers must make choices due to scarcity of resources. Priority patterns of ownership or of intentions to acquire provide valuable tools for understanding consumer behavior. Few people in society are able to acquire all the goods desired at the same time thereby requiring choices to be made. The order in which consumers make choices about acquiring consumer goods may shed new light in the personal computer revolution.

The Personal Computer Revolution--The State of the Art

Currently, the personal computer market is expanding at a rapid rate. By the end of 1985, Computer Stores (1981) projected the personal computer market to reach 500 million dollars in the home and hobby markets. This is in relation to the nearly 4 billion dollars expected for the aggregate personal computer market which contains home and hobby, education, technical and business. Use of home microprocessors is growing at such a rate that the National Science Foundation now predicts that every home will have one by 1990, according to Ahlhauser (1981).

New methods of communication and the seeking of information are major components for the home markets. Ahlhauser (1981, p. 44) discussed about the phenomena of communications and computers as stated by Professor Anthony Oettinger of Harvard. "Compunications" (Oettinger's coined word) means the combined computer and communication industries and the combined functions of these industries. New methods of seeking information is an important part of compunications.

Teletext and videotext are two commonly distiguished data services systems. Teletext is a continuous and repeating data stream of limited capacity. The individual selects a page by number. The decoder pulls an "electronic copy" of the page from the data cycling by, and keeps it on the screen until the viewer calls for another page. Some delay may occur in response since the decoder must wait to pull the requested page until it appears in the data cycling over the screen.

Arsenoff (1981) recently discussed the new teletext experiment for the Consumer Information Center (CIC) located in Washington, D.C. The

CIC makes printed information available and then graphics are designed to present the information electronically. One result of the project is that, since consumers become bored easily, the presentation of consumer information results in rapid format changes which requires more information.

The second major type of system is videotex or viewdata. This system utilizes phone lines which have two-way capabilities. An extremely large data base is stored at the pinnacle of the system and the users' home television sets are connected by telephone lines to the pinnacle. The user can request that only specific pages be sent from the computer and the delay time is minimal (Ahlhauser, 1981).

The ability to "transact" is another feature of the two-way viewdata system. The American Telephone and Telegraph Co. and the Knight-Ridder Newspaper Co. conducted an experiment called Viewtron in Coral Gables, Florida. Viewtron allows the viewer to push buttons to make a restaurant or theatre reservation. A viewer could even order a lawn mower and have it delivered to the door.

The cost of the initial test was 4.5 million dollars. In this test, Knight-Ridder and AT&T provided terminals that attached to the individual's home TV in some 500 homes. This experiment used the Prestel software discussed in Chapter I. Although it was a noncommercial test it was deemed so successful that, in 1983, 5000 users are projected in the Coral Gables area (Schoenfeld, 1981).

Most new cable systems are now equipped with 30 to 52 channels so huge volumes of information can be available to cable customers in rapidly growing areas. Most cable systems do not have two-way capability except for the QUBE system in Ohio (Chapter I, p. 3). However, even

with one-way service, cable, with such huge capacity and speed, can meet most information needs now.

There are a number of home computer data base services that are providing the software that can plug into all of these systems. The Source is a data service which is owned by Reader's Digest and already has between seven and ten thousand subscribers. Comp-U-Serve is another data base owned by H & R Block. Along with Warner-Amex they are trying to develop a provide-a-service through the cable networks. This system has 5,000 subscribers (Schoenfeld, 1981).

Prestel (Chapter I), the British videotex service, recently began U.S. operation when a Boston-based Prestel Minicomputer exchanged videotex transmissions with its counterpart in England (Prestel, 1982). American companies currently providing information to Prestel include Merrill Lynch, TWA, American Express and Newsweek. International providers include the British Broadcasting Network, The Economist and The London Stock Exchange.

The personal computer revolution will change retailing concepts. In 1981, Sears, Roebuck and Co. conducted an experiment by putting its 236 page summer catalog on a videodisc to test the future in catalog retailing. Customers were able to browse through the catalog's 5,500 single frames and 17 motion sequences on a television screen. They were also able to order from this catalog as they would from its printed counterpart (At Sears, 1981).

Federated Department Stores, Inc., purchased a minority interest in Comp-U-Card of America Inc., the leading company in electronic nonstore shopping. Federated is looking into a variety of joining ventures with Comp-U-Card, which used the telephone, cable systems and home computers to sell merchandise.

Teleshopping will be an offspring of the current electronic revolution which will reshape our life styles as well as our businesses. McNair and May (1978, p. 86) stated "The age of electronics is succeeding the age of the automobile as a primary influence in shaping life conditions". Sullivan (Advertising Age, August 13, 1979) envisions a system where each household will have a cable delivering TV education and entertainment. There will also be a small microcomputer that will be built into new homes and added to older ones. There will be terminals with Video display in the kitchen and family room. With this system, the consumer can talk to the library, the bank, the television programming networks or stations and certain retail stores that deal in often-ordered staple merchandise. However, the key question revolves around the readiness of the consumer. Rosenberg and Hirschman (1980) suggest that a sufficient base of consumers is emerging to support telecommunication merchandising. They believe, "That those who are willing to change their shopping habits will be average or above in education attainment and they will come somewhat disproportionately from the professional and managerial strata" (p. 105). Also, a certain minimum level of technical sophistication and income will be required to operate a telecommunication ordering system. Individuals will also need to feel the need for such a service and to perceive its usefulness.

Experiments have been conducted in the areas of banking and library services as well as in education. John Fisher, a senior vice-president with Banc One in Columbus, Ohio predicts "electronic banking will be in 10% to 20% of metropolitan homes within five years, and in 30% to 40% of all U.S. households by 1990 (Banking at Home, 1981).

The United American Bank of Knoxville, Tennessee and The Tandy Corporation of Ft. Worth, Texas conducted a joint experiment in Knoxville. The bank required its customers to pay \$650 for a home computer which linked the customer to the bank. The link allowed users to pay bills, apply for loans, monitor their financial profile and use a sophisticated bookkeeping service (Tandy, 1980).

Library services are also part of communications. A viewdata service, Channel 2000, offers on-line cataloging and library services. This channel began providing access to a complete encyclopedia, 33,000 articles and nine million words, in addition to the six million bibliographic entries already part of the system.

Personal computers are being used by university students even to the point of being fashionable in some institutions. Carnegie-Mellon is studying an ambitious plan to equip all of its students with personal computers, which would increase the computer population to between 6,000 and 7,000.

Younger students are enjoying the computer revolution. Seymour Paper, MIT professor, has designed a special computer programming language---LOGO---that allows young children to communicate with computers, draw images, animate and color them by giving the machine ultrasimple instructions. The Minnesota Education Computing Consortium (MECC) has purchased more than 5,000 personal computers for use in elementary and high schools around the state. MECC is even creating and selling its own educational software (The Home Computer, 1982).

Summary

This chapter presented a discussion of innovation, diffusion and

adoption theories. The relationship between life style research and innovation theories was developed. An experience collary was presented to give insight to constructs which individuals use to form to interpret, conceptualize and predict events in their lives. A discussion of priority patterns for acquisition and ownership of consumer goals and services was presented. This chapter also included a discussion of the current personal computer revolution in relation to the impact and ultimate change in life styles.

CHAPTER III

METHODOLOGY

The purpose of this study was to explore differences between owners and nonowners of personal computers. These differences were determined by using three sets of variables, including (1) activity, interest and opinion items to solicit responses about life-style patterns, (2) items from an experience category to solicit responses about ownership of products or use of services which interfaced with computer technology, and (3) demographic variables.

The research technique employed in this study was the survey method and the study was primarily descriptive in nature. A self-administered mailed questionnaire was used to collect data. Sampling methods and construction of the instrument used in data collection were described as were the methods used in the analysis of data.

Type of Research

The descriptive method of research was utilized in this study. Churchill (1979) suggests that the descriptive study is typically concerned with determining the frequency with which something occurs or the relationship between two variables.

The purposes and objectives of this study met the criteria deemed essential for descriptive research. Demographic data are also essential to the determination of differences between owners and nonowners of personal computers.

Independent and Dependent Variables

The criterion or dependent variable for the study was whether respondents owned or did not own personal computers. This variable was not manipulated because it represented the condition to be explained through the relationships to the independent variables.

Owners of personal computers were determined to be those who used a computer in their home. Nonowners were those who did not have a personal computer at the time of the study, but who were potential owners because of their specific demographic characteristics.

Three sets of independent variables were identified. Demographic data included age, income, educational attainment, occupation, marital status, place of residence, type of residence, length of residence, geographic region, and presence of children. The variables chosen constitute a fairly standard set of demographic variables (Churchill, 1979). Demographic data have been used to segment the total group of respondents into smaller subgroups for analysis purposes.

The second independent variable included activities, interests, and opinion (AIO) statements. These statements also constitute what is known as psychographic research (Wells and Tigert, 1971). These intrinsic psychological, social-culture, and behavioral characteristics often reflect how an individual will act in relation to consumption decisions. They have been used frequently in studies of the adoption process (Plummer, 1971).

Plummer (1971) identified four questions in which AIO statements could be clustered for measurement of life patterns. First, how people spend their time is determined by AIO statements about cooking and being

a homebody. Second, their interests are determined by questions about being a sports spectator and arts enthusiast. Third, what is of importance in their immediate surroundings is determined by questions about community mindedness, wide horizons, self-confidence, and being a new brand tryer. Fourth, their opinions are determined by questions about financial satisfactions, self-designated opinion leader, general attitudes on political and economic issues, and information seeking.

Two new clusters of statements were developed specifically for this study, which otherwise uses the AIO statements of Wells and Tigert (1971). These statements included time spent in everyday activities and attitudes toward computer technology. The statements about time spent in everyday activities were added to the category of how people spend their time. The statements about attitudes toward computer technology were added to the opinion category.

The third independent variable involved experiences. Experiences were defined as those products, services, and activities which interfaced with computer technology regardless of respondent computer expertise.

Experiences contained 20 items of products, services, or consumer durables which either had or otherwise utilized computer technology in their performance. These items included entertainment products, convenience products, automatic financial services such as automated teller machines or electronic funds transfer systems, and new communications technology.

To date, no known research study has detailed actual experiences of people in their use of computer technology in conducting their everyday home activities. Everyday activities included those which most people

perform for themselves such as financial transactions, shopping for both food and nonfood items, bill paying, comparative shopping, and awareness of new electronics products and appliances in the marketplace. A summary of the variables included in the study may be found in Appendix A.

Population and Sample Plan

The sample population for this study was drawn from two primary sources. Known computer users were sampled from a list obtained from The Apple Corporation. Nonusers were sampled from a purchased mailing list of Psychology Today subscribers. Specific demographic characteristics of the subscriber group were obtained through the list broker. These included a median age of 31 years; a median income of \$25,000; a high proportion of college educated (90%); a high majority of home ownership; and most classified their occupations as professional, managerial or technical. These characteristics were similar to the Apple users in many respects. Those subscribers already owning a personal computer were placed in the known user population. No delineation was made between urban and rural populations. Institutional subscribers were omitted from consideration in either group included in the sample plan.

A list of computer clubs located throughout the United States and foreign countries was obtained from The Apple Corporation. A letter was sent to the 147 clubs located in the United States asking for a complete list of members and their addresses (Appendix B). A self-addressed and stamped envelope was included to assist in a prompt return. Nearly 1000 names were obtained by this method. Several computer club presidents responded saying that their club had a policy not to release member

names and addresses where computers were in the home for security reasons, but that the questionnaire could be mailed to them and they would assume responsibility for distribution among their membership. An additional 1000 names were available through this plan. Three computer club presidents sent mailing labels.

A letter of request for the minimum order of 5,000 names, a sample mailing piece, and a personal check were mailed to the list broker for Psychology Today. Names were generated using a Nth random sampling of their total subscribers. Pressure sensitive labels were requested and received. Of the 5,000 names and addresses received, only 1,250 were included in the sample plan from this group while 760 names were included from the user group. Fewer names were obtained from the user group because of the higher involvement with the questionnaire's topic among the user group. All names used in the user group sample plan were obtained through the list of computer club members. In four instances, the researcher sent questionnaires to club presidents asking for their assistance in distributing the questionnaires. All questionnaires distributed through this method were mailed directly to the club presidents with a personal letter. All club presidents had included their total membership when they agreed to assist in this study. Questionnaires were mailed using the certified, return receipt requested classification to confirm actual date of delivery.

A master list of names and addresses included in the sample plan was compiled. Labels were made from a typed list of all names. Two complete sets of labels were needed: one for the initial mailing and one for the post-card follow up.

Instrumentation

Data were collected using a mailed self-administered questionnaire. Organization of the questionnaire involved three sections. The first section contained the 60 AIO statements, the second section contained the experience questions, and the third section contained the questions on demographics (Appendix C).

The activities, interests and opinion statements (AIO) were developed from two major sources. The format on life style followed that used by Plummer (1971), while the categories describing each of the Plummer variables followed those used by Wells and Tigert (1971). The new categories on attitudes toward computer technology and time spent in conducting everyday activities were developed specifically for the present study.

A five-point Likert type scale was used to record individual responses. A rating of one was the highest possible expression of "strongly agree". A rating of five was the strongest possible expression of "strongly disagree" and a rating of three represented "undecided".

In the experience questions, respondents were asked to record their use or nonuse for each of the 20 items by a "yes" or "no" response. They were also asked to indicate the level of importance held toward each item as to either replacement or by their intentions to acquire the item. Responses for replacement were (1) I would replace this immediately, (2) I would replace this as soon as possible, (3) I would replace this sometime in the future, (4) I would not care much about replacing this, and (5) I would never replace this item. Responses for intentions were (1) I expect to buy or acquire this immediately, (2) I expect to

buy or acquire this as soon as possible, (3) I expect to buy or acquire this sometime in the future, (4) I do not much care about getting this item, and (5) I would never buy or acquire this item.

Questions contained in the third section of the questionnaire involved computer ownership, intentions for purchase within the next five years, length of computer ownership and a group of activities frequently performed by those who used a computer in their home. Respondents were asked to identify the specific family members or combinations thereof who used the computer for each activity. Room location of the computer, identification of family members who made the decision to purchase a computer, number of children living at home and information about the child's exposure to computers through their friends, family, and school were obtained.

Demographic data were also included in the third section. Respondents were asked to check appropriate information in the areas of age, total family income, marital status, educational attainment, home ownership, type of housing, length of residency, location of residence and occupation.

Because of the addition of the experience category to the familiar AIO research, much emphasis was placed on the pretest of the instrument. Two groups of people were asked to pretest the questionnaire. The first group consisted of a panel made up of a Cooperative Extension Family Economics Specialist; the Associate Dean for Cooperative Extension and a known computer user; the Director of Home Economics University Extension who was searching the personal computer market prior to a purchase; and a Professor of Home Economics Education. The panel was asked to rate the items on the questionnaire using the following criteria:

1. Is each statement clear and specific?
2. Is each statement significantly related to the purpose of the study?
3. Are there other items that need to be included?

Suggestions were incorporated, revisions made, and the instrument was pretested with members of the newly formed Stillwater Computer Club and with faculty members in the Departments of Mathematics and Computer Science at Oklahoma State University.

As a result of the pretest, one AIO statement was rewritten and one addition was made to the experience category for clarity. Data obtained during the pretest was also subjected to analysis by the Werner/McFall version of Guttman Scalogram to check for content validity.

Collection of Data

The questionnaire was designed using the logo of the Center for Consumer Services at Oklahoma State University and was printed in booklet form. The cover letter explained the purpose of the study and assurance was given that names would not be used in the analysis of data. Instructions were given to tear off the back page of the questionnaire before returning it to eliminate the address label. Two colors were used to differentiate between users and nonusers. White questionnaires were mailed to those in the nonuser group and buff was used for the user group.

Each questionnaire booklet was 8½ by 11 inches. The questionnaire was stuffed with a self-addressed and stamped envelope which was coded against the master list. A coding system was developed using three letters of the alphabet. The code was added beside the Center for

Consumer Services account number which appeared on the lower right hand corner of the envelope. Envelopes were purchased from and printed by the University Postal Service which also received the completed returns. The questionnaire was then folded in half and stapled. Commemorative stamps were used and all questionnaires were pre-sorted by zip code and mailed First Class. Each questionnaire also carried a red "First Class Mail" stamped near the address label.

The questionnaires were mailed at the beginning of the week to facilitate prompt delivery by the U.S. Postal Service. Questionnaires were returned by First Class Mail; however, the researcher paid only for those returned since the University Postal Service was utilized.

In an attempt to obtain as high return as possible, a postcard was mailed within five days of the initial mailing of the questionnaires (Dillman, 1978). The postcard contained the same logo as the one which appeared on the questionnaire (Appendix D). The postcard was mailed third class and contained a reminder of the questionnaire and stressed the importance of returning it so as to increase the accuracy of the study. A statement was made to call collect if the questionnaire had been misplaced, lost, or tossed out. Ten respondents phoned saying the postcard had arrived but that they had no recollection of seeing the questionnaire. New questionnaires were mailed to those who phoned. The postcard was designed specifically for this study.

As the completed questionnaires were received, the code on the envelope was checked off against the master list and reassigned a four digit number. This number was written on each page of the questionnaire.

A second follow-up was completed to check for nonresponse bias. A 10 percent subsample was selected from the original sample using a computer

generated random number list. If the number generated included a respondent who had completed and returned the original questionnaire, the name immediately below was selected. A cover letter and one-page questionnaire containing all demographic information was mailed First Class (Appendix E). A self-addressed and stamped envelope was included and contained the same code used for the original sample.

Of the 760 questionnaires mailed to computer club members, 321 were completed and returned for a 42 percent response rate while 318 of the 1,250 questionnaires mailed to the nonuser group were returned for a 25.4 response rate. The total response rate was 32 percent yielding 639 useable questionnaires.

A total of 20 questionnaires were returned as being undeliverable by the U.S. Postal Service. Fourteen were from the nonuser group and six were from the computer club members. One respondent from the non-user group returned a blank questionnaire. Five respondents removed the alphabetic code at the lower end of the self-addressed envelope enclosed for the return of the questionnaire.

Analysis of Data

Data obtained from the questionnaires were coded as needed for the study and punched on computer cards for electronic computation. Analyses were conducted through the facilities of the computer center at Oklahoma State University. The Statistical Package for the Social Sciences (SPSS) computer program (Nie, Hull, Jenkins, Steinbrenner, and Bent, 1975) was used as well as the Statistical Analysis System (SAS, 1979). The Werner/McFall version of Guttman Scaling was obtained from Professor John McFall at San Diego State University.

Frequency Distributions

Frequency distributions of all variables in the questionnaire were obtained. These distributions were obtained in terms of absolute frequency, relative frequency, and adjusted frequency. The analysis of activities performed on the computer revealed that learning to use the computer, learning computer languages and games were the three most frequently mentioned computer activities. Specific family members were identified for involvement with each computer activity. The location of the computer within the home was determined. In addition, information was obtained regarding which family members made the decision to purchase a personal computer.

Factor Analysis

Factor analysis was applied to reduce the 60 AIO statements into a small number of factors. It was expected that the factors resulting from the principal components analysis and subsequent varimax rotation would be very similar to question groupings from previous research by Wells and Tigert (1971). The Statistical Analysis System (SAS) package was used for this procedure.

Discriminant Analysis

Discriminant analysis was applied to each of the independent variables to distinguish between owners and nonowners of personal computers. The independent variables were the demographics, AIO's and experience variables. The variables were mathematically combined for the purpose of obtaining a single dimension on which owners were clustered at one end and nonowners at the other as determined by the discriminant functions.

A holdout sample technique was employed to further describe the predictive power of the percent correctly classified obtained through discriminant analysis. Under this procedure, two subsamples were randomly selected from the 639 cases in the study. Discriminant functions were generated on the analysis subsample which contained 429 cases. The second subsample was equally balanced between owners and nonowners as each group contained 105 randomly selected cases. This subsample served as the hold out group for the purpose of classifying membership into owners and nonowners.

Guttman Scaling

A priority pattern of computer experiences was developed through the use of the Werner/McFall version of Guttman Scaling. Data were ranked in descending order from top to bottom for ownership or use if the item were a service. Likewise, a similar matrix was developed for intentions to either acquire or replace any of the 20 items from the ownership or use list.

Summary

A discussion is presented for the methodology used in this study. The independent and dependent variables are identified. A description of the population and sampling plan is presented along with the instrumentation and collection of data. Procedures are discussed for the analysis of data which includes frequency distributions, factor analysis, discriminant analysis and Guttman scaling.

CHAPTER IV

ANALYSIS OF DATA

This study was concerned with differences between owners and non-owners of personal computers. This chapter presents a description of all respondents, a description of the two sampled populations and a description of owners and nonowners of personal computers. The analyses include (1) a factor analysis for the activity, interests and opinion statements; (2) an analysis and classification of owners and nonusers of personal computers through discriminant analysis; (3) an analysis of ownership and intentions priority patterns based on experiences with computer technology using Guttman Scaling; and (4) a description of computer activities and family member participation, room location of the computer and which family members made the decision to purchase a personal computer.

Description of All Respondents

Demographic data were collected for each respondent and appear in Table I. Questions were asked about marital status, educational attainment, age, income, home ownership, length of residency, type of housing, location of residence, and occupation.

Sixty percent of the respondents were married. One-fourth were single, never married. Only 2.3 percent reported being separated or widowed and nearly 10 percent reported being divorced. Three percent

TABLE I
DISTRIBUTION OF DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE

Variable	Number	Percent
N=639		
Marital Status		
Married	379	59.8
Single, Never Married	161	25.4
Separated	6	.9
Widowed	9	1.4
Divorced	60	9.5
Cohabitation	19	3.0
Education		
Attended or graduated from professional or graduate school	279	43.8
Graduated from college with an undergraduate degree	158	24.8
Graduated from technical school	36	5.7
Attended college or technical school after high school	118	18.5
Graduated from high school	25	3.9
Attended high school but received no diploma	15	2.4
Attended school for 9 years or less	6	.9
Age		
Under 25	91	14.3
25-30 years	132	20.7
31-35 years	100	15.7
36-40 years	108	17.0
41-45 years	87	13.7
46-50 years	37	5.8
51-55 years	41	6.4
56-60 years	25	3.9
61-65 years	12	1.9
66-70 years	1	.2
71-79 years	3	.5
80 years or more	0	0
Income		
Under 19,999	176	28.3
\$20,000 - \$29,999	149	24.0
\$30,000 - \$39,999	125	20.1
\$40,000 - \$59,999	116	18.7
\$60,000 and higher	56	9.1

TABLE I (Continued)

Variable	Number	Percent
Homeownership		
Own	443	70.0
Rent	190	30.0
Length of Residency		
Less than 2 years	186	29.2
2 to 5 years	191	29.9
5 to 10 years	118	18.5
10 years or more	143	22.4
Type of Housing		
Single family dwelling	476	74.7
Apartment	82	12.9
Mobile Home	11	1.9
Condominium	18	2.8
Duplex/Triplex	32	5.0
Other	18	2.8
Location of Residence		
Urban area over 50,000 population	340	53.7
Small city -- 25,000-49,999	95	15.0
Large town -- 2,500-24,999	104	16.4
Small town and non-farm-rural	80	12.6
Working farm	15	2.4
Occupation		
Professional and Technical	397	63.0
Student	64	10.1
Manager	58	9.2
Clerical	27	4.3
Homemaker	26	4.1
Proprietor	18	2.9
Service Worker	9	1.4
Retired	8	1.3
Farmer	7	1.1
Laborer	11	1.7
Other	6	1.0

were cohabitating.

The respondents were highly educated. Forty-four percent had attended or graduated from a professional or graduate school and 25 percent had obtained an undergraduate degree. Other educational attainment reported included 18.5 percent who had attended college or technical school after high school. Nearly four percent had graduated from high school and 3.3 percent had either attended high school or had attended school for nine years or less. Some of the younger respondents were still in high school.

In reviewing educational attainment for society as a whole, it is apparent that the respondents in this study were very different. The educational attainment for both sexes indicated that 68.7 percent had completed four years of high school or more and 31.9 percent had completed one year of college or more according to the U.S. Census data for 1980. Seventeen percent had completed four years of college or more. The 1980 data suggests that educational levels are from four to six percent higher than in 1975 (U.S. Census, 1981). Clearly, the respondents have educational achievements higher than the national trends.

Ages ranged from under 25 to 71 to 79 years of age. No respondents reported being 80 years or more. Only 10 percent of the respondents were between 51 and 60 years and 13 percent were between 51 and 79 years. Eighty-five percent of the respondents were below the age of 50.

In contrast to the national trends of the age structure of the resident population of the United States, the respondents were much younger. After eliminating from consideration all people under 25 years of age, 92 percent of the respondents in the remaining group were between 25 and 55 years of age while 65 percent of the national resident population were between 25 and 54 years of age.

Income levels were collapsed into five brackets. Twenty-eight (28.3) percent reported total family incomes of less than \$19,999. Twenty-four percent reported incomes between \$20,000 and \$29,999 and 20.1 percent reported incomes between \$30,000 and \$39,999. Eighteen percent reported incomes between \$40,000 and \$59,999. Nine percent reported incomes higher than \$60,000.

The income levels of the respondents were higher than for the national trends as represented by a median family in 1979 of \$19,660. Forty percent of the respondents reported their total family income below \$24,999 in contrast to 65 percent reported for all families in 1979. The income differential was not as great for the \$25,000 to \$49,000 as 29.5 percent of all families reported being in this bracket as compared to the 33.1 percent from the respondents. However, the 15.7 percent of the respondents reporting incomes higher than \$50,000 is much higher than the 5.2 percent of all families in the U.S. in that income bracket.

Seventy percent of the respondents owned their residences. Approximately three-fourths of the respondents lived in single family houses. Apartment living was the second most prevalent housing type, comprising 12.9 percent of the respondents' housing. Condominium living was true for 2.8 percent. Mobile home and multi-family units as duplex/triplex comprised 1.7 percent and 5.0 percent respectively.

Nearly one-fourth (22.4%) had lived in their residence 10 years or longer and approximately one-fifth (18.5%) had lived there between five and 10 years. Thirty percent reported living in their residences from two to five years as was true for those living there less than two years.

Urban living (cities larger than 50,000 population) was reported by slightly more than one-half of all respondents. Fifteen percent lived in small cities having a population between 25,000 and 49,999 while 16 percent lived in large towns with populations between 2,500 and 24,999. Small towns and non-farm-rural were reported by 12 percent of the respondents. Fifteen reported living on a working farm for 2.4 percent. In contrast to the 1970 Census data, which reported that nearly three-fourths of the population lived in urban areas, these respondents appear to have greater diversity in their location of living spaces.

The sampled population was predominately professional and technical in their occupational preferences as 63 percent reported membership in these groups. Managers and proprietors comprised the second group for occupational preferences. Students represented the next largest occupational preference.

National occupational trends indicate that slightly more than one-half are white collar workers and nearly one-third are blue collar workers. Service workers comprise about 13 percent and farm workers 2.7 percent. When comparing these national data to the respondents, in this study, it is apparent that the occupational preferences of the respondents in predominately professional and technical.

Respondents were placed into four geographic regions: Northeast, South, Central and West. States included in the Northeast were Massachusetts, New Hampshire, Vermont, Maine, Rhode Island, Connecticut, New Jersey, Delaware, District of Columbia, Maryland, Pennsylvania, Ohio, Indiana, West Virginia, Virginia, and Kentucky. The South included the states of North Carolina, South Carolina, Georgia, Alabama, Florida, Tennessee, Mississippi, Arkansas, and Louisiana. States included in the

Central region included Wisconsin, Minnesota, North Dakota, South Dakota, Nebraska, Iowa, Illinois, Missouri, and Kansas. The West included the states of Oklahoma, Texas, New Mexico, Colorado, Wyoming, Montana, Idaho, Utah, Arizona, California, Nevada, Oregon, Washington, Alaska, and Hawaii. Frequency distributions were the only analysis performed for these data.

Demographic data obtained from the non-respondents in the second follow-up were analyzed. Non-respondents were found to be demographically similar to the respondents.

Description of Owners and Nonowners

As stated earlier, the sampled population was obtained through two different groups: one, from the Apple Computer Club membership, and two, from a list purchased from Psychology Today. Twelve respondents from the Psychology Today population indicated that they used a computer in the home and 32 from the computer club list reported they did not use a computer in the home.

Because the purpose of the study was to determine characteristics of owners and nonowners of personal computers, the 12 respondents from the magazine list who reported use of a computer in their home were placed in the owner group. Likewise, the 32 respondents from the computer group who did not use a computer in their home were placed in the nonowner group. These few changes precipitated the decision to present the data as owner and nonowner to avoid redundancy. Subsequent analysis of data discusses either owner or nonowner irrespective of initial population membership.

Demographic data were analyzed by computer owners and nonowners in

addition to the previous discussion. These data are summarized in Table II. A higher proportion of owners were married than were the nonowners. Seventy-two percent of the owners reported being married as compared to 48 percent for the nonowners. More nonowners reported being single, never married or divorced than were the owners.

Slightly more than one-half of the owners had attended or graduated from professional or graduate school. This educational level was true for nearly 40 percent of the nonowners. The groups were nearly equal in educational attainment from the undergraduate degree forward. A few more owners reported having graduated from technical school; however, more nonowners reported having attended college or technical school after high school but did not graduate.

Fewer owners than nonowners were under 35 years of age. A turning point appears to have occurred at the 36-40 year age bracket as that group reported more owners. This trend continued until the 46-50 age bracket. Respondents who were between 35 and 50 years of age were more likely to have children familiar with computer technology as well as having interaction with computer technology as part of their career.

The owners group reported overall higher family incomes than did the nonowners. Two-fifths of the owners reported incomes of less than \$30,000 whereas nearly two-thirds of the nonowners reported similar income levels. Sixty percent of all owners in the study reported family incomes greater than \$30,000. This suggests that the owners may be able to enjoy a wider margin of discretionary income than is true for the nonowners, even though the nonowners have an above average income.

A majority of both owners and nonowners lived in single family dwellings. More nonowners reported living in apartments and duplex/tri-plex arrangements than was true for the owners.

TABLE II
DISTRIBUTION OF DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE

Variable	Owners		Nonowners	
	Number	Percent	Number	Percent
Marital Status	N=301		N=338	
Married	216	72.2	163	48.7
Single, Never Married	60	20.1	101	30.1
Separated	1	.3	5	1.5
Widowed	0	0.0	9	2.7
Divorced	14	4.7	46	13.7
Cohabitation	8	2.7	11	3.3
Education				
Attended or graduated from professional or graduate school	157	52.2	122	36.3
Graduated from college with an undergraduate degree	71	23.6	87	25.9
Graduated from technical school	21	7.0	15	4.5
Attended college or technical school after high school	38	12.6	80	23.8
Graduated from high school	4	1.3	21	6.3
Attended high school but received no diploma	7	2.3	8	2.4
Attended school for 9 years or less	3	1.0	3	.9
Age				
Under 25	33	11.0	58	17.2
25-30 years	54	18.0	78	23.1
31-35 years	43	14.3	57	16.9
36-40 years	70	23.3	38	11.3
41-45 years	45	15.0	42	12.5
46-50 years	20	6.7	17	5.0
51-55 years	20	6.7	21	6.2
56-years and higher	15	5.0	26	7.7
Income				
Under \$19,999	56	18.6	137	40.5
\$20,000 - \$29,999	56	22.3	82	24.3
\$30,000 - \$39,999	70	23.3	55	16.3
\$40,000 - \$59,999	72	23.9	44	13.0
\$60,000 and higher	36	12.0	20	5.9
Homeownership				
Own	246	82.8	197	58.6
Rent	51	17.2	139	41.4

TABLE II (Continued)

Variable	Owners		Nonowners	
	Number	Percent	Number	Percent
Length of Residency				
Less than 1 year	47	15.7	65	19.2
1 to 2 years	31	10.3	43	12.7
2 to 5 years	86	28.7	105	31.1
5 to 10 years	60	20.0	58	17.2
10 to 20 years	63	21.0	43	12.7
20 years or more	13	4.3	24	7.1
Type of Housing				
Single family dwelling	252	84.0	224	66.5
Apartment	21	7.0	61	18.1
Mobile Home	6	2.0	5	1.5
Condominium	10	3.3	8	2.4
Duplex/Triplex	7	2.3	25	7.4
Other	4	1.3	14	4.2
Location of Residence				
Large City--250,000 and higher	92	31.0	96	28.5
Intermediate City--50,000 to 249K	75	25.3	77	22.7
Small City--25,000-49,999	44	14.8	51	15.1
Large Town--2,500-24,999	45	15.2	59	17.5
Small Town and non-farm-rural	31	10.4	49	14.5
Working Farm	10	3.4	5	1.5
Occupation				
Professional and Technical	216	73.2	181	54.8
Student	22	7.5	42	12.7
Manager and Proprietor	35	11.9	41	12.4
Clerical	3	1.0	24	7.3
Homemaker	3	1.0	23	7.0
Service Worker	3	1.0	6	1.8
Retired	2	.7	6	1.8
Farmer	7	2.4	0	0.0
Laborer	4	1.4	7	2.1
Other	-0-	-0-	-0-	-0-
Geographic Regions				
Northeast	60	20.5	116	35.0
South	35	11.9	44	13.3
Central	78	26.6	69	20.8
West	120	41.0	102	30.8

Computer owners also reported extensive home ownership. Eighty-two percent reported owning their own homes whereas 58 percent of the non-owners owned their homes. More nonowners than owners appeared to move more often during the last five years. However, the groups were nearly equal for those living between 5 to 10 years at their current residence. The most significant observation was the number of owners who had maintained their residencies between 10 to 20 years. More nonowners reported living at the same residences 20 years or more.

Owners were more likely to report having professional and technical occupations. The groups were nearly equal for those reporting managerial and proprietor occupations. Little difference was reported in occupations between owners and nonowners for those in clerical, home-making, service workers or retired categories.

Factor Analysis

Factor analysis takes the variance defined by the intercorrelations among a set of measure and attempts to allocate it in terms of fewer underlying hypothetical variables. These hypothetical variables are called factors.

The 60 AIO statements were subjected to Factor Analysis to determine if fewer variables might underlie the relatively large number of variables on the basis of correlations. Sixteen factors resulted based on the criterion of an eigenvalue greater than one; these 16 factors explained 56 percent of the variation in the total set of 60 variables. The 16 factors determined by the principal components technique were then rotated by a varimax rotation to increase their interpretability. The resulting factors are shown in Table III; only those variables with loadings greater than .2 were used to summarize the factor.

TABLE III
FACTOR LOADINGS OF INSTRUMENT
ITEMS BY FACTOR TITLES

FACTOR 1: Self-Confidence		FACTOR 7: Community Minded	
Q18	.74439	Q40	.74981
Q 3	.70392	Q53	.74868
Q48	.42230	Q12	.67016
Q36	.25116	Q30	.53858
FACTOR 2: Culinary Enthusiast		FACTOR 8: Self-Designated Opinion Leader	
Q14	.85453	Q38	.75438
Q29	.82244	Q20	.68677
Q52	.71206	Q 4	.46944
Q42	.69510		
FACTOR 3: Sports		FACTOR 9: Satisfied Finances	
Q58	.85178	Q 7	-.78498
Q51	.82724	Q22	.68476
Q13	.80336	Q49	.38726
Q31	.72704		
Q56	.28729		
FACTOR 4: Price		FACTOR 10: Financial Optimist	
Q 1	.78327	Q25	.82822
Q37	.73642	Q24	.73373
Q16	.64066	Q 8	.63104
Q47	.41264		
FACTOR 5: Credit		FACTOR 11: Homebody	
Q17	-.79907	Q11	-.76354
Q 2	.78883	Q57	-.61621
Q35	.75166	Q41	.60774
Q46	-.65799		
FACTOR 6: Aesthetic Taste		FACTOR 12: Time Spent in Conducting Everyday Activities	
Q15	.74275	Q28	.66023
Q60	.68853	Q54	.61658
Q59	.62723	Q50	.46984
Q 9	.50898	Q27	.46318
Q33	.43776	Q39	.38551

TABLE III (Continued)

FACTOR 13: Computer Attitudes		FACTOR 14: General Attitudes	
Q32	.65472	Q21	.73026
Q43	.65201	Q26	.41751
		Q44	.21262
FACTOR 15: New Brand Tryer		FACTOR 16: Information Seeker	
Q 6	.55752	Q 5	.76006
Q34	.31460	Q45	.68330
Q55	.24183	Q19	.44519

Each of the question groupings was compared to previous research by Wells and Tigert and Plummer. A complete list of question groupings included in the present study along with question groupings from previous research is summarized in Appendix F. Forty-six of the questions were derived from Wells and Tigert; six were derived from a Life Style Profile bank of statements (Oklahoma Publishing Company, 1980) and the remaining eight questions were unique to the present study.

The "wide horizons" and the "arts enthusiast" groupings identified by Wells and Tigert loaded as one factor (Factor Six). Thus, these two groupings were combined and called "aesthetic enthusiast". The statement, "I would rather go to a sporting event than a dance" was included under both the homebody and the sports enthusiast groupings by Wells and Tigert. However, this statement factored only as part of the sports grouping in the present analysis.

Of the six statements from the Life Style Profile bank, three loaded as Factor 14, General Attitudes. These statements had to do with opinions about change. Three other statements were included from the Life Style Profile set. The statement "I engage in activities such as racquetball, tennis, health or exercise spa" factored under the Sports grouping, Factor 3. "My greatest achievements are still ahead of me" factored under the financial optimist, Factor 10. "I usually consult Consumer Reports or similar publications before making a major purchase" loaded under Factor 15, New Brand Tryer instead of under the expected Information Seeker.

Question groupings under Factors 12 and 13 were unique to the present study. Factor 12, Time Spent in Conducting Everyday Activities, included six questions. All but one loaded together. Question 10 was

deleted from further analysis since it did not load using the .2 criterion.

Factor 13, Computer Attitudes, consisted of two questions which loaded fairly high. The two statements were "Computer technology is an invasion of my privacy" and "I like to handle my own financial affairs without using any electronic machines".

All of the question groups were analyzed as traditional AIO statements, with the exception of Factors 12 and 13, the two new question groupings. Also, since the question groupings in Factor 14 had been used in previous life style research, this grouping was analyzed as one of the traditional AIO groupings. The remaining question groupings were the same as those used by Wells and Tigert.

Discriminant Analysis

The objective of a discriminant analysis is to classify objects through the use of a set of independent variables, into one of two or more mutually exclusive and exhaustive categories. Discriminant analysis is closely related to multiple regression analysis in that the purpose of both techniques is to derive a linear combination of a set of predictor variables which provides maximum predictive power for a given criterion variable. Discriminant analysis is used when the criterion variable is a categorical one and is frequently used in market segmentation research in which relatively homogeneous consumer groups are being identified (Winn and Lutz, 1973).

Winn and Lutz (1973) discussed the percent correctly classified procedures for assessment of predictive power. Although, the procedure is widely employed, it is not entirely satisfactory as a method for

evaluating discriminant analysis results. The percent correctly classified is not an estimate of "explained variance," which hinders direct comparison of relationships obtained under other forms of multivariate analysis. Second, the percent correctly classified can be misleading if not properly handled. Morrision (1969) discussed the possibility of upward biases in "canned computer programs" when classifying cases, since the data being classified was also the data used to generate the function.

The purpose of using a hold-out group for analysis is to avoid biases irrespective of specific computer programs. The discriminant functions are generated on a subsample, called the analysis subsample, which is drawn from the total sample. The derived functions are used for classifying members of the classification subsample, which constitutes the rest of the total sample.

As stated earlier, the hold-out subsample in the present study was randomly selected from the total population of 639 and its sample size was 210. The analysis subsample was randomly selected and its sample size was 429.

Using C_{pro} and C_{max} chance criterion models, further analysis was applied to the hold-out subsample for the purpose of determining if the resulting owners and nonowners were classified better than chance. Since the hold-out subsample was derived by random selection, the probability of correctly classifying was .50 using a proportional chance criterion model. The proportional chance criterion model discussed by Morrision (1969) is

$$C_{pro} = \alpha^2 + (1 - \alpha)^2$$

where α is the proportion of individuals in Group 1 and

$1 - \alpha$ is the proportion of individuals in Group 2.

In addition, one of the objectives of the discriminant analysis procedure is to maximize the percent correctly classified to determine if the discriminant functions could classify better than a policy of assigning all items to the largest group. The C_{\max} chance criterion is applied by using the following model:

$$C_{\max} = \max(\alpha, 1 - \alpha)$$

Thus, given the sampling approach used in this study, $C_{\max} = C_{\text{pro}} = .5$.

Winn and Lutz (1973) described the use of the Hays' \hat{W}_{multi}^2 statistic in the multivariate case. The computational formula for \hat{W}_{multi}^2 is shown as follows:

$$\hat{W}_{\text{multi}}^2 = 1 - \frac{N}{(N-k)(1 + \lambda_1)(1 + \lambda_2) \dots (1 + \lambda_r) + 1}$$

Where:

N = the total sample size

k = the number of groups in the analysis

λ_i = the i th eigenvalue

r = the total number of discriminant functions derived (which, by definition is equal to $k - 1$).

The \hat{W}_{multi}^2 index provides an estimate of the amount of variance in the criterion variable which is attributable to group differences. Because it is a measure of the total discriminatory power residing in the discriminant function, the \hat{W}_{multi}^2 index is useful when employing discriminant analysis in the process of validating a theoretical model.

Demographic Variables

Demographic variables included for discriminant analysis were

income, home ownership, education, age, marital status, location of residence, and type of residence. Using a stepwise procedure in SPSS, home ownership was found to be the variable which best discriminated between owners and nonowners of personal computers. The first function, home ownership, represented the initial maximum linear configuration for discrimination of the dependent variable of owners and nonowners of personal computers. Income, education, and age entered the configuration after home ownership and maximized what was not included in the first function.

Owners and nonowners were significantly discriminated on the home ownership and income variables more so than for education and age. Location, type of residence, and marital status variables were deleted from further analysis.

The discriminant function indicates that owners of personal computers are more likely to be home owners, have higher incomes, have more education and be slightly older than nonowners. The negative sign which appears for income indicates a positive relationship due to the fact that data were coded from low to high for this variable. Therefore, more owners had higher incomes than was true for nonowners. Age was expected to indicate greater differences between owners and nonowners. Owners were expected to be younger; however, the owners were slightly older.

The standardized and unstandardized canonical discriminant function coefficients are summarized in Table IV. The Chi Square test of significance was 58.834 with 4 df, which is significant at the 0.0000 level. Therefore, the researcher rejected the null hypothesis of no significant difference among demographic variables with computer ownership. The \hat{W}^2

TABLE IV
DISCRIMINANT ANALYSIS--DEMOGRAPHIC VARIABLES

ANALYSIS SUBSAMPLE		
Variables	Canonical Discriminant Function Coefficients	
	Standardized	Unstandardized
Home Ownership	.65	1.46
Income	-0.53*	-.20
Education	.39	.27
Age	.39	.18
		(Constant)-2.16

Percent Correctly Classified = 64.0%

$$\hat{w}_{\text{multi.}}^2 = .13$$

*Positive relationship

Model is significant (χ^2 , 58.834, 4df, $p < .0001$)

HOLDOUT SUBSAMPLE

<u>Actual</u>		<u>Predicted</u>		Total
		User	Nonuser	
User	71	23		94
Nonuser	42	52		94
total	113	75		188

Percent Correctly Classified = 65.4%*

$$C_{\text{pro}} = 50\%$$

$$C_{\text{max}} = 50\%$$

*Significant (z, 4.23, $p < .0001$)

was .13 for these demographic variables. This provides an estimate of the amount of variance which exists in the dependent variable which is due to group differences of owners and nonowners of personal computers.

The percent correctly classified was 64.0% for the analysis subsample. In order to test the stability of the four independent demographic variables and their associated discriminant functions, further analysis was completed on the hold-out subsample. The unstandardized coefficients and the constant served as a basis for making membership predictions as either owners or nonowners of personal computers. The percent correctly classified in the hold-out subsample was 65.4%. The classification matrix for the demographic variables indicates that the discriminant functions were able to discriminate equally as well as for the analysis subsample and better than chance. The z statistic comparing the percent correctly classified with chance (C_{pro}) was calculated to test for significance: z was 4.23 and therefore significant at the 0.0000 level.

Experiences

The experience variables included in the discriminant analysis were the 19 products or services which used some aspect of computer technology in their performance. The home computer experience question was deleted from the experience list because the dependent variable was confounded with it (see Table V).

Using a stepwise procedure in SPSS, the first variable to enter the configuration was video tv games, followed by programmable pocket calculator. Seven other variables entered the configuration, including credit cards, speed dial feature on the telephone, microwave oven,

TABLE V
DISCRIMINANT ANALYSIS--EXPERIENCES VARIABLES

ANALYSIS SUBSAMPLE Variables	Canonical Discriminant Function Coefficients	
	Standardized	Unstandardized
Programmable Pocket Calculator	.51	1.12
Video TV Games	.50	1.08
Speed Dialing	-.35	-1.00
Credit User	.25	.70
Pocket Calculator	.24	.87
Microwave Oven	.24	.48
Automatic Bill Paying	.16	.36
Alternative Long Distance	-.16	-.47
Automatic Garage Door Opener	.12	.27
		(Constant) -4.442803

Percent Correctly Classified = 68.8%

$$\hat{w}_{multi}^2 = .20$$

Model is significant (χ^2 , 94.446, 9df, $p < .0001$)

HOLD-OUT SUBSAMPLE

<u>Actual</u>	<u>Predicted</u>		Total
	User	Nonuser	
User	58	36	94
Nonuser	25	69	94
Total	83	105	188

Percent Correctly Classified = 67.6%*

$$C_{pro} = 50\%$$

$$C_{max} = 50\%$$

*Significant (z , 4.81, $p < .0001$)

pocket calculator, automatic bill paying, alternative to long distance phone systems, and automatic garage door opener. More nonowners had either had experience or indicated interest with speed dialing on the telephone and with alternative long distance phone systems than was true for the owners. Owners had more experience or interest in programmable pocket calculators, video tv games, and credit cards than nonowners.

The Chi Square test of significance was 94.446 with 9 df, which is significant at the 0.0000 level. Therefore, the researcher rejected the null hypothesis of no significant difference among experience variables with computer ownership. The \hat{w}^2 was .20 for these experience variables, which provides an estimate of the amount of variance which exists in the dependent variable and is due to group differences of owners and nonowners of personal computers.

The percent correctly classified was 68.8% for the analysis subsample and 67.6% for the hold-out subsample. The z statistic comparing the percent correctly classified in the hold-out with C_{pro} and C_{max} was 4.81 and therefore significant at the 0.0000 level.

All AIO Variables

The AIO statements were analyzed in two ways. One approach was to use only those AIO categories suggested by Wells and Tigert (1971). A second approach also included the two categories, time spent in conducting everyday activities and computer attitudes, added for the purposes of this study.

Using a stepwise procedure in SPSS, "computer attitudes" were found to be the variable which best discriminated between owners and nonowners of personal computers. The next best variable was "culinary enthusiast."

Owners were less concerned about question groupings for computer attitudes as well as for being a culinary enthusiast. One reason may be because the owners are more familiar with computer technology and therefore less concerned about the invasion of privacy and use of electronic machine for conducting financial transactions. Their lack of interest in culinary enthusiasm may be because they are more interested in computer technology than they are in baking, spices, and seasonings.

Owners are more prone to be a self-designated opinion leader, be an information seeker, have more financial satisfaction, be a homebody, spend more time in conducting everyday activities and use more credit than nonowners.

The remaining two variables to enter the configuration were aesthetic enthusiast and general attitudes. Owners tend to be less concerned about aesthetics and less worried about prospective change.

All of the AIO variables in the function and their standardized and unstandardized canonical discriminant function coefficients are summarized in Table VI. The Chi Square test of significance was 114.34 with 10 df, which is significant at the 0.0000 level. Therefore, the researcher rejected the null hypothesis of no significant difference among AIO variables with computer ownership. The \hat{w}^2 was .23 for all of these AIO variables, which provides an estimate of the amount of variance which exists in the dependent variable due to group differences of owners and nonowners. All of these AIO variables explain slightly more variance than did the demographic and experience variables.

The percent classified correctly was 74.4% for all of these AIO variables in the analysis subsample and 73.4% for the hold-out subsample. A z statistic was used to compare the percent classified correctly with

TABLE VI
DISCRIMINANT ANALYSIS--ALL A10 VARIABLES

ANALYSIS SUBSAMPLE		
Variables	Canonical Discriminant Function Coefficients	
	Standardized	Unstandardized
Computer Attitudes	-.45	-.24
Culinary Enthusiast	-.40	-.11
Self-Designated Opinion Leader	.36	.17
Information Seeker	.31	.14
Aesthetic Enthusiast	-.29	-.074
Satisfaction with Finances	.27	.11
General Attitudes	-.24	-.13
Homebody	.18	.071
Time Spent in Conducting Everyday Activities	.15	.052
Credit User	.12	.032
		(Constant)-.50

Percent Classified Correctly = 74.4%

$\hat{W}^2_{\text{multi.}} = .23$

Model is significant (X^2 , 114.34, 10df, $p < .0001$)

HOLD-OUT SUBSAMPLE

<u>Actual</u>	<u>Predicted</u>		Total
	User	Nonuser	
User	71	23	94
Nonuser	27	67	94
Total	98	90	188

Percent Correctly Classified = 73.4%*

$C_{\text{pro}} = 50\%$

$C_{\text{max}} = 50\%$

*Significant (z , 6.42, $p < .0001$)

C_{pro} and C_{max} ; z was 6.42 and therefore significant at the 0.0000 level.

Traditional AIO Variables

The traditional AIO statements were analyzed without the two new groupings which were time spent in conducting everyday activities and computer attitudes. Using a stepwise procedure in SPSS, culinary enthusiast was found to be the variable which best discriminated between owners and nonowners of personal computers. The second best variable to discriminate between the dependent variable was self-designated opinion leader. Other variables which entered the configuration through the stepwise procedure were aesthetic enthusiast, information seeker, general attitudes, satisfaction with finances, community minded, self-confident, homebody, price conscious, and credit user (see Table VII).

Owners were likely to be more self-confident, use credit more often, view themselves as a self-designated opinion leader, be more satisfied with their finances, be an information seeker and a homebody when compared to the nonowners. Although culinary enthusiast entered the configuration first as the best discriminant variable, owners were less interested in baking, seasonings, and spices. Owners were slightly more concerned about price consciousness than the nonowners.

Less interest was indicated for aesthetic enthusiast and in community mindedness by the owners. However, owners were less concerned about change as indicated in the general attitude grouping.

All of the traditional AIO variables in the function and their standardized and unstandardized canonical discriminant function coefficients are summarized in Table VII. The Chi Square test of significance was 102.46 with 11 df, which is significant at the 0.0000 level.

TABLE VII
DISCRIMINANT ANALYSIS--TRADITIONAL A10 VARIABLES

ANALYSIS SUBSAMPLE		Canonical Discriminant Function Coefficients	
Variables		Standardized	Unstandardized
Information Seeker		.45	.20
Culinary Enthusiast		-.44	-.12
Self-Designated Opinion Leader		.35	.17
Aesthetic Enthusiast		-.32	-.081
Self-Confident		.29	.13
General Attitudes		-.26	-.14
Community Minded		-.23	-.064
Satisfaction with Finances		.19	.079
Homebody		.15	.061
Price Conscious		-.15	-.051
Credit User		.13	.033
			(Constant)-1.15
Percent Correctly Classified = 72.7%			
$\hat{W}^2_{\text{multi.}} = .21$			
Model is significant (X^2 , 102.46, 11df, $p < .0001$)			
HOLD-OUT SUBSAMPLE			
Actual		Predicted	Total
	User	Nonuser	
User	65	29	94
Nonuser	24	70	94
Total	89	99	188
Percent Correctly Classified = 71.8%*			
$C = 50\%$			
$C^{\text{pro}} = 50\%$			
C^{max}			

*Significant (z , 5.98, $p < .0001$)

The researcher, therefore, rejected the null hypothesis of no significant difference among traditional AIO variables with computer ownership or nonownership. The \hat{W}^2 was 2.1 for the traditional AIO variables, which provides an estimate of the amount of variance which exists in the dependent variable due to group differences.

The percent correctly classified was 72.7% for the analysis subsample and 71.9% for the hold-out subsample. A z statistic comparing the percent correctly classified in the hold-out with C_{pro} and C_{max} was 5.98 and therefore significant at the 0.0000 level.

Three Sets of Variables

Two additional analyses were completed using all three sets of independent variables. All three sets of independent variables were analyzed using a stepwise procedure in SPSS. Eleven variables, which included computer attitudes, were found to discriminate between owners and nonowners. Video tv games were found to be the variable which best discriminated between owners and nonowners. The second variable to enter the configuration was culinary enthusiast. This variable was followed by self-designated opinion leader, home owner, computer attitudes, programmable pocket calculator, information seeker, speed dial feature on the telephone, aesthetic enthusiast, education, and financial satisfaction.

Owners had more experience with video tv games and programmable pocket calculators than nonowners. Home ownership, higher educational attainment, and greater satisfaction with finances was also true for the owners. Owners were also more prone to view themselves as information seekers and as self-designated opinion leaders.

As was true in earlier analyses, owners were less afraid of change as indicated in the grouping on general attitudes. Again, owners were less interested in culinary and aesthetic activities.

The 11 variables in the function and their standardized and unstandardized canonical discriminant function coefficients are summarized in Table VIII. The Chi Square test of significance was 116.07 with 11 df, which was significant at the 0.0000 level. The \hat{w}^2 was .23 for these 11 variables.

The percent classified correctly was 76.2% in the analysis subsample and 72.3% in the hold-out subsample. A z statistic comparing the percent correctly classified with C_{pro} and C_{max} was calculated to test for significance: z was 6.27 and therefore significant at the 0.0000 level.

10 Variables

A second analysis was completed of the more traditional variables by deleting the question grouping on computer attitudes. The same stepwise procedure was used as before. Video tv games were found to be the best discriminating variable, the same as for the group of 11 variables. Culinary enthusiast was the second best discriminating variable. Other variables which entered the configuration were self-designated opinion leader, home owner, programmable pocket calculator, information seeker, speed dial feature on the telephone, aesthetic enthusiast, education, and satisfaction with finances. In the previous analysis of 11 variables, the computer attitudes grouping entered the configuration after home ownership. Otherwise, the configurations were identical for both analyses (see Table IX). The Chi Square test of significance was 150.20 with 10 df, which was significant at the 0.0000 level. The \hat{w}^2 was .31 for these 10 variables.

TABLE VIII
DISCRIMINANT ANALYSIS--11 VARIABLES

ANALYSIS SUBSAMPLE			
Variables	Canonical Discriminant Function Coefficients		
	Standardized	Unstandardized	
Video tv games	.38	.82	
Programmable Pocket Calculator	.37	.82	
Computer Attitudes	-.35	-.19	
Home Ownership	.35	.77	
Information Seeker	.29	.13	
Self-Designated Opinion Leader	.26	.12	
Culinary Enthusiast	-.25	-.067	
Speed Dial on Telephone	-.23	-.68	
Aesthetic Enthusiast	-.22	-.057	
Education	.18	.12	
Satisfaction with Finances	.16	.065	
		(Constant) -2.77	
Percent Correctly Classified = 76.2%			
$\hat{W}^2_{\text{multi.}} = .33$			
Model is significant (X^2 , 116.07, 11 df, $p < .0001$)			
HOLD-OUT SUBSAMPLE			
<u>Actual</u>	Users	<u>Predicted</u> Nonusers	Total
Users	66	28	94
Nonusers	23	71	94
Total	89	99	188
Percent Correctly Classified = 72.3%*			
$C = 50\%$			
$C^{\text{pro}} = 50\%$			
C^{max}			

*Significant (z , 6.27, $p < .0001$)

TABLE IX
DISCRIMINANT ANALYSIS--10 VARIABLES
(without computer attitudes)

ANALYSIS SUBSAMPLE			
Variables	Canonical Discriminant Function Coefficients		
	Standardized	Unstandardized	
Video TV games	.45	.97	
Programmable Pocket Calculator	.40	.87	
Culinary Enthusiast	-.32	-.087	
Information Seeker	.32	.14	
Home Owner	.31	.70	
Self-Designated Opinion Leader	.29	.14	
Speed Dial Telephone	-.26	-.75	
Aesthetic Enthusiast	-.24	-.061	
Education	.19	.13	
Satisfaction with Finances	.12	.51	
		(constant)	-4.07
Percent Correctly Classified = 75.0%			
$\hat{w}^2_{\text{multi.}} = .31$			
Model is significant (χ^2 , 150.20, 10 df, $p < .0001$)			
HOLD-OUT SUBSAMPLE			
<u>Actual</u>	Users	<u>Predicted</u> Nonusers	Total
Users	65	29	94
Nonusers	25	69	94
Totals	90	98	188
Percent Correctly Classified = 71.3%*			
$C = 50\%$			
$C_{\text{pro}} = 50\%$			
C_{max}			

*Significant (z, 5.83, $p < .0001$)

The percent classified correctly was 75.0% in the analysis subsample and 71.3% in the hold-out subsample. A z statistic comparing the percent correctly classified with C_{pro} and C_{max} was calculated to test for significance: z was 5.83 and therefore significant at the 0.0000 level.

Summary of Discriminant Analysis

All of the A10 variables were the best discriminators in determining differences between owners and nonowners of personal computers. These variables, which included the two new question groupings on time spent in conducting everyday activities and computer attitudes, were able to correctly classify 73.4 percent of the hold-out subsample. The explained variance was .23 as measured by the \hat{w}^2 statistic.

The second best set of discriminating variables were the traditional A10's, which did not include the two new question groupings. These variables were able to correctly classify 71.8 percent of the hold-out subsample and the explained variance was .21 as measured by \hat{w}^2 .

Experiences were able to explain .20 of the variance using the \hat{w}^2 statistic and able to correctly classify 67.6 percent of the hold-out subsample. Demographic variables were least able to discriminate between owners and nonowners. These variables were able to correctly classify 65.4 percent and the explained variance was .13 as measured by the \hat{w}^2 .

Using all three sets of independent variables, 11 variables were analyzed. The first two variables were found to enter the stepwise procedure first were from the experiences. These were video tv games and programmable pocket calculator. The third discriminating variable to enter the configuration was the computer attitudes question grouping which was developed specifically for the present study and analyzed as

one of the A10 statements. The remaining variables to enter the configuration were home ownership from the demographics; information seeker from the A10's; self-designated opinion leader from the A10's; culinary enthusiast from the A10's; speed dial feature on the telephone from the experiences; aesthetic enthusiast from the A10's; education from the demographics; and satisfaction with finances from the A10's. In summarizing the analysis of the 11 variables, three were from the experiences, two were from the demographics and the remaining six were from the A10 statements. However, the best discriminating variables were from the experiences.

The question grouping on computer attitudes was deleted and the remaining 10 variables were analyzed using the same stepwise procedure as described earlier. The first two variables to enter the configuration were the same as for the 11 variables: video tv games and programmable pocket calculator. The third variable to enter the configuration was culinary enthusiast followed by information seeker, home ownership, self-designated opinion leader, speed dial feature on the telephone, aesthetic enthusiast, education and satisfaction with finances. Three variables were from the experiences, two were from the demographics, and the remaining five were from the A10 statements. Again, the best discriminating variables were from the experiences.

The 11 variables were able to correctly classify 72.3 percent of the hold-out subsample as either owners or nonowners of personal computers. Using the w^2 statistic, .33 of the variance was explained by this set of variables. In comparing the hold-out subsample to the analysis group which was able to correctly classify 76.2 percent, a 3.9 percent differential exists. The analysis subsample for the 10 variables was able to

correctly classify 75.0 percent while the hold-out subsample was able to classify 71.3 percent correctly for a difference of 3.7 percent. The \hat{W}^2 statistic for the 10 variables was .31 which was very near the .33 explained variance for the 11 variables.

As discussed earlier, the purpose of using a hold-out subsample was to avoid an upward bias in classifying individuals as owners or nonowners. The method used to avoid this bias was to fit a discriminant function to part of the data and then use this function to classify the remaining individuals. In all cases, there were no radical decreases in the percent correctly classified from the analysis subsample to the hold-out subsample. Consequently, the researcher concludes that the relationships discussed above are relatively stable ones.

Guttman Scaling

In order to gain some insight about the array of experiences which the respondents have had with computer technology, an investigation was made of the priority patterns for ownership and for intentions to acquire a set of 20 products or services. Earlier studies by Wells, Banks and Tigert (1968) and by McFall (1969) leave the implication that people may think and buy in sets or clusters of products. McFall (1969) studied the procedure followed by consumers in acquiring the sets of durables which make up their households.

Consumers tend to arrange their purchase of durables according to acquisition priorities. In most households, a range would be purchased before a television set. The durables in any set establish a hierarchy of acquisition which forms the priority pattern of acquisition.

A priority pattern was determined for both the computer owners and for the nonowners. Each priority pattern established a hierarchy for current ownership of each of the 20 products or services which interfaced with computer technology. An intentions for acquisition pattern was obtained for the same 20 products and services. The ownership and intentions to acquire patterns are summarized in Tables X and XI, respectively.

The 20 products or services were clustered around five sets; entertainment, communications, financial or business transactions, convenience durables and new electronic products. The sets are summarized in Appendix G.

When comparing both ownership and intentions patterns for the computer owners, video tv games ranked number six in terms of ownership but number 17 in terms of intentions for acquisition. The communications subset of call-waiting or forwarding, telephone answering service, alternative long distance phone service, and speed dialing feature of the telephone ranked low for intentions. Only the alternative long distance phone feature increased in rank. Perhaps the computer owner has the video tv games feature at present, but has no plans for purchasing separate video games. As owners learn to use their computers, games can be developed to utilize the personal computer capabilities.

Ownership of a video recorder ranked number 15 in ownership but number 4 in intentions for acquisition. The on-board computer panel in the car ranked number 20 in ownership and number 16 for intentions.

The ownership pattern for the nonowners of personal computers was similar to the owners with the exception of computer ownership. Two items, pocket calculators and credit cards, were the same for both

TABLE X
OWNERS PRIORITY PATTERN FOR EXPERIENCES

Ownership	Intentions
1. Home Computer	1. Home Computer
2. Pocket Calculator	2. Pocket Calculator
3. Credit Cards	3. Credit Cards
4. Digital Watch or Clock	4. Video TV Recorder
5. Microwave Oven	5. Digital Watch or Clock
6. Video TV Games	6. Cable Television Service
7. Automated Teller Machine	7. Automated Teller Machine
8. Cable Television Service	8. Microwave Oven
9. Programmable Pocket Calculator	9. Entertainment Channel Service
10. Automatic Deposits	10. Automatic Garage Door Opener
11. Entertainment Channel	11. Income Tax Statement Verified
12. Automatic Bill Paying	12. Automatic Deposits
13. Automatic Garage Door Opener	13. Automatic Bill Paying
14. Income Tax Statements	14. Alternative Long Distance Phone
15. Video TV Recorder	15. Programmable Pocket Calculator
16. Call-Waiting or Forwarding	16. On-Board Computer Panel in Car
17. Telephone Answering Service	17. Video TV Games
18. Alternative Long Distance	18. Speed Dialing on Telephone
19. Speed Dialing on Telephone	19. Call-Waiting or Forwarding
20. On-Board Computer Panel in car	20. Telephone Answering Service

Rep = .85

Rep = .88

TABLE XI
NONOWNERS PRIORITY PATTERN FOR EXPERIENCES

Ownership	Intentions
1. Pocket Calculator	1. Credit Cards
2. Credit Cards	2. Pocket Calculator
3. Digital Watch or Clock	3. Digital Watch or Clock
4. Automatic Teller Machine	4. Microwave Oven
5. Cable Television Service	5. Cable Television Service
6. Microwave Oven	6. Entertainment Channel Service
7. Automatic Deposits	7. Automatic Teller Machine
8. Entertainment Channel Service	8. Automatic Bill Paying
9. Automatic Bill Paying	9. Automatic Deposits
10. Video TV Games	10. Automatic Garage Door Opener
11. Automatic Garage Door Opener	11. Video TV Recorder
12. Programmable Pocket Calculator	12. Home Computer
13. Income Tax Statements	13. Alternative Long Distance Phone
14. Alternative Long Distance Phone Service	14. Income Tax Statements
15. Call-Waiting or Forwarding	15. Speed Dialing on Telephone
16. Speed Dialing on Telephone	16. Programmable Pocket Calculator
17. Telephone Answering Service	17. Video TV Games
18. Video TV Recorder	18. Call-Waiting or Forwarding
19. On-Board Computer Panel in car	19. Telephone Answering Service
20. Home Computer	20. On-Board Computer Panel in Car

Rep = .88

Rep = .90

ownership and intentions. The nonowners ranked credit card acquisition as number one for intentions to acquire.

Nonowners ranked acquisition of a home computer as number 12 out of a possible 20. This indicates some intention to acquire. Of the nonowners queried about their intentions to purchase a personal computer within the next five years, one-third indicated they planned to do so.

Although video tv games ranked number 10 in ownership the nonowners ranked them as number 17 for intentions which was lower than for a home computer. The video recorder was ranked as number 18 for ownership and number 11 for intentions.

Again, the communications subset ranked very low in terms of ownership. Only the alternative to long distance phone systems ranked higher for intentions. This was ranked directly below that for the home computer.

The Guttman Coefficient of Reproducibility (Rep) is the most widely used measure for determining the extent of deviation from a perfect scale as measured by the ratio of actual errors to the total possible errors. Neither ownership nor acquisition priorities are found to be in perfect agreement. A value of one indicates perfect reproducibility while a zero indicates nonreproducibility. A Rep value of 0.9 is generally considered acceptable for ex post scaling according to McFall (1969) although Guttman (1971) assumes a valid scale if the Rep exceeds 0.85.

The Rep's obtained in the present study were all within the 0.85 to 0.90 range. The Rep values for ownership and intentions by owners were .85 and .88 respectively and .88 and .90 respectively for the nonowners.

Ownership patterns and intentions for acquisition patterns were compared between owners and nonowners and are summarized in Tables XII

TABLE XII
OWNERSHIP PATTERNS FOR OWNERS AND NONOWNERS
BY EXPERIENCES WITH COMPUTER TECHNOLOGY

Owners Ownership	Nonowners Ownership
1. Home Computer	1. Pocket Calculator
2. Pocket Calculator	2. Credit Cards
3. Credit Cards	3. Digital Watch or Clock
4. Digital Watch or Clock	4. Automatic Teller Machine
5. Microwave Oven	5. Cable Television Service
6. Video TV Games	6. Microwave Oven
7. Automatic Teller Machine	7. Automatic Deposits
8. Cable Television Service	8. Entertainment Channel Service
9. Programmable Pocket Calculator	9. Automatic Bill Paying
10. Automatic Deposits	10. Video TV Games
11. Entertainment Channel	11. Automatic Garage Door Opener
12. Automatic Bill Paying	12. Programmable Pocket Calculator
13. Automatic Garage Door Opener	13. Income Tax Statements
14. Income Tax Statements	14. Alternative Long Distance Phone Service
15. Video TV Recorder	15. Call-Waiting or Forwarding
16. Call-Waiting or Forwarding	16. Speed Dialing on Telephone
17. Telephone Answering Service	17. Telephone Answering Service
18. Alternative Long Distance	18. Video TV Recorder
19. Speed Dialing on Telephone	19. On-Board Computer Panel in Car
20. On-Board Computer Panel in Car	20. Home Computer
Rep = .85	Rep = .88

and XIII. Usage of credit cards, pocket calculators, digital watch/clock, microwave ovens, income tax computer prepared and verified and automatic garage door openers was very similar for both owners and nonowners. Video games, programmable pocket calculators and video tv recorders were higher for the owners than for the nonowners. More nonowners used automated teller machines, cable television service, used automatic deposit features and entertainment television channels than did the owners. Ownership of the entire communications subset was low for both groups.

The intentions for acquisition patterns differed between the groups regarding home computers. Nonowners indicated some intentions to acquire a home computer. More nonowners than owners had intentions for acquiring a microwave oven, for using automatic bill paying and automatic deposit services. The nonowners indicated less interest than owners in acquiring the on-board digital computer panel in a car. Both groups held low intentions for acquiring items in the communications subset.

The Rep. values for ownership patterns between owners and nonowners was .85 and .88 respectively. Both were within acceptable range. The Rep. values for intentions between owners and nonowners was .88 and .90 respectively.

Computer Activities

Information was obtained about how the 301 owner respondents used their computer, including specific family member participation. Table XIV summarizes 17 activities performed and the family members who participated in those activities. Games were the most frequently reported activity followed by learning to use the computer, learning computer

TABLE XIII
 INTENTIONS PATTERNS FOR OWNERS AND NONOWNERS
 BY EXPERIENCES WITH COMPUTER TECHNOLOGY

Owners Intentions	Nonowners Intentions
1. Home Computer	1. Credit Cards
2. Pocket Calculator	2. Pocket Calculator
3. Credit Cards	3. Digital Watch or Clock
4. Video TV Recorder	4. Microwave Oven
5. Digital Watch or Clock	5. Cable Television Service
6. Cable Television Service	6. Entertainment Channel Service
7. Automatic Teller Machine	7. Automatic Teller Machine
8. Microwave Oven	8. Automatic Bill Paying
9. Entertainment Channel Service	9. Automatic Deposits
10. Automatic Garage Door Opener	10. Automatic Garage Door Opener
11. Income Tax Statement Verified	11. Video TV Recorder
12. Automatic Deposits	12. Home Computer
13. Automatic Bill Paying	13. Alternative Long Distance Phone
14. Alternative Long Distance Phone	14. Income Tax Statements
15. Programmable Pocket Calculator	15. Speed Dialing on Telephone
16. On-Board Computer Panel in Car	16. Programmable Pocket Calculator
17. Video TV Games	17. Video TV Games
18. Speed Dialing on Telephone	18. Call-Waiting or Forwarding
19. Call-Waiting or Forwarding	19. Telephone Answering Service
20. Telephone Answering Service	20. On-Board Computer Panel in Car

Rep = .88

Rep = .90

TABLE XIV
COMPUTER ACTIVITIES AND FAMILY MEMBER PARTICIPATION

COMPUTER ACTIVITIES	Percent By Users	Male Only	Female Only	Child Only	Male-Female	Male-Child	Female-Child	All Three
Budgeting	42.3	31.9	3.7		5.4	.3		.3
Investment Analysis	30.2	23.5	2.0		3.0	.3		
Grocery Lists	7.0	2.7	2.7		2.0			
Income Tax	29.9	24.2	1.0		4.4			
Cash Flow Analysis	25.2	19.8	1.0		3.4	.3		
Learning Computer Language	85.2	47.3	3.4	3.0	7.4	13.1	1.0	8.1
Learning to Use Computer	86.2	34.9	3.4	7.0	10.1	13.1	1.7	15.1
Solving Problems	62.8	42.3	1.3	1.3	4.4	8.1	.3	3.4
Household Inventory Records	27.9	18.8	2.0	.3	4.4	.7	.7	
Family Insurance Records	8.4	6.4	1.7		1.0			
Credit Card Records	16.4	11.4	2.3		2.3			
Family Business	34.2	23.8	2.0		7.0	1.0		
Games	90.3	22.4	1.0	12.4	14.7	11.0	1.0	25.8
Use as Part of Work	66.1	50.0	1.7	.7	11.1	.3		
Doing Homework	23.8	8.4	1.0	9.7	2.0	1.7	.3	
Learning Drills	26.5	6.7	1.0	10.7	2.0	4.7	1.0	
Other	17.4	11.4	1.3	.7	3.4	.3		.3

languages, using as part of work and solving problems. The next five activities performed in descending order were budgeting, family business, investment analysis, income tax and cash flow analysis. The least performed activity was using the computer for grocery lists. Only seven percent checked use in this category.

Computers in the home have begun to change family interaction processes. Most of the 17 activities were performed by males; however, breakdowns for other family member participation were obtained. The activity most often performed by all family members was games. Other computer activities for all family members included learning to use the computer, learning computer languages, and solving problems.

Children only participated in the areas of learning computer languages, learning to use the computer, solving problems, household inventory records, games, doing homework and learning drills. Women were more likely to participate in three activities. These were budgeting, learning computer languages, and learning to use the computer. However, women used the computer for all 17 activities.

Couples used their computer for games, as part of their work, learning how to use the computer, learning computer languages and for family business. Parent-child interaction with the computer was similar to activities already identified. Games, learning languages and how to use the computer were the most frequently reported activities performed. The participation of female parents with their children was low for all computer activities.

Placement of the computer within the home was most frequently given as in a den or study (45.3%). Seventeen percent reported their computers were located in the bedroom. Other room locations included the family

room for 13 percent, living room for 12 percent, and kitchen for two percent. Of the nine percent who checked the category, "other", most reported their computers were located in the basement or in a separate "computer" room.

Seventy-five percent said the decision to purchase a home computer was made by a male. Twenty-one percent of the decisions to purchase were made as a joint purchase between male and female. Nearly two percent were made by females, the same as for those made by a male and a child. One percent of the decisions to purchase were made by a child. Ninety percent of the total sample population said their children had been exposed to computers through their friends, school or family.

Summary

This chapter presented a discussion of the statistical procedures used to analyze the three independent variables and one dependent variable identified for this study. An analysis and classification procedure is described for classifying membership as either owners or nonowners of personal computers. The experience variable was also analyzed using Guttman scaling to establish consumer priority patterns for acquisition and ownership.

Computer activities were analyzed for the owners. Family member participation, room location and decision to purchase were included.

CHAPTER V

SUMMARY, IMPLICATIONS AND RECOMMENDATIONS

Purposes and Objectives

Personal computers are entering the home and the effects of the computer on everyday life are beginning to emerge. As the role of home computers expands, such traditions as the morning newspaper and the afternoon mail may disappear.

Until recently, the study of the adoption of computer technology involved industrial purchasing behavior rather than consumer behavior. The advent of home computers poses several questions. What type of individual is adopting the home computer? How will life styles differ between users and nonusers of home computers? How do owners use their personal computers? What role do children play in the decision to purchase a personal computer?

The purpose of this study was to investigate differences between owners and nonowners of personal computers. Specific objectives were to (1) analyze the relationship of demographic variables upon the ownership or nonownership of personal computers, (2) assess whether activities, interests, and opinions (AIO) differ between owners and nonowners, and (3) assess differences between owners in their experiences with computer technology. Further insight was gained as to how home computers were being used.

Known computer users were sampled from a list supplied by a major personal computer manufacturer. Nonusers were sampled from a purchased mailing list of subscribers to a national magazine whose demographic characteristics exhibited a profile similar to those included in the user group. Both groups had higher than average incomes, educational attainment and home ownership patterns when compared to U.S. Census data.

Data were collected using a mailed self-administered questionnaire. Questionnaires were sent to 760 in the user group which yielded a 42 percent response rate while 1250 were mailed to the nonuser group for a response rate of 25 percent. The total response rate was 32 percent yielding 639 usable questionnaires. Two follow-ups were completed. A post card was mailed to serve as a thank you/reminder one week after the questionnaires were mailed. The second follow-up was completed to check for non-response bias: non-respondents were found to be similar demographically to the respondents.

Discussion of Findings

Differences were identified between owners and nonowners of personal computers through the use of discriminant analysis. Therefore, the researcher rejected the three hypotheses of no significant differences between owners and nonowners. These differences were significant at the $p < .0001$ level for each of the three independent variables.

All of the A10 statements were able to correctly classify 73.4 percent followed by experiences which were able to correctly classify 67.6 percent. The demographic variables were able to correctly classify 65.4 percent. The traditional A10's were able to correctly classify

71.8 percent while all of the A10's, which contained the question grouping on computer attitudes developed for the present study, were able to correctly classify 73.4 percent.

Using all three sets of independent variables, 72.3 percent were correctly classified using the computer attitudes grouping and 71.3 percent when this variable was removed. The five best discriminating variables were (1) video TV games from the experiences, (2) programmable pocket calculator from the experiences, (3) computer attitudes from the A10's, (4) home ownership from the demographics, and (5) information seeker from the A10's.

When the computer attitudes grouping was removed and the 10 variables were analyzed, the five best discriminating variables were (1) video TV games from the experiences, (2) programmable pocket calculator from the experiences, (3) culinary enthusiast from the A10's, (4) information seeker from the A10's and (5) home ownership from the demographics.

Experiences were found to contribute to the A10 statements in the formation of a personal computer user profile. Video TV games and programmable pocket calculators were the best discriminating variables for experiences.

Computer owners tended to be information seekers, consider themselves self-designated opinion leaders, be confident, financially satisfied, be a homebody, a homeowner and be married. Owners were also slightly older than nonowners. Also, owners reported professional and technical occupations.

Owners were least interested in the culinary and aesthetic enthusiast groupings from the A10's. Their lack of interest in culinary enthusiasm may be because they are more interested in computer technology

than they are in baking, spices and seasonings. The aesthetic grouping contained questions about travel and enjoyment in ballet and music. Owners were consistently low in their interest for these activities and interests.

The question grouping on general attitudes provided some insight about change. Owners were less afraid of change than nonowners. Also, owners tended to be slightly price conscious than nonowners.

Experiences were also analyzed using a Guttman Scaling procedure. A priority pattern was determined about both the computer owners and nonowners. Each priority pattern established a hierarchy for current ownership as well as for intentions to acquire for each of the 20 products or services which interfaced with computer technology. These products or services were clustered around five sets: entertainment, communications, financial or business transactions, convenience durables and new electronic products.

The Guttman Coefficient of Reproducibility (Rep) was used to measure the extent of deviation from a perfect scale as measured by the ratio of actual errors to the total possible errors. The Rep's obtained were all within the .85 to .90 range and considered acceptable.

Owners ranked fairly high in their ownership of video TV games but held very low intentions for acquiring or replacing the games. As owners learn to use their computers, games can be developed to utilize the personal computer capabilities. Ownership of video recorders ranked number 15 in ownership but number 4 in intentions for acquisition. Two items, pocket calculators and credit cards, were the same for both ownership and intentions. Nonowners ranked acquisition of a home computer as 12 out of 20. This indicates some intention to acquire.

Information was obtained about how the 301 owner respondents used their computer including specific family member participation. The activities performed most frequently by the owners of home computers were (1) games, (2) learning to use the computer, (3) learning computer languages, (4) use as part of work, and (5) solving problems.

Most of the 17 activities were performed by males, however, breakdowns for other family member participation were obtained. Children participated in the areas of learning computer languages, learning to use the computer, solving problems, household inventory records, games, doing homework and learning drills. Women were more likely to participate in three activities. These were budgeting, learning computer languages, and learning to use the computer although they participated some in all 17 activities.

Couples used their computer for games, as part of their work, learning how to use the computer, learning computer languages and for family business. Parent-child participation with the computer was similar to activities already identified. Games, learning languages and how to use the computer were most frequently reported activities performed. The participation of female parents with their children was low for all computer activities. Two activities were most frequently performed by all family members. These were games and in learning to use the computer.

Placement of the computer within the home was most frequently given as in a den or study (42.3%). Seventeen percent reported their computers were located in the bedroom. Other room locations included the family room, living room and kitchen. Of the nine percent who checked the category, "other", most reported their computers were located in the basement or in a separate "computer" room.

Seventy-five percent said the decision to purchase a home computer was made by a male. Twenty-one percent of the decisions to purchase were made as a joint purchase between male and female. Nearly two percent were made by females as was true for those made by a male and a child. One percent of the decisions were made by a child.

Ninety percent of the total sample population said their children had been exposed to computers through their friends, school or family. Thirty-six percent of the nonowners indicated their intent to purchase a computer within five years.

An issue central to this research is whether a personal computer is considered an innovation. The data presented in this study suggest that personal computers are still in the beginning stages of innovation as the owners were most frequently using their computers to learn how to use them, learn computer languages, and for games.

Implications

Use of Experience Variable

The results of this study support the fact that experiences with computer technology are taking place in the lives of these respondents. Experiences are a successive construing and reconstruing of what happens, as it happens that enriches the experience of a person's life. Furthermore, the person who begins to see recurrent themes and the orderliness in a sequence of events begins to experience them. Self-concept further contributes to experiences through perceptions of one's characteristics, abilities, values and goals to be achieved in relation to ideas that are perceived as being positive or negative.

Negative experiences may lead to some reluctance to use or actual fear of using computers. However, people are experiencing the benefits of computer technology. Even though half of the respondents did not own a personal computer, they were still experiencing benefits of the technology.

Such experiences will affect everyday life as computer technology becomes increasingly diffused within the social system. The central focus for conducting business, family, education, entertainment, communication, health and leisure activities may soon become familiar experiences. Positive experiences with computer technology will impact upon the rate of adoption as people decide to participate in the innovation of personal computers.

Experiences with computer technology contributed extensively to the analysis of data in this study. Experiences with video tv games and programmable pocket calculators were the best discriminating variables. When all three sets of independent variables were analyzed, experiences were found to heavily contribute in the determination of best discriminating variables.

Clearly, the "experience" construct was a rich one in terms of this study of the acceptance of computer technology. The construct may serve well as a predictor in other situations, as suggested by Kelly (1955) and as indicated by the more recent research by Tybout and Yalch (1980) and Hirschman (1980).

Implications for Public Policy

Early adoptors, owners and users of personal computers included in this study appear to have less concern with public policy issues

surrounding the personal computer. For example, issues such as privacy, regulation, accessing information and linkages with other systems such as the telecommunication network already in place, were not critical to respondents in this study. This may focus the "future shock" concept as it relates to personal computer use and ownership. Based on this research, it would appear that these early adopters are comfortable with their control and use of equipment. Change does not appear to pose a threat to these respondents. This provides not only another interesting characteristic of early adopters of personal computers but may also suggest less concern with public policy issues than previously thought. As computer ownership and use expands, public policy issues surrounding the computer innovation will become less important.

Regulation and education are two familiar approaches to public policy issues. The results of this study suggest that consumer education rather than regulation may be the more appropriate approach since the respondents in this study were less concerned with issues as privacy, communication and information.

Implications for Marketing Managers

Previous studies which define or pertain to early adopters suggest youth as a strong characteristic. Age was therefore expected to make a difference in this study of early adopters of personal computers. This study clearly indicates that income and education are characteristics of early adopters of computer technology rather than age. This may suggest that common or shared characteristics of early adopters of personal computers are not consistent with previous general characteristics of early adopters of new products or technologies. If this finding holds

in additional research on personal computer technology, it may have significance for those who pioneer and market personal computer systems. It should be pointed out, though, that both samples taken in this study were younger than the population as a whole.

This study's results present a vivid profile of the home computer owner. Personal computer owners appear to be more self-confident, view themselves as opinion leaders and are more satisfied with their finances. They may be described as information seekers, have more interest in remaining at home and spend more time conducting everyday activities. On the other hand, they are less afraid of change, have very limited interest in aesthetics, are not involved in culinary activities and do not appear to be community minded. All of these characteristics lead to the conclusion that inter-directed people seem more likely to be innovators of this technology.

Priority patterns completed for this study offer additional insight to consumer behavior which surrounds the acquisition of durables. The hierarchy of intentions to acquire products or services which utilize some aspects of computer technology in their performance provides a profile of both current ownership patterns as well as for potential owners. For example, the respondents in this study owned or used few of the products and services represented in the communications subset. Furthermore, they held low intentions to acquire such products and services. Marketing managers can use such information to more accurately develop products and services which result in stronger intentions to acquire and therefore increase the rate of adoption.

Recommendations

Based on the findings of this study, the researcher makes the

following observations and recommendations:

1. The experiences variable contributed significantly to the A10 statements and demographic information in explaining differences between owners and nonowners of personal computers. Since the experiences variable proved to offer richness to the more familiar A10's and demographics, further exploration of the experience concept is suggested for a variety of future consumer behavior studies.
2. Additional research comparing computer owners to a more representative sample of the U.S. population is recommended. Because the respondents in this study were younger than national trends, a more cross-sectional sample is recommended. Further research is recommended to study the impact of age as more individuals decide to adopt the innovation of personal computers.
3. Further research is needed to study the impact of personal computer ownership and family interaction processes. For example:
 - a) How will family environments adapt to the new technology as personal computers enter the home?
 - b) Will all family members participate in activities performed using the personal computer?
 - c) Will there be an increase in the quality of family life?
4. Study is needed in the delivery of consumer information systems and user behavior. It is recommended that further research be conducted on subjects such as user behavior, delivery of consumer information and costs of information search. Consumers

will seek and prioritize information differently as they innovate with the personal computer in the new technical society.

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APPENDIXES

APPENDIX A

SUMMARY OF VARIABLES USED IN THE STUDY

SUMMARY OF VARIABLES USED IN THE STUDY

DEPENDENT VARIABLE

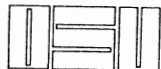
Owners and Nonowners of
personal/home computers

INDEPENDENT VARIABLES

Demographic variables---	Activities, interests, and opinions---	Experiences---
age, marital status, educational attainment, place of residence, length of residence, geographic region, type of residence, family income, occupation, home ownership	culinary enthusiast, homebody, sports enthusiast, community mindedness, self-confidence, new brand tryer, general attitudes, information seek, financial satisfaction, price conscious, time in conducting everyday activities, computer attitudes, credit use, self-designated opinion leader, financial optimist	with computer technology telephone answering service, call waiting, call forwarding, income tax state- ments computer prepared, automatic bill paying, automatic deposits, use an automated teller machine, microwave oven, pocket calculator, alternative long distance phone, cable television service, automatic garage door opener, entertainment channel, home computer, digital watch or clock, programmable pocket calculator, video tv games, speed dialing on telephone, on-board digital computer panel in car, credit cards, video recorder

APPENDIX B

REQUEST FOR MEMBERSHIP LIST



Oklahoma State University

CENTER FOR CONSUMER SERVICES

STILLWATER, OKLAHOMA 74074
HOME ECONOMICS WEST
(405) 624-7084

TO: Apple Computer Club Members

FROM: Mary Dee Dickerson
Research Associate

DATE: May 5, 1981

SUBJECT: Membership List

I am a doctoral student and research associate at the Center for Consumer Services at Oklahoma State University. My research topic is a study of users and non-users of home computers. I am writing to ask your assistance.

Specifically, I am requesting the names and addresses of the members in your club for the purpose of sending a mail questionnaire to them about computer usage. Because of their interest in home computers I am sure many of your members would be willing to respond to a brief questionnaire concerning their interest and use of home computers.

The questionnaire will not require any identification of the respondent's name, endorsement of any product, or request to purchase anything. Although the name of your club was given to me by the Apple Corporation, they are neither responsible for nor supporting my study in any way. My study is solely financed by personal funds.

Please use the self-addressed and stamped envelope for mailing the list. I plan to send the questionnaire the first part of June. It would be of great assistance if I could receive the lists by the middle of May. If there is a small charge for the list, please enclose the invoice along with the list and I will be happy to remit my personal check.

I sincerely appreciate your cooperation and assistance.

APPENDIX C

PERSONAL COMPUTER USAGE PROFILE QUESTIONNAIRE



Oklahoma State University

STILLWATER, OKLAHOMA 74078

Home computers are becoming a much more common phenomena. The attached questionnaire, "Personal Computer Usage Profile", is designed to dig deeper into the subject. This study is in partial fulfillment of the requirements for a Ph.D. degree at Oklahoma State University.

The specific purpose of this study is to determine differences of users and non-users of personal computers. The findings of this study will be helpful in better understanding the utilization of present and future computer technology.

I know you are a busy person, but I would like to ask for your assistance in completing and returning the questionnaire. The average time required for completing the questionnaire in a preliminary trial was 15 minutes. Your help is needed to make the results of my study accurate.

I believe that you will find the questionnaire interesting to complete. The information you provide will be strictly confidential. Your name will not appear at any time on the questionnaire, nor will it be connected with any of the project's findings. Your privacy will be protected.

Please complete the questionnaire by September 30th and slip it into the enclosed postage-paid, self-addressed envelope. Thank you very much for your assistance. Your immediate response would be sincerely appreciated.

Most cordially,

Mary Dee Dickerson
Research Associate

PERSONAL COMPUTER USAGE PROFILE

The following are statements about some activities, interests and opinions on a variety of topics. Please indicate your level of agreement with these statements by circling the number in the appropriate column on the right.					
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
01. I shop a lot for specials	1	2	3	4	5
02. I buy many things with a credit card	1	2	3	4	5
03. I think I have more self-confidence than most people	1	2	3	4	5
04. My friends or neighbors often come to me for advice	1	2	3	4	5
05. I often seek the opinion of my friends regarding which brand to buy	1	2	3	4	5
06. When I see a new brand on the shelf, I often buy it just to see what it's like	1	2	3	4	5
07. Our family income is high enough to satisfy nearly all our important desires	1	2	3	4	5
08. I will probably have more money to spend next year than I have now	1	2	3	4	5
09. I'd like to spend a year in London or Paris	1	2	3	4	5
10. Microwave ovens have been a good invention	1	2	3	4	5
11. I would rather spend a quiet evening at home than go out to a party	1	2	3	4	5
12. I am an active member of more than one service organization	1	2	3	4	5
13. I like to watch or listen to baseball or football games	1	2	3	4	5
14. I love to cook	1	2	3	4	5
15. I enjoy going through an art gallery	1	2	3	4	5
16. I find myself checking the prices in the grocery store even for small items	1	2	3	4	5
17. I like to pay cash for everything I buy	1	2	3	4	5
18. I am more independent than most people	1	2	3	4	5
19. I spend a lot of time talking with my friends about products and brands	1	2	3	4	5
20. I sometimes influence what my friends buy	1	2	3	4	5
21. I have somewhat traditional tastes and habits	1	2	3	4	5
22. No matter how fast our income goes up, we never seem to get ahead	1	2	3	4	5
23. I usually consult <u>Consumer Reports</u> or similar publications before making a major purchase	1	2	3	4	5
24. My greatest achievements are still ahead of me	1	2	3	4	5
25. Five years from now the family income will probably be a lot higher than it is now	1	2	3	4	5
26. Things are changing too fast	1	2	3	4	5
27. As energy costs go up, I will probably need to do more shopping from my home to conserve energy	1	2	3	4	5
28. If I could spend less time taking care of everyday activities, I would be able to do the things I enjoy most	1	2	3	4	5
29. I am a good cook	1	2	3	4	5

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
30. I have personally worked in a political campaign for a candidate or an issue	1	2	3	4	5
31. I would rather go to a sporting event than a dance	1	2	3	4	5
32. Computer technology is an invasion of my privacy	1	2	3	4	5
33. I would like to take a trip around the world	1	2	3	4	5
34. I often try new brands before my neighbors do	1	2	3	4	5
35. It is good to have charge accounts	1	2	3	4	5
36. I think I have a lot of personal ability	1	2	3	4	5
37. I usually watch the advertisements for announcements of sales . .	1	2	3	4	5
38. People come to me more often than I go to them for information about brands	1	2	3	4	5
39. Menu planning, food and household shopping takes quite a bit of my time	1	2	3	4	5
40. I do volunteer work for a hospital or service organization on a fairly regular basis	1	2	3	4	5
41. I like parties where there is a lot of music and talk	1	2	3	4	5
42. I am interested in spices and seasonings	1	2	3	4	5
43. I like to handle my own financial affairs without using any electronic machines	1	2	3	4	5
44. I am concerned about having a financially secure future	1	2	3	4	5
45. My neighbors or friends usually give me good advice on what brands to buy in the grocery store	1	2	3	4	5
46. To buy anything, other than a house or car, on credit is unwise.	1	2	3	4	5
47. A person can save a lot of money by shopping around for bargains.	1	2	3	4	5
48. I like to be considered a leader	1	2	3	4	5
49. I wish we had a lot more money	1	2	3	4	5
50. I like to spend as little time as possible taking care of bill paying, shopping for groceries, keeping financial records and running errands	1	2	3	4	5
51. I usually read the sports page in the daily paper	1	2	3	4	5
52. I love to bake and frequently do	1	2	3	4	5
53. I like to work on community projects	1	2	3	4	5
54. Shopping for gifts, clothes, shoes, household items has become a real burden on my time	1	2	3	4	5
55. I like to try new and different things	1	2	3	4	5
56. I engage in activities such as racquetball, tennis, health or exercise spa	1	2	3	4	5
57. I am a homebody	1	2	3	4	5
58. I thoroughly enjoy conversations about sports	1	2	3	4	5
59. I enjoy going to concerts	1	2	3	4	5
60. I like ballet	1	2	3	4	5

The following are 20 products or services which utilize some aspect of computer technology. Please check the "yes" or "no" column beside each item for either use or own or do not use or own. Then, go back to the top of the list and use the response (1 through 5) to indicate how soon you would replace each item (from the "yes" list) or acquire each item (from the "no" column).

- (1) I would replace this immediately.
- (2) I would replace as soon as
- (3) I

(2) I would replace this immediately.

(3) I would replace this as soon as possible.

(4) I would replace this sometime in the future.

(3) I would replace this
as soon as possible.

(4) I would not care about replacing this possible.

(5) I would replace this sometime in the future.

(5) I would never replace this item.

I expect to buy this sometime.
I expect to buy this as soon as possible.
I expect to buy or acquire this immediately.
I expect to buy this immediately.

I expect to buy or acquire this sometime in the next to buy or acquire as soon as possible. or acquire immediately. (j)

I do not much care about getting this item
to buy or acquire in the future. (2)

I would never buy or acquire this item. (4)

never buy or
this item. (5)

Please circle using above responses. **YES**

NO Please circle using above responses.

1	2	3	4	5	Y	61. Telephone answering service.	N	1	2	3	4	5
1	2	3	4	5	Y	62. Call waiting or call forwarding on the telephone.	N	1	2	3	4	5
1	2	3	4	5	Y	63. Automatic deposit of payroll, social security or other checks to financial institutions.	N	1	2	3	4	5
1	2	3	4	5	Y	64. Income tax statements are prepared and verified for errors by a computer.	N	1	2	3	4	5
1	2	3	4	5	Y	65. Automatic bill-paying or savings via automatic check or bank service.	N	1	2	3	4	5
1	2	3	4	5	Y	66. Make financial transactions at an automated teller machine.	N	1	2	3	4	5
1	2	3	4	5	Y	67. Microwave oven.	N	1	2	3	4	5
1	2	3	4	5	Y	68. Pocket calculator.	N	1	2	3	4	5
1	2	3	4	5	Y	69. Toll-free or satellite phone system as an alternative to conventional long distance calls.	N	1	2	3	4	5
1	2	3	4	5	Y	70. Cable television service.	N	1	2	3	4	5
1	2	3	4	5	Y	71. Automatic garage door opener.	N	1	2	3	4	5
1	2	3	4	5	Y	72. Entertainment channel service such as HBO.	N	1	2	3	4	5
1	2	3	4	5	Y	73. Home computer.	N	1	2	3	4	5
1	2	3	4	5	Y	74. Digital watch or clock.	N	1	2	3	4	5
1	2	3	4	5	Y	75. Programmable pocket calculator.	N	1	2	3	4	5
1	2	3	4	5	Y	76. Video TV games.	N	1	2	3	4	5
1	2	3	4	5	Y	77. Speed dialing on telephone.	N	1	2	3	4	5
1	2	3	4	5	Y	78. On-board digital computer panel in car.	N	1	2	3	4	5
1	2	3	4	5	Y	79. Credit cards, gasoline, department store, travel & entertainment, Master Card or Visa.	N	1	2	3	4	5
1	2	3	4	5	Y	80. Video recorder for TV programs.	N	1	2	3	4	5

PART III. 81. Do you use a computer in your home?

☐ Yes

☐ No

82. If you said "no" on the above question, do you feel that you will be buying a home computer within the next five years?

☐ Yes

☐ No

☐ Not Applicable

83. If you said "yes" in question 81, please check how long you have owned a home computer

☐ less than 6 months

☐ 6 to 12 months

☐ 1 to 2 years

☐ over 2 years

84-85.

Please check the activities you perform with your computer. Check as many as you use. Then circle beside each function the members of your family that use the computer for that purpose.
(M = male; F = female; C = child)

<input type="checkbox"/> budgeting	M	F	C
<input type="checkbox"/> investment analysis	M	F	C
<input type="checkbox"/> grocery lists	M	F	C
<input type="checkbox"/> income tax	M	F	C
<input type="checkbox"/> cash flow analysis	M	F	C
<input type="checkbox"/> learning computer languages	M	F	C
<input type="checkbox"/> learning to use the computer	M	F	C
<input type="checkbox"/> solving problems	M	F	C
<input type="checkbox"/> household inventory records	M	F	C
<input type="checkbox"/> family insurance records	M	F	C
<input type="checkbox"/> credit card records	M	F	C
<input type="checkbox"/> family business	M	F	C
<input type="checkbox"/> games	M	F	C
<input type="checkbox"/> use as part of my work	M	F	C
<input type="checkbox"/> doing homework	M	F	C
<input type="checkbox"/> learning drills	M	F	C
<input type="checkbox"/> other, please specify	M	F	C

86. In what room is your home computer located?

☐ kitchen

☐ family room

☐ living room

☐ bedroom

☐ den or study

☐ other, please specify

87. Was the decision to purchase a home computer made by a

☐ male

☐ female

☐ joint purchase: male/female

☐ child

88. How many children do you have living at home?

☐ (give number)

☐ None

☐ No children

89. Have your children been exposed to computers through their friends, school or family?

☐ Yes

☐ No

☐ Not Applicable

PART IV. Finally, I would like to ask a few questions about yourself for statistical purposes.

90. What is your present marital status? (Check)

☐ Married

☐ Separated

☐ Divorced

☐ Single, never married

☐ Widowed

☐ Cohabitation

91. What was the highest grade or level of education completed?

☐ Attended or graduated from a professional or graduate school.

☐ Graduated from college with an undergraduate degree.

☐ Graduated from a technical school after high school.

☐ Attended college or technical school after high school.

☐ Graduated from high school.

☐ Attended high school but did not receive a diploma.

☐ Attended school for 9 years or less.

92. Please indicate your age range. (Check one)

<input type="checkbox"/> Under 25	<input type="checkbox"/> 41-45 years	<input type="checkbox"/> 61-65 years
<input type="checkbox"/> 25-30 years	<input type="checkbox"/> 46-50 years	<input type="checkbox"/> 66-70 years
<input type="checkbox"/> 31-35 years	<input type="checkbox"/> 51-55 years	<input type="checkbox"/> 71-79 years
<input type="checkbox"/> 36-40 years	<input type="checkbox"/> 56-60 years	<input type="checkbox"/> 80 years or more

93. Please indicate your approximate total family income for last year.

<input type="checkbox"/> Under 9,999	<input type="checkbox"/> \$40,000 - \$49,999
<input type="checkbox"/> \$10,000 - \$14,999	<input type="checkbox"/> \$50,000 - \$59,999
<input type="checkbox"/> \$15,000 - \$19,999	<input type="checkbox"/> \$60,000 - \$69,999
<input type="checkbox"/> \$20,000 - \$24,999	<input type="checkbox"/> \$70,000 - \$79,999
<input type="checkbox"/> \$25,000 - \$29,999	<input type="checkbox"/> \$80,000 - \$89,999
<input type="checkbox"/> \$30,000 - \$39,999	<input type="checkbox"/> \$90,000 - \$99,999
	<input type="checkbox"/> \$100,000 and higher

94. Do you own or rent your place of residence?

☐ Own ☐ Rent

95. How long have you lived at your current residence?

<input type="checkbox"/> Less than 1 year	<input type="checkbox"/> 1 to 2 years
<input type="checkbox"/> 2 to 5 years	<input type="checkbox"/> 5 to 10 years
<input type="checkbox"/> 10 to 20 years	<input type="checkbox"/> 20 or more

96. What type of housing arrangement do you live in?

<input type="checkbox"/> Single family dwelling	<input type="checkbox"/> Condominium
<input type="checkbox"/> Apartment complex	<input type="checkbox"/> Duplex or Triplex
<input type="checkbox"/> Mobile Home	<input type="checkbox"/> Other, please specify

97. Which of these response describes where you live?

<input type="checkbox"/> Working farm
<input type="checkbox"/> Non-farm-rural residence
<input type="checkbox"/> Small town (population under 2,500)
<input type="checkbox"/> Large town (population 2,500 - 24,999)
<input type="checkbox"/> Small city (population 25,000 - 49,999)
<input type="checkbox"/> Intermediate city (population 50,000 - 249,999)
<input type="checkbox"/> Large city (population 250,000 or more)

98. Which of the following describes your occupation?

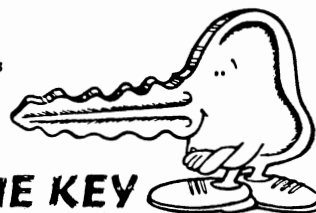
<input type="checkbox"/> Professional	<input type="checkbox"/> Manager	<input type="checkbox"/> Proprietor
<input type="checkbox"/> Technical	<input type="checkbox"/> Clerical	<input type="checkbox"/> Homemaker
<input type="checkbox"/> Farmer	<input type="checkbox"/> Service worker	<input type="checkbox"/> Laborer
<input type="checkbox"/> Student	<input type="checkbox"/> Retired	<input type="checkbox"/> Other (specify)

99. In what state do you live? _____

THANK YOU FOR YOUR COOPERATION

This information will be used in the preparation of a doctoral dissertation. All information will be coded. Your name will not be used. Please return the completed questionnaire in the enclosed envelope. Send to:

Mary Dee Dickerson
Center for Consumer Services
Oklahoma State University
Stillwater, OK 74078



YOU'RE THE KEY



Oklahoma State University

STILLWATER, OKLAHOMA 74078

Please Remove Back Page Before Returning.

APPENDIX D

POST CARD FOLLOW-UP

The logo for Oklahoma State University (OSU) is centered on the page. It consists of a solid orange-red rectangular background. On this background, the letters "OSU" are written in a large, white, serif typeface. Below the letters, the words "Oklahoma State University" are written in a smaller, white, sans-serif font.

OSU

Oklahoma State University



Last week you received a questionnaire from me in your mail. I want to thank you for completing and returning your questionnaire. If yours got tossed out, misplaced, or wasn't delivered, please call me right now at 405-624-7084 (collect) and I will send you another one today.

It is very important that we hear from you via the questionnaire if the results of the study are to be accurate.

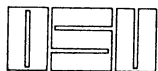
Thank you very much for your cooperation.

Mary Dee Dickerson
Research Associate

Oklahoma State University / Stillwater, OK 74078 / (405) 624-7084
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APPENDIX E

FOLLOW-UP FOR NONRESPONDENTS



Oklahoma State University

CENTER FOR CONSUMER SERVICES

STILLWATER, OKLAHOMA 74074
HOME ECONOMICS WEST
(405) 624-7084

November 21, 1981

TO: Members of the Personal Computer Usage Profile Study "PCUP"

FROM: Mary Dee Dickerson
Research Associate

Recently we mailed a questionnaire designed to find out differences between personal computer users and non-users. Approximately 30 percent were completed and returned.

We are now mailing a follow-up to a randomly selected 10 percent who received the questionnaire. If you completed the original questionnaire, please disregard this letter. The purpose of this follow-up is to determine if the original sample represented the group.

We are attempting to maintain high research standards and your response would be helpful in this endeavor. Please take a few minutes to complete this new shorter version. Return the completed questionnaire in the self-addressed, stamped envelope.

May we hear from you as soon as possible?

Enclosure:



Oklahoma State University

STILLWATER, OKLAHOMA 74078

What is your present marital status? (Check)

☐ Married ☐ Separated ☐ Divorced
☐ Single, never married ☐ Widowed ☐ Cohabitation

What was the highest grade or level of education completed?

☐ Attended or graduated from a professional or graduate school.
☐ Graduated from college with an undergraduate degree.
☐ Graduated from a technical school after high school.
☐ Attended college or technical school after high school.
☐ Graduated from high school.
☐ Attended high school but did not receive a diploma.
☐ Attended school for 9 years or less.

Please indicate your age range. (Check one)

☐ Under 25 ☐ 41-45 years ☐ 61-65 years
☐ 25-30 years ☐ 46-50 years ☐ 66-70 years
☐ 31-35 years ☐ 51-55 years ☐ 71-79 years
☐ 36-40 years ☐ 56-60 years ☐ 80 years or more

Please indicate your approximate total family income for last year.

☐ Under 9,999 ☐ \$40,000 - \$49,999
☐ \$10,000 - \$14,999 ☐ \$50,000 - \$59,999
☐ \$15,000 - \$19,999 ☐ \$60,000 - \$69,999
☐ \$20,000 - \$24,999 ☐ \$70,000 - \$79,999
☐ \$25,000 - \$29,999 ☐ \$80,000 - \$89,999
☐ \$30,000 - \$39,999 ☐ \$90,000 - \$99,999
 ☐ \$100,000 and higher

Do you own or rent your place of residence?

☐ Own ☐ Rent

How long have you lived at your current residence?

☐ Less than 1 year ☐ 1 to 2 years
☐ 2 to 5 years ☐ 5 to 10 years
☐ 10 to 20 years ☐ 20 or more

What type of housing arrangement do you live in?

☐ Single family dwelling ☐ Condominium
☐ Apartment complex ☐ Duplex or Triplex
☐ Mobile Home ☐ Other, please specify

Which of these response describes where you live?

☐ Working farm
☐ Non-farm-rural residence
☐ Small town (population under 2,500)
☐ Large town (population 2,500 - 24,999)
☐ Small city (population 25,000 - 49,999)
☐ Intermediate city (population 50,000 - 249,999)
☐ Large city (population 250,000 or more)

Which of the following describes your occupation?

☐ Professional ☐ Manager ☐ Proprietor
☐ Technical ☐ Clerical ☐ Homemaker
☐ Farmer ☐ Service worker ☐ Laborer
☐ Student ☐ Retired ☐ Other (specify)

In what state do you live? _____

Thank you for your cooperation.

Please use the enclosed self-addressed and stamped envelope when returning this page.

YOU'RE THE KEY



APPENDIX F

ACTIVITIES, INTERESTS, AND OPINION STATEMENTS

ACTIVITIES, INTERESTS AND OPINION STATEMENTS

Present Study

Wells and Tigert

FACTOR 1: SELF-CONFIDENT

I think I have more self-confidence than most people.

I am more independent than most people.

I think I have a lot of personal ability.

I like to be considered a leader.

FACTOR 2: CULINARY ENTHUSIAST

I love to cook.

I am a good cook.

I am interested in spices and seasonings.

I love to bake and frequently do.

FACTOR 3: SPORTS

I love to watch or listen to baseball or football games.

I usually read the sports page in the daily paper.

SELF-CONFIDENT

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COOK

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I am interested in spices and seasonings.

I love to bake and frequently do.

SPORTS SPECTATOR

I like to watch or listen to baseball or football games.

I usually read the sports page in the daily paper.

* I engage in activities such as racquetball, tennis, health or exercise spa.

I thoroughly enjoy conversations about sports.

I would rather go to a sporting event than a dance.

FACTOR 4: PRICE CONSCIOUS

I shop a lot for specials.

I find myself checking the prices in the grocery store even for small items.

I usually watch the advertisements for announcements of sales.

A person can save a lot of money by shopping around for bargains.

FACTOR 5: CREDIT USER

I buy many things with a credit card.

I like to pay cash for everything I buy.
(Reverse Scored)

It is good to have charge accounts.

To buy anything, other than a house or a car, on credit is unwise. (Reverse Scored)

I would rather go to a sporting event than a dance.

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(Reverse Scored)

It is good to have charge accounts.

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FACTOR 6: AESTHETIC ENTHUSIAST

I'd like to spend a year in London or Paris.

I enjoy going through an art gallery.

I would like to take a trip around the world.

I enjoy going to concerts.

I like ballet.

FACTOR 7: COMMUNITY MINDED

I am an active member of more than one service organization.

I have personally worked in a political campaign for a candidate or an issue.

I do volunteer work for a hospital or service organization on a fairly regular basis.

I like to work on community projects.

FACTOR 8: SELF-DESIGNATED OPINION LEADER

My friends or neighbors often come to me for advice.

I sometimes influence what my friends buy.

WIDE HORIZONS AND ARTS ENTHUSIAST

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SELF-DESIGNATED OPINION LEADER

My friends or neighbors often come to me for advice.

I sometimes influence what my friends buy.

People come to me more often than I go to them for information about brands.

FACTOR 9: SATISFIED WITH FINANCES

Our family income is high enough to satisfy nearly all our important desires.

No matter how fast our income goes up, we never seem to get ahead. (Reverse Scored)

I wish we had a lot more money.
(Reverse Scored)

FACTOR 10: FINANCIAL OPTIMIST

I will probably have more money to spend next year than I have now.

* My greatest achievements are still ahead of me.

Five years from now the family income will probably be a lot higher than it is now.

FACTOR 11: HOMEBODY

I would rather spend a quiet evening at home than go out to a party.

I like parties where there is a lot of music and talk. (Reverse Scored)

I am a homebody.

People come to me more often than I go to them for information about brands.

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FACTOR 12: TIME SPENT IN CONDUCTING EVERYDAY
ACTIVITIES

As energy costs go up, I will probably need to do more shopping from my home to conserve energy.

If I could spend less time taking care of everyday activities, I would be able to do the things I enjoy most.

Menu planning, food and household shopping takes quite a bit of my time.

I like to spend as little time as possible taking care of bill paying, shopping for groceries, keeping financial records and running errands.

Shopping for gifts, clothes, shoes, household items has become a real burden on my time.

FACTOR 13: COMPUTER ATTITUDES

Computer technology is an invasion of my privacy.

I like to handle my own financial affairs without using any electronic machines.

FACTOR 14: GENERAL ATTITUDES

- * I have somewhat traditional tastes and habits.

- * Things are changing too fast.
- * I am concerned about having a financially secure future.

FACTOR 15: NEW BRAND TRYER

When I see a new brand on the shelf, I often buy it just to see what it's like.

- * I usually consult Consumer Reports or similar publications before making a major purchase.
- I often try new brands before my neighbors do.
- I like to try new and different things.

FACTOR 16: INFORMATION SEEKER

I often seek the opinion of my friends regarding which brand to buy.

I spend a lot of time talking with my friends about products and brands.

My neighbors or friends usually give me good advice on what brands to buy in the grocery store.

* Designates Life Style Profile

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APPENDIX G

CLASSIFICATION OF EXPERIENCES BY SETS

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Entertainment

video games
cable television service
entertainment television channel
video recorder

Communication

call-waiting or call-forwarding
telephone answering service
alternative long distance
speed dialing on telephone (memory bank)

Financial or Business Transactions

automated teller machine (EFTS)
income tax statements verified by computer
automatic deposits
automatic bill paying
credit cards

Convenience Durables

microwave oven
automatic garage door opener
pocket calculator
digital watch or clock

New Electronic Technology

home computer
on-board digital car panel
programmable pocket calculator

2
VITA

Mary Dee Dickerson

Candidate for the Degree of

Doctor of Philosophy

Thesis: CHARACTERISTICS OF OWNERS AND NONOWNERS OF PERSONAL COMPUTERS

Major Field: Home Economics - Housing, Design and Consumer Resources

Biographical:

Personal Data: Born in Parsons, Kansas, the oldest child of Florence Fern Banks Dickerson and Edward U. Dickerson. Married to Edmund Ike Deaton, San Diego, California.

Education: Graduated from Labette Community High School, Altamont, Kansas in 1957; received the Bachelor of Science in Home Economics degree from Kansas State University in 1961; received the Master of Science degree from Kansas State University in 1967; enrolled in the doctoral program at Oklahoma State University in 1979; completed requirements for the Doctor of Philosophy at Oklahoma State University in May, 1982.

Professional Experience: High School Instructor of Home Economics, Norton, Kansas, 1961-65; Graduate Teaching Assistant, Kansas State University 1965-67; Assistant Professor, San Diego State University, 1967 to present; Consumer Education Specialist, National Retired Teachers Association/American Association Retired Persons, 1974, Washington, D.C.; Vice President Marketing, Gene Patterson Financial Corp., La Mesa, CA; Research Associate, Oklahoma State University, 1981-82.

Professional Organizations: Association for Consumer Research; American Council on Consumer Interest; American Home Economics Association; Council for the Advancement of Consumer Policy; National Association of Executive Females.

Honors: Who's Who in American Women; Personalities in America; Phi Upsilon Omicron.