FAMILY PATTERNS OF USE AND PARENTAL ATTITUDES TOWARD HOME ELECTRONIC VIDEO GAMES AND FUTURE TECHNOLOGY

By

KAY ROHL MURPHY

Bachelor of Science
State University College
Buffalo, New York
1964

Master of Science
Oklahoma State University
Stillwater, Oklahoma
1968

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
DOCTOR OF PHILOSOPHY
December, 1984

FAMILY PATTERNS OF USE AND PARENTAL ATTITUDES TOWARD HOME ELECTRONIC VIDEO GAMES AND FUTURE TECHNOLOGY

Thesis Approved:

Attlee Wright
Thesis Adviser

Frances Stromberg

Marguerite Scruggs

Richard A. Dodder

Norman N. Durham
Dean of the Graduate College

Acknowledgements

At the middle years of my life I again realize and reaffirm numerous people have role-modeled, influenced, mentored and supported me through the years. I am grateful to those many individuals. I am especially appreciative of my mother for providing a model of a professional person and a home economist, and for her unending support.

To my dissertation adviser, Dr. Althea Wright, I express appreciation for her availability and guidance on my dissertation. To Dr. Frances Stromberg, I express my admiration for her positiveness, supportiveness and ability to keep life in perspective. A thank you to her for chairing my committee. Dr. Richard Dodder's expertise in statistics was very helpful in the completion of this project and beyond that, for his ability to be supportive and say the "right" things. As a novice to the area of home video games and as an experienced researcher, Dr. Marguerite Scruggs asked questions that helped focus the relevancy of this dissertation. To these my committee members I express my gratitude.

The faculty and staff of the Department of Family Relations and Child Develoment have been a "super" group to be affiliated with. Thank you to all of them for their friendship, help and supportiveness. A special thank you to Jane for the long hours at the word processor. Her efforts are

a measure of her dedication.

A special thank you goes to those professionals who took time to judge the pilot instruments, Dr. Wayne Matthews, Dr. Peggy Meszaros, Mrs. Lois Mickle, Dr. Martha Jordan and Dr. Joe Weber. The graduate students who piloted the attitude scales were very beneficial to the project and I am grateful for their help. The parents who responded to the telephone interview, not only provided the data, but also reaffirmed my faith in people. I appreciate and am grateful for their cooperativeness.

My children Kelli and Tim may not know at this point in their life how important their patience and willingness to wait has been for their mother-student. A big warm hug to both of them for accepting the time graduate work takes away from family. To my husband Pat go all the praise and appreciation possible for the countless sacrifices it takes when one member of a family unit is immersed in a project. I am grateful for his tolerance, encouragement, support, assistance and warm hugs. Recognition of my family is one way to say I could not accomplish what I have without their support.

TABLE OF CONTENTS

LIST OF TABLES

FIGURE

CHAPTER I

INTRODUCTION

It has been suggested that the twenty-first century will be an era in which the computer is king. Toffler (1980), Naisbitt (1982), and other futurists agree that the computer and accompanying technology are shaping a world different from previous times. The invention of the computer has allowed man the capacity to store and use vast amounts of information. The third wave, as Toffler has called it, is an age in which information is power and the computer can be seen as the extension of the mind. One of the differences between humans and animals is man's intellectual abilities. Man's intelligence has developed a technology, the computer, that will lead the way into the twenty-first century (Fetterman, 1981).

American society has evolved from agrarian to industrial to post-industrial to technological, the world of the future. Toffler (1980) comments that the information sphere and the tool to manage information, the computer, will be the center of our world. Naisbitt (1982) also affirms the world of the future will be an information society. We are generating information in large amounts and the computer will be the mechanism and means for organizing and storing

the information being produced.

Home economists have been encouraged to plan ahead for the technological world (Meszaros, 1981; Schlater, 1970). In the National Goals & Guidelines for Research in Home Economics Schlater emphasized the need for research in the area of families and the technological world. This emphasis in 1970 has certainly proven to be extremely important in the 1980's. Not only have farm families utilized the home computer for production information and cost analysis but urban families are contemplating the purchase of home computers in greater numbers. Families are using home computers for household management tasks and for educational purposes with their children. Home economists' prime concern is the family and the family's interest in home computers necessitates the professional have some knowledge about computers.

The American Home Economics Association has taken responsibility for preparing its members for this role by sponsoring a series of workshops in 1983 on home computers. The organization also addressed this issue at the 1983 AHEA Convention. The theme for the national meeting was "Momentum for Change." Announcements of research grants in 1984 indicate some home economists are proposing examination of the impact of the home computer on the family. What role does the home computer play in the family life? Are social interaction patterns affected? Is the home computer primarily a tool or does it serve another purpose?

In a study titled the "Characteristics of Owners and Nonowners of Personal Computers" a home economist found that the one variable that discriminated between the two groups was video television games. Owners of computers had more experience with video television games (Dickerson, 1982). If parents have been willing to purchase a home electronic video game does that indicate they are likely to be more acceptant of a home computer? If a family is willing to purchase a new technological device is that a measure of a positive feeling towards technology?

Initially people reacted with intense negative feeling responses to the invention of the computer. Some of the same terms that described the advent of the automobile, telephone, and television, such as "new fangled contraption," were used to describe the computer. Despite increasing numbers of computers in our society, and throughout the world, negative emotional responses continue to be expressed, perhaps indicative of a lack of knowledge and understanding of the computer (Mayhew, 1982; Turkle, 1980).

A significant portion of the negative emotional response has been directed at video games. Video games are a product of our computer technology and are perhaps the most visible result of that technology in today's society. As Naisbitt (1982) proposed, video games have served as one path of least resistance in the transition from an industrial world to a computerized world. Computerized toys for children are still another way that children and adults may

be introduced to the complexities of the computer. Calculators and digital watches, frequently based in computer technology and the computer chip, may have been seen initially as quite different or unusual but have become easily accessible and commonplace to individuals and families. Through new technology which produces digital watches, calculators and video game families may have been sensitized to computers. The sensitization process could conceivably help modify the negative emotional reactions people typically have to new devices while also aiding acceptance of the device.

Home electronic video games use the technology of the computer, miniaturization, and silicon chips to provide a device for leisure and entertainment. The Pong Game, the original video game, based upon its low sales apparently did not catch the interest of the public. Pong allowed only one type of action or movement by the player. In comparison to the video game standards of today, Pong was neither very sophisticated nor technically advanced. With the development of silicon chips, programmable video games became a possibility and the player was offered more action, more movement and more game versatility. With the new development in video games their popularity has sky-rocketed both in homes and in arcades where large numbers of video games are available for people to play through the use of coins or tokens.

One way to assess the popularity of a product is to look at sales figures. Home electronic video game sales

figures in late 1975 amounted to 75 million dollars. This dollar figure indicates that approximately 300,000 to 400,000 units had been sold for home use ("Boom in video games", 1976, p.54). Sales in 1978, only three years later, were 450 million dollars and were predicted to be one billion dollars by 1980 ("Why Electronic Games", 1979, p.52). The popularity of home electronic video games as evidenced by sales figures is not evident in the published research. Few research studies on video games were located. One published study was an exploratory study by Mitchell (1983). This study was conducted through the process of interviewing twenty families about video game use. The families' reported more positive comments about the presence of a video game unit in the home than negative comments. As a new purchase and entertainment form home electronic video games were still kept in perspective by these families.

Mitchell's (1983) study of a limited number of families provides a basis for further study about family's ownership of video games using a random population. Home economists are interested in how the family as a unit responds to new technologies. As the family responds to a new technological innovation in the culture they have a choice about ownership of video games. Typically parents would be viewed as having more influence over the choice about family purchases. The attitudes of parents toward video games and future technology may reflect whether a family owns a video game.

As families decide what role technological devices will

take in their lives, home economists need research data about the home electronic video game and other technological devices. The family unit could either resist, welcome or be indifferent to innovative devices and predicted trends. As leaders of their family how the parents respond may influence future options for their children, perhaps both educationally and vocationally. Research about future technology and the family would be one way home economists can be prepared to assist families make a smooth transition to a future society; one which will probably be vastly different from today.

Purpose

The purpose of this study was to examine whether ownership of a home electronic video game is associated with parents' attitudes toward future technology and parents' attitudes toward home electronic video games. Further inquiry with those families who owned home electronic video games was made to determine their patterns of use of home electronic video games.

Relevant questions related to the study's purpose include:

1. Do parents who are owners and nonowners of home electronic video games differ in their attitudes toward future technology?

2. Do parents who are owners and nonowners of home electronic video games differ in their attitudes concerning

the games?

3. Is age or sex of the child associated with whether or not a family owns a home electronic video game?

4. Is the socioeconomic status of the parent as determined by occupation and education associated with ownership of a home electronic video game?

5. What is the pattern of use for home electronic video games in families who own video games?

6. Is the age or sex of the child associated with the pattern of use of home electronic video games?

These questions form the basis for the hypotheses (see Chapter III for hypotheses) to be tested.

This research sampled a population of parents of schoolage children about their attitudes toward future technology and video games. The telephone interview of parents was followed by the mailing of a Pattern of Use Log to be completed by families who owned home video games.

Definitions

To clarify the research study the following terms were defined:

1. Home Electronic Video Games - A home electronic video game is a programmable electronic device that attaches to and functions through the television set.

2. Game Cartridge - The software game programs that are separate from the home electronic video game unit, and plug into the game unit.

3. Future Technology - The application of scientific knowledge and research to develop products which eliminate hand operations or improve processes which increase productivity at some point in time yet to come.

4. Family - "A set of mutually interdependent organisms; intimate, transacting and interrelated persons who share some common goals, resources and a commitment to one another that extends over time" (Paolucci, Hall, and Axinn, 1977, p.18).

5. Ecosystem - "The organism, its environment, and their interaction is called an ecosystem" (Bubolz, Eicher and Sontag, 1979, p. 28).

Overview of the Dissertation

Chapter I has introduced the idea that the world will be increasingly technological. The home electronic video game, a leisure time device, could serve a transitional role between the industrialized world and computer world for families and technology. Little research was located on video games and families. The review of literature in Chapter II presents a theoretical basis for research on video games. In addition, Chapter II will present further information on future trends and home electronic video games.

The research methodology will be presented in Chapter III. The type of research design, selection of a population and sample, and data collection will be discussed in detail. The development of two survey instruments and interview

questions will be discussed. The pilot test of the instrument, Pattern of Use Log, and interview questions will be reported next. The last section of Chapter III is the presentation of the hypotheses and a discussion of the statistical analysis.

Chapter IV is a presentation of the results. The chapter begins with a discussion of the characteristics of the sample. The next section is a presentation of the hypotheses and the data that confirm or deny the hypotheses. The responses to the the open format statements are discussed in the last section. In Chapter V results of the Pattern of Use Log are discussed both quantitatively and qualitatively. Also included is a discussion of the interview process and some impressions gained from parents' comments. A summary of the research and conclusions are presented in Chapter VI. Implications for future research complete the chapter.

CHAPTER II

REVIEW OF RELATED LITERATURE

Home electronic video games are such a recent phenomena that few research articles on home electronic video games were available. There have been related articles on the use of video games to aid the recovery of stroke victims (Cobb, 1982), video games and educational use (Malone, 1981), and attitudes toward video games (Mittenthal, 1982). The topics that appeared to be related to video games included leisure time and television viewing.

Due to the lack of previous specific research on video games the review of literature examined related topics: the technological world, current video game trends, and families leisure and use of television. Throughout the literature review an attempt was made to tie together those ideas that may provide direction for studying home electronic video games.

Research is strengthened if it is linked to a theory base. Such an approach aids in building an overall theoretical framework for developing a context from which research results can be more specifically and usefully presented. Within the family field of study symbolic interaction or systems theory has often been used as a theoretical base for

research. The author chose to pursue research on home electronic video games within an ecosystem framework since interaction of the family and the environment is the essence of the theory. The review will begin with information on on the ecosystem framework.

Ecosystems

"An ecological perspective is one of viewing organisms and environments in interaction. The focus is on the interaction; that is, how organisms affect environments they act upon, and how these environments affect organisms" (Paolucci et al., p.1). The terms interaction and interdependence are important to the ecosystems approach as both indicate the mutuality and dynamic quality of the relationship between organisms and their environment. In addition the ecosystems model is a holistic way of viewing both the individuals' behavior within the family and the families behavior as it affects the near and distant environment. Changes in the environment and their impact on the family would be the reciprocal type of influence that would be studied by home economists. For example, societal encouragement of dual earner families for economic purposes would affect the type of family life valued by that society and vice versa.

Andrews, Bubolz and Paolucci (1980) described the environment as consisting of the natural environment, human constructed environment and human behavioral environment.

The natural environment includes those aspects that have always existed throughout the lifespan of the earth. The space and time components of the natural environment would have an effect on the family as individuals make decisions about how to spend family time together. The space and time components of the natural environment would be particularly relevant in the study of home electronic video games and families.

"The human constructed environment of housing, tools, transportation and communication system, religion, government, educational and cultural institutions" (Andrews et al., 1980, p.39) includes all those items man has made or constructed from the resources of the natural environment. Homes, schools, churches, and factories would be part of the human constructed environment (HCE). The invention and existence of computers and video games would also be part of the human constructed environment.

Another component of the ecosystem is the human behavioral environment (HBE). The human behavioral environment consists of those things that influence and affect human beings and how they become humans. The human needs for love, care, belonging and trust are met through relationships of individuals and families. These primary relationships shape an individual's attitudes, values, expectations, roles and decisions. Andrews et al., (1980) have written:

> In the family ecosystem, the environed unit is the group of persons who constitute the family,

> defined as a bonded unit of interacting and interdependent persons who have some common goals and resources, and for part of their life cycle, at least, share living space. (p.32)

Viewing the family in this manner ties to the classic definition by Burgess of the "family as a unity of interacting persons" (Burgess, 1926, p.5). The holistic view of the family with its interdependence and interaction between and among family members and between the family and the near environment is at the very core of the field of home economics. Thus a research project by a home economist would blend well with the ecosystem framework.

If one examines the topic of home electronic video games to discover the tie to ecosystems the following points would need to be made. The personal attributes of the family members may be affected by the presence in the home of an electronic video game. A child's ability to compete or cooperate or eye-hand coordination may be influenced by video game playing. The structural attributes of the family, including goals, patterns of decision making and affectual relationship may affect whether a home electronic video game is accepted by the family. Perhaps the decision to purchase a home electronic video game is made by one parent and the other parent does not concur with the decision. One parent may be more responsive to the children's request for a home electronic video game and act as an intermediary with the other parent in order to

influence the purchase of a game unit. In the examples given the structural attributes of the family as a whole are likely to be affected by the attitude of one parent toward home electronic video games. From an ecosystem perspective the internal environment of the family, the personal and structural attributes of the family, could be influenced by the purchase of a home electronic video game.

The family might look at how a home electronic video game would affect their human behavioral environment. The decision whether to purchase a home electronic video game may depend on whether the family views this purchase as building individuals or the family, adding to or alleviating conflict and, in essence, producing the type of environment the family desires for growth of their humans. Some individuals experience intense negative feeling reactions toward arcade or home video games. Video games arcades are sometimes viewed as similar to pinball games and pool halls of the past. The strong family message may be that pinball games, video games, pool halls and video game arcades are not acceptable environments for individuals or family members. Thus the type of environment that characterizes the family may influence whether a family has a home electronic video game or even how it is used within the family.

Another part of the ecosystem is the human constructed environment (HCE). A home electronic video game is a product of that type of environment. Technological innovations have enabled man to create the home electronic video game as

a device for either entertainment or education. A family may choose or not choose to involve itself with this new equipment. The media, particularly television, may influence one family member to desire a home electronic video game. The family members may pressure the family and/or parents to purchase a video game. Parents' attitudes toward future technology may affect whether a part of the available human constructed environment is allowed access to their family unit.

Two dimensions of the natural environment that have a direct influence on home electronic video games and families could be space and time. The family may choose to spend part of their time playing video games. Or a family member while playing home electronic video games may have less time for other duties or activities. Space issues may involve whether the family relegates a home electronic video game to a secluded or private space or if the video game is in a space all family members use much of the time, for example on a family room television set.

A family makes decisions, based on their values and needs, to interact with the environment. These decisions serve the function of stabilizing the family while still allowing for growth and change in an everchanging world. Some families, the closed type, may isolate themselves from their environment in part to avoid change or new technology. Other families, the open type, may respond to new changes and technologies in an eager, involved way. In order for

the family system to survive, a balance between change and lack of change is needed. The energy flow in the form of information from the outside environment may be easier for the open family to integrate. However, as the world becomes more and more technological the closed family's awareness of outside influence and the decision whether their family members will be affected by technology may have an impact on the individuals' careers and lifestyle (Paolucci et al., 1977). A model of an ecosystem approach and how home electronic video games may influence and/or interact with families is illustated in Figure 1.

The preceding discussion has been focused on the view that it is plausible to study families and home electronic video games from an ecosystem perspective. Home electronic video games would appear to be related to the space and time aspect of the natural environment, are a product of the human constructed environment and may influence both the family and what they want for their family in their human behavioral environment.

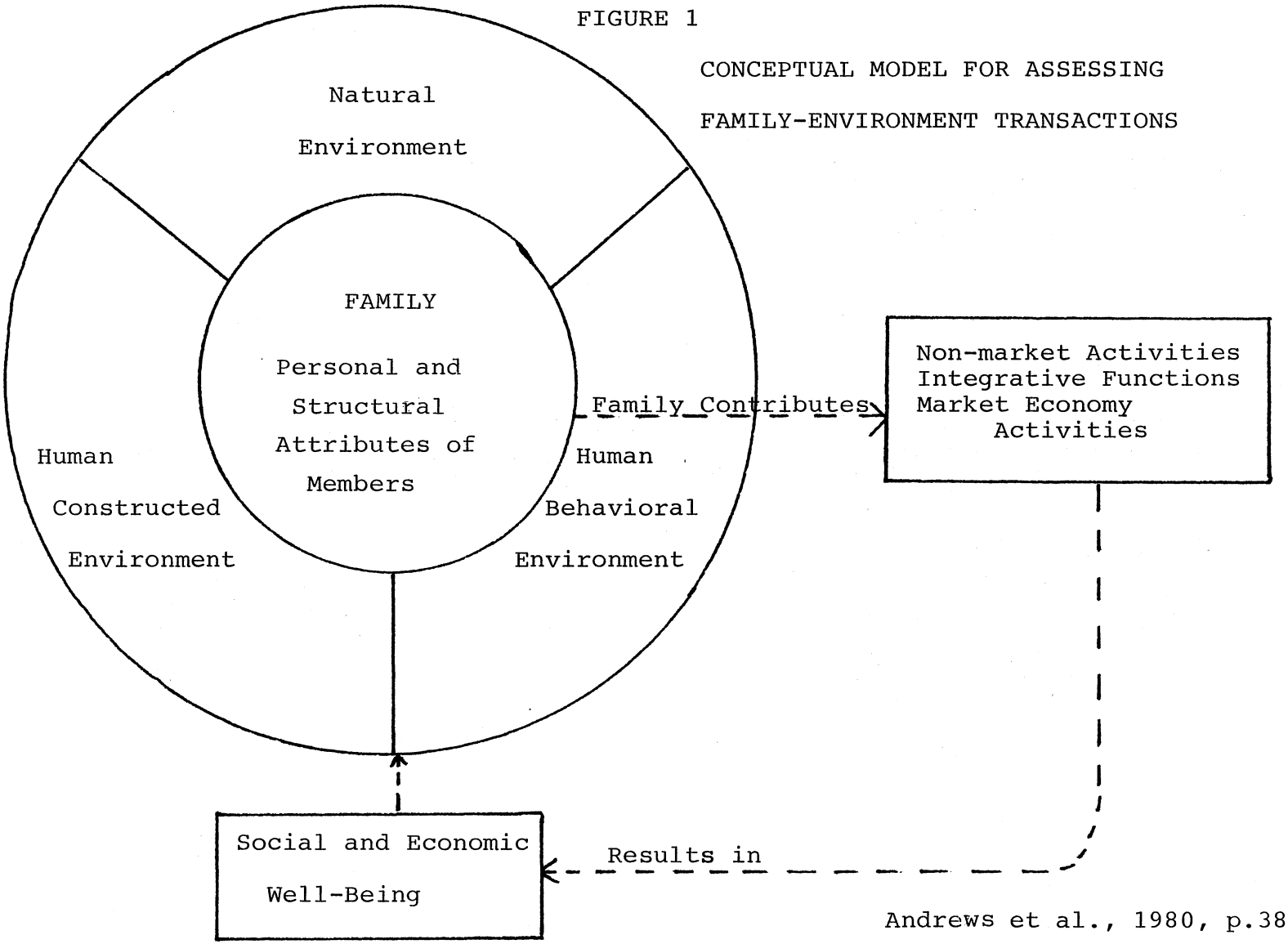
Future Trends

Rapid improvements in the technological side of computers have resulted in their greater accessibility to people in their work world and in their homes. In the late 1960's and the 1970's large computers were used by businesses to store and access information pertinent to their business yet

FIGURE 1

CONCEPTUAL MODEL FOR ASSESSING

FAMILY-ENVIRONMENT TRANSACTIONS



Andrews et al., 1980, p.38.

few individuals had contact with computers. With the miniaturization of computers and the development of computer chips smaller computers became available and more businesses discovered the benefits of computers. Computers became accessible to more employees and individuals.

The predictions are that in the future society may be even more computer oriented. Many jobs will require computer literacy. Quoted in a Time magazine article, Papert estimated that by 1983 80% of upper middle class families will have computers ("The Computer Society", 1978, p.48). The prediction may not have become reality but one company expected to sell one million computers in 1982 alone (Naisbitt, 1982). Individuals, particularly those from middle and upper middle class families, will have an opportunity to interact with the computer. Whether families will accept computers may depend on how the idea of a computer is presented to them.

Naisbitt (1982) suggests that there are three stages of technological development.

> First, the new technology or innovation follows the line of least resistance; second the technology is used to improve previous technologies (this stage can last a long time); and third, new directions or uses are discovered that grow out of the technology itself. (p.27)

In the 1970's the new technology began to develop devices for leisure use. Primarily, these leisure devices

were electronic games. As Naisbitt (1982) suggested, consumers did not resist computer technology in the game world as much as they might have in their jobs. A leisure or amusement-oriented device may be an innocuous appearing way to learn something new. Families that are willing to have a home electronic video game in their home may be more receptive to new innovations and new technologies. Children learn to manipulate a new technological innovation through a medium that suits them, amusement.

Papert (1980) has noted "what is important . . . is that they (computers) exist as objects that people see, and start to accept, as part of the reality of everyday life" (p.181). Children need to have the skills necessary to function in society. It then follows that if society is to become technologically a computer-based society, computer skills will be necessary tools for children to have (Fetterman, 1981; Papert, 1980; Smith, 1981; Thompson and Cloer, 1981).

Yet Tittnich and Brown (1981) and Papert (1980) caution that a person's creativity, social relationships, intuitions and values must not be put aside as unimportant in a technological world. Mechanical or linear thinking may be important for interacting with the computer but it is not the only type of thinking a human needs to be a human (Papert, 1980). Some scholars warn that increased distance between people could result as people continually interact with machines. "Technology enables us to act in social isolation" (Tittnich

and Brown, 1981, p.17). Perhaps a future issue is that a balance must be found between meeting one's need through human relationships while also being able to achieve success through the use of machines. Our society will need people skilled in computers. The family environment can foster or retard the development of those skills.

Home Video Games

The home electronic video game industry has been purported by the media to represent the new technology. In a historical perspective of home electronic video games, as mentioned earlier, an early predecessor of today's games was the game called Pong. Pong was marketed in the early 1970's and was played utilizing the family television set and a plastic overlay which was placed over the television screen. In 1973 "Odyssey, an electronic game that you attach to and play through your television set" ("Odyssey", 1973, p.81) was reviewed by Consumer Reports. Consumer Reports wrote a comment about Odyssey indicating "we found that Odyssey is basically what it claims to be and does what it says it will do. Yet, we wonder how many people will maintain their interest in it for an extended period" ("Odyssey", 1973, p.82). Electronic games using the television undoubtedly would not have developed beyond this rather unsophisticated level, by current standards, except for the rapid development of several technological improvements including the parallel development of the microprocessor, small

computer-like devices.

The microprocessor led to the invention of the programmable game unit. In 1977 Atari (a trademark name) introduced a new programmable unit named Video Computer System (VCS). This system used preprogrammed cassettes for the first time. Each game cassette had multiple game variations and the Atari company introduced six new home video games in 1977. The new VCS system was more sophisticated and expensive, but also much more versatile than earlier electronic games (Chew, 1977, p.94).

Since 1977 the home electronic video game industry has grown rapidly. Silverman (1981) wrote that four percent of American homes had programmable video games and suggested that the figure would grow to 30 percent or more by 1985 (p.75). Software, or the game cartridges, were expected to grow from gross sales of 230 million dollars in 1980 to 1.6 billion dollars in 1983 ("The Riches", 1981, p.98). Software growth has been compared to the razor blade and safety razor invention. In this analogy razor blades eventually grossed more income than the razor itself (Bernstein, 1981). "Pac-Man alone could gross $200 million" in 1982 (Nulty, 1982, p.116). Thus, for the home video game industry an obvious goal is not only the sale of game units but also the game cartridges which fit into the units.

Tremendous growth in sales of both game units and cartridges has occurred since the late 1970's. Initially manufacturers dropped from the competitive field, yet as the

technology and subsequent apparent consumer interest grew in home electronic video games more companies have entered the product market. Both hardware and software (game cartridges) companies have increased steadily since the Atari system of 1977.

Video games have been presented as "a new form of American recreation" ("Riches, 1981, p.98). Stearns (1982) remarked that electronic games have become one of America's favorite gadgets. Surely the growth of the industry itself would clearly indicate that huge numbers of dollars are being spent on home video game systems and on game cartridges. When interviewed, Levy, president of Activision, a game cartridge manufacturer, commented that 1982 was "'the year video games came of age as an important part of American recreation for today and the future'" (Silverman, 1982, p.79). Industry people believe that home electronic video games have had an impact on family leisure as significant as television in its first several years of development. Time and research would still have to substantiate that assumption.

One question which remains unanswered concerns who is likely to purchase and play home electronic video games. Families or family members purchase home electronic video games to be used in the home. Proponents of home electronic video games postulate that they are creating a new form of recreation. Atari (a trademark name) has capitalized on this idea in their advertising with the slogan "'Have you

played a game from Atari today?'" (Marich, 1982, p.3). However, some parents may be less than enthusiastic about having their child or children playing video games. Wanner (1982) comments that much of the parents' concern centers around "their own fears and fantasies about computers" (p.8). The largest purchasers of home electronic video games are families, especially if they have children or teenagers.

Defining the players even further, the market tends to be geared toward the 8 to 18 year old male. Boys tend to play more than girls but the software producers attempted to have an impact on that differentiation with the introduction of Ms. Pac Man (Kiesler, Sproull and Eccles, 1983). Industry magazines report that games for girls and women, as well as for preschoolers, are being designed in order to expand the home electronic video game market (Klionsky, 1982; Mansfield, 1982). If home electronic video games were seen initially as a children's toy, the orientation has broadened to a toy for the whole family ("Big Ticket", 1981). Families with children or teenagers are more likely to own a a home electronic video game (Bresnick, 1982). The marketing advertisements for video games have emphasized that home electronic video games are a family product and a contemporary way for families to play together. Even in hard economic times families purchased home electronic video games, perhaps for the purpose of encouraging family recreation at home (Klionsky, 1982). A question yet to be answered is

whether families are indeed playing together through the use of home electronic video games, or is home electronic video game play still an individual, solitary activity?

Adults or older Americans may express wonder at what motivates people, especially children, to play video games. To some, arcade game rooms may be reminiscent of the pool hall and pinball games of the past. Many of the same value judgments about good or bad are perhaps raised by such reminders. Further research will be needed to discover the similarities between today's video games and the arcade games of the past. While such issues are of interest they are beyond the scope of this particular research project.

As in all attempts to understand human behavior, attitudes toward and use of video games reflect a complex combination of factors. Video games are likely to appeal to people for a variety of reasons. Part of the appeal is attributed to the fact that the games involve a degree of skill and the possibility that with practice skill levels can be increased. In comparison to television, home electronic video games are more active than passive and involve eye-hand coordination and motor skills (Bernstein, 1981; "Increasingly", 1977; "On TV Games", 1978). If a television program is not appealing a home electronic video game is an option for entertainment. Children have also reported that they like the novelty and the sense of mastery that is attained as their skills are built (Smith, 1981). Wanner (1982) purposed that "kids might play the games in an

unconscious effort to feel connected to the power of the machine" (p.10). Video games "pique young minds to learn more about all that electronic prestidigitation" (Golden, 1982, p.51). Children may have a high interest in video games if they recognize that the computer is important in our present world and that the video game allows the opportunity to learn about computer-like things.

Condry and Keith (1983) observed that games hook kids to the computer and familiarity with games increases their comfort level with technology. Bernstein (1981) would agree that children are gaining comfort with the computer. In addition, Bernstein interviewed Sherry Turkle, an individual with an early interest in the technological world and its impact on children. Turkle speculates that preadolescent boys use video games as a block to sexual or peer pressure. Concerns about video games reported in the media include that they encourage: passivity, instant gratification, excessive use, frustration and violence. The Surgeon General's comment that youth are addicted to video games was an expression of his personal opinion and not based on data or information (Katz, 1983). However, such opinions, particularly from influential advocates and influencers of public policy, can only increase the controversy and the need for empirically-based conclusions.

Another aspect of video games concerns whether learning is taking place while playing video games. Reynolds (1982-83) reported that a video game spokesperson said

that some amount of learning takes place in all games. Individuals may not be aware of what they are learning. In reality, no real documentation yet exists about what learning may result from video game usage ("Video Games", 1983). Limited information comes from programs which use video games to help stroke victims recover. Mental skills that appear to be improved include hand-eye coordination, memory, reflexes and spatial orientation (Cobb, 1982). Such video game uses indicate positive outcomes in hand-eye coordination and neurological therapy but no evidence exists that cognitive learning is effected by home electronic video game play.

The review of literature thus far has presented little completed research on video games. Indeed a Symposium held at Harvard University in May, 1983 was titled "Video Games and Human Development - A Research Agenda for the '80s". Issues being considered at the meeting were "What are the areas where future research is necessary? What are the potentials and the limitations for video games in human development?" ("Video Games", 1983, p.2). The participants at the conference reported areas where research has begun but most of the presentations were not about completed research.

One research report at the Harvard conference which is relevant to this dissertation was the presentation by Mitchell on "The Effects of Home Video Games on Children and Families" (1983). Her qualitative research focused on family interaction patterns around the new device "the

video game." Twenty families differing in socio-economic status, racial and ethic characteristics and family composition kept records of their video game use. Each family member was interviewed individually at the beginning and at the end of a six month period. The new entertainment medium was played more initially and with the purchase of a new game cartridge, otherwise play time decreased over the six months. The mean playing time was 43 minutes per day.

Mitchell (1983) found greater use in single parent families and families with all boys. With respect to social vs. solitary playing, boys or only children most often played alone. Girls tended to play with others, although families with girls only, played the least amount of time of all the groups. Fifty percent of the mothers did not play at all, whereas in the families with a father present only one father did not play. Fathers were reported to have been the ones who initiated purchase of the set.

Summarizing the response of families to video games Mitchell (1983) wrote:

> In all families a change in family interaction was reported in a positive direction. The games brought families together in new interactive patterns, at least for a period of time. This was valued by adults and children alike. (p.70)

The games were reported to have promoted "family interaction through cooperation and competition within the family . . .

age and sex differences are eliminated" (Mitchell, 1983, p.13). Parents and children, boys and girls appeared to play together as equals. Particularly the video game seemed to offer the opportunity for fathers and children to share time together. The leisure time activity that appeared to be most effected by the video game was the television viewing time, which diminished.

Mitchell's study, although with a small number of families, indicates families were able to keep video game playing in perspective. The effect on family interaction was more likely to be positive and the amount of play time was less than one hour per day for the whole family. The author concluded:

> Historically, games, toys and entertainment have reflected the values of the culture in which they are found. They have also reflected the changing technology of a society. Video games are not different in that respect. Technology has invaded the family in a permanent way. This study suggests that it is not inherently bad; that families may be trusted to use judgment about time in activities appropriate to their children's lives and in a context of family values (Mitchell, 1983, p.71).

Condry and Keith (1983) wrote that we need to know the impact microcomputers have on young people. Television, as a technological development, was not studied early in its existence. Society did not take television seriously until

it was too late to collect preliminary data. These researchers advocated that we should learn from those early omissions in television research and study the direct and indirect effects of video games. "Time will tell whether video games are a passing fad or the vanguard of a new and lasting medium of recreation made possible by computer technology" (Condry and Keith, 1983, p.103). If parents are socially acceptant of new technology is it to prepare their children for a new form of future society or world? What prompts a family to buy a home electronic video game? What attitudes do parents have about home electronic video games? How is a home electronic video game used in the family with regard to structuring of time and patterns of interaction?

Families, Leisure and Television

From an ecosystem perspective one of the functions of the family, with regard to society, is to build human competence (Andrews et al., 1980). Building human competence includes nurturing family members in such a way as to add to their quality of life. The leisure dimension is part of the human behavioral environment in the family ecosystem. Home electronic video games would appear to be part of the leisure environment.

Leisure time can be defined as "an active mental state associated with discretionary time and pleasurable definition of the situation" (Orthner, 1978, p.3). Family members

who spend time with each other and report this to be a positive or happy choice would probably enjoy each other in leisure. Social leisure is defined as "activities pursued mainly to be with family or friends, activities depending on group interaction, or activities designed to meet new people" (Crandall, 1979, p.166). One of the motivations which prompts people to make leisure choices is the need for social interaction. The social interaction can be met in the family or in other types of the human behavioral environment, for example in the work place or in school.

Leisure may be a place where individuals and family members expose themselves to new activities, new ideas and new definitions of reality for themselves and the family (Orthner, 1978). In a nonthreatening, leisure setting family members may test new technological instruments. Leisure behavior is also often a consumption behavior and this has been increasingly true of our industrialized American society. Television particularly appears to have changed our leisure patterns (Boulding, 1978). One function of leisure for families may be to sample new behaviors toward new ideas, instruments or activities.

When discussing implications for leisure and families Boulding also reported "children do the playing for a family. When children leave the home, the playing stops" ("Conference Issues and Implications", 1978, p.51). Thus Boulding would say another function of leisure is play. In her opinion children perform this function for a family.

Play might be defined as, "the active, goal directed, limited use of discretionary time" (Orthner, 1978, p.3.). As stated earlier, play, social interaction and exposure to new ideas or activities may be some of the functions of leisure for family members. Leisure is important to families because it fulfills the need for personal relaxation, can build family cohesiveness and provides time for interpersonal understanding (Orthner, 1975).

Theorists have suggested that individuals are influenced in their leisure choices by their socialization. "Most leisure activities important to adults are begun in the family of orientation or of procreation" (Kelly, 1978, p.48). Carlson (1979) would agree with Kelly while also suggesting that "conspicuous consumption" affects recreational activities. Income level will likely influence what items can be purchased by families. Whether one has the equipment needed frequently determines if one can participate in certain types of leisure activity and what activities are participated in by the family. Illustrating this point would be whether a family owned recreational vehicles and large boats, sometimes with food preparation area and sleeping quarters.

Education can also modify a family's choices. When one defines education as a broadening activity, awareness of opportunities through education may increase the scope of possible attractive leisure choices. Social class, environmental factors, and social cultural changes in the family

will also affect choices. Mass media presentations of possible decision options may also influence leisure choices. Age of individuals and family life cycle stages also have some effect on leisure choices (Carlson, 1979).

Crandall, Nolan and Morgan (1980) have discussed leisure changes over the life cycle. Couples without children have fewer time constraints and more money. During the preschool years an increased amount of leisure centers on children. Research indicates the child-centered pattern continues during the school age years. School age children become more peer-oriented and both their individual leisure choices and the family's may be influenced by the need to be around friends. Social skills, cooperation or competition, and physical abilities may be developed by the school age child's leisure activities. Which of the many choices of leisure activities are chosen in a family may be a compromise between the various family members desires and needs and may vary throughout the life cycle.

Family leisure may either be viewed as "activities usually done with other family members" or "only those activities . . . in which the family role is integral and the meaning to the participant is altered when done with those outside the family" (Kelly, 1978, p.48). Family recreational activities may present the opportunity for communication between parents and children and are an often expressed preference of children (Orthner, 1975). Kelly (1975, 1978) studied family recreational choices in three

communities and reported that the family-oriented activities were.most important to adults. "Family associations are central to the meaning of the activity as well as to the form of the activity" (Kelly, 1978, p.53). Thus the family-oriented activity is an important preference for both children and adults.

The family system and the constraints and freedoms of the family system will likely apply to leisure behavior as well as to other descriptions of family behavior. The family decision making pattern may enhance or limit the leisure opportunities for individuals in the family. If a decision is not to the liking of certain individuals they may involve themselves in some other activity they really do not prefer. Orthner and Mancini (1980) have written that television viewing is not a preferred activity yet it accounts for considerable amount of an individual's or family's time.

Family members may turn to television for leisure perhaps because they don't want to do what other family members are doing, out of boredom or as a habit. The longer families have television the less interesting, less novel it becomes while more frequently being turned to only in boredom (Murray and Kippax, 1978). The possibility exists, and has been researched, that television contact substitutes for interpersonal contact. Television may be producing a different type of individual because the individual is passive and uninvolved. These individuals then change their interactions with others. Research data point out that

during television viewing children talk less, are less active and less oriented toward parents (McLeod, Fitzpatrick, Glynn and Fallis, 1982). However, during television viewing physical touching between parents and children increased (Brody, Stoneman and Sanders, 1980).

An additional aspect of television and families relates to family or individual consumer purchases. The advertising on television stimulates the idea of owning or purchasing some particular product. Atkin found that parents and children often discuss and argue over consumer purchase decisions that are stimulated by television advertising (Chaffee, 1982). Home electronic video games have been heavily promoted on television, particularly during children's programming times. Thus a family may be influenced by or have to resist the influence of television advertising on their purchasing behavior.

Parents, by encouraging certain leisure patterns for their children, and often through modeling of the encouraged behavior, set the pattern for future behavior and may even affect their children's psychological well-being as adults (Iso-Ahola, 1980). Family, income, education, environment, mass media, social and cultural changes all have an influence on leisure choices. "Leisure styles and interests seem to express our individuality as much as our preditability" (Kelly, 1975, p. 186).

The family as a system decides, monitors or controls how much individual autonomy and how much familism is

acceptable or desired for the family. The family system also decides, monitors or controls how much influence or connection there will be with other people or situations which are external to the family as an institution. Hess and Handel (1950) have written:

> A family constitutes its own world, which is not to say that it closes itself off from everything else but that it determines what parts of the external world are admissible and how freely. (p.14)

A family will decide whether to admit an outside influence, such as television, cablevision or video games, through the family boundaries. Openness to a new technology may come easily, may be resisted or may be intruded into the family by an individual members' persistence or insistence. Parents may mediate the influence of a particular phenomenon by their rules about its use (Leichter, 1974). Television programs or certain video games may be deemed acceptable or unacceptable according to parental values. "Mediation includes the variety of processes whereby family members translate and interpret educational experiences for one another" (Leichter, 1974, p.40). Inherent in the previous statement is the implication that mediation is a reciprocal process. Children may translate an educational experience for the parents. As alluded to earlier, new technologies in the home may be allowed by parents to provide an experience for the children. Yet the presence in the home of a

computer or video game also allows the parents to learn and be exposed to a new technology. In some ways the home would be a safe, nonthreatening environment for this learning to take place. Leichter (1974) comments that the children of the television generation have functioned in this capacity with their parents. Perhaps this is also true for home electronic video games.

Summary

Ecosystem theory provides a framework to examine the interaction and interdependence of individuals and families and their near and far environments. The understanding of the interdependence of society with families is important to the continued existence and growth of society. An assessment of the social and economic well being of the family provides feedback to the family about how the family is accommodating, assimilating or adjusting to an ever-changing society. Family environments differ and as a result emphasize different qualities as valued or important. Yet the technological, computer-dominated world of the future will probably have to fit all families, as all families will likely have to learn to live in a "high-tech, high-touch" world (Naisbitt, 1982).

The home electronic video game is one type of device in this new technologically-oriented world. The number of home electronic video games has grown dramatically in recent years and the possibility exists that home electronic video

games will have had some impact on many families and their leisure time. It seems essential, if not merely prudent, to gather information and attempt to understand how families are using home electronic video games and how the attitudes of families toward home electronic video games have been influenced.

Individual leisure activities are intricately involved with the family. Family of procreation patterns, stage in the family life cycle, family choices about the desired quality of life and type of human behavioral environment all affect leisure choices. Income, education, social class and environmental factors also influence leisure choices. Use of home electronic video games will be affected by families' leisure choices and may be an evolving additional form of leisure for many families.

The family system makes a decision to allow an aspect of the human constructed environment, such as home electronic video games, to interact and influence the family. The aspect of the human contructed environment that is allowed to enter the family ecosystem influences and interacts with the human behavioral environment. Interdependence and interaction are key variables when examining families, home electronic video games, and the family ecosystem.

CHAPTER III

RESEARCH DESIGN

This chapter includes a review of the methods used in planning the study, selecting a sample, collecting the data and analyzing the results. Specifically, the following topics are discussed: (1) type of research, (2) selection of the population and sample, (3) instrument construction, (4) collection of data, and (5) data analysis.

Type of Research

Home electronic video game ownership is estimated to include five percent of American families ("Winning", 1981, p.279). Information is not available which indicates the similarities and differences between owners and nonowners of home electronic video games. One way owners and nonowners may differ is in their attitudes toward home electronic video games.

The current literature contains numerous references to the world of the future. The general concensus is that the future society will be more technological and information-oriented than the present or past society. It is not known whether the general population agrees or disagrees with, or even thinks about, the predicted technological trends. This

study was undertaken to determine how and in what way owners and nonowners of home electronic video games differed in their attitudes toward future technology and home electronic video games as one type of technological innovation.

Survey research can be used to gather information about people's attitudes, beliefs, perceptions and motivation about a particular topic or area of concern. Surveys of a population can be conducted through interviews or questionnaires. Research subjects need to be asked to respond to an area about which they have knowledge and which is not too sensitive a subject for them to discuss. Such guidelines help increase the credibility of the respondents' answers. Surveying a representative sample of a population is less costly and more time efficient while allowing the researcher to generalize from the sample to the population (Babbie, 1979; Kerlinger, 1973; and Selltiz, Jahoda, Deutsch and Cook, 1959). The survey method was chosen in the present study to assess similarities and differences in attitudes between a population of owners and nonowners of home electronic video games.

Selection of Population and Sample

Marketing literature on home electronic video games points out that families with children are targeted as purchasers and players of home electronic games ("Increasingly", 1977). Although families with children are not the only owners of home electronic video games the possibility

would exist that they are a large segment of the owner population. Parents have some influence over what is purchased by and for a family unit. The attitudes of the parents toward a new product, in this case home electronic video games, would appear likely to influence ownership of the product.

A population of parents of elementary and middle school students in Stillwater, Oklahoma, a small, midwestern city were selected for the study. The fall enrollment in the middle school (grades 6 and 7) was 710; for the five elementary schools (grades K to 5) enrollment was 2039. The total population of 2749 students was listed in school directories. See Table I for a breakdown of numbers in the total population.

Potential subjects were omitted from the sample if the target child's parents were international students (N=177) or if no phone number was listed for the family (N=146). A ten percent random sample was selected from a population of 2426 students. (See Table I for details.) Each grade level was consecutively numbered and a random selection of ten percent of the grade level was made using a random numbers table. The parents of the child selected at random composed the survey population. If two children from one family were selected the second time the family name appeared the name was omitted and a randomly selected replacement subject from the appropriate grade level was substituted. It was also necessary to replace the names of children who

had a disconnected phone or had moved since the school year began. Random selection was used to give as representative a sample as possible.

TABLE I

TEN PERCENT SAMPLE SELECTION: BY GRADE LEVEL AND TOTAL STUDENTS

Grade Level	Total Students by grade	No Phone Number N	%	International Students N	%	Number of Potential Subjects N	Ten percent Sample N
K	378	25	7	33	9	320	32
1	365	22	6	30	8	313	31
2	356	27	8	21	6	308	31
3	319	13	4	23	7	283	28
4	275	21	8	16	6	238	24
5	346	14	4	24	7	308	31
6	351	14	4	13	4	324	32
7	359	10	3	17	5	332	33
	N=2749	N=146	5%	N=177	6%	N=2426	N=242

In summary, the selected random sample was to include 242 respondents. Thirty-six potential subjects had an incorrect or disconnected telephone number or had moved. These respondents were individually replaced with another

randomly selected subject from the appropriate group. Telephone interviews were completed with 236 parents. Ten respondents refused to participate in the interview and one interview was not completed. Both attitude scales and all interview questions and demographic data were completed by 236 parents, which resulted in a 96% response rate.

The researcher proposed that when initial contact was made, the question would be asked whether both parents resided in the home. In the single parent homes, the only parent available would be the respondent. When both parents resided in the home the choice of whether to talk to the mother or father would be alternated in order to get a representation of both mothers and fathers. It was found during the interviewing process that mothers were more willing than fathers to respond to the interviewer's questions. Father sometimes deferred to the mother even when the interviewer had specifically asked to talk to the father. Both mothers and fathers were represented among the respondents from two-parent families but not in the equal proportion that was desired in the design.

Data Collection

Surveys can be conducted either by requesting response to a questionnaire or by interviews. A mailed questionnaire to a population of parents could be difficult to obtain a reasonable response rate. Interviews on the other hand, can be face-to-face or by telephone. Since parents of school

age children are usually involved in many activities, asking parents to respond to attitude scales and interview questions through a telephone interview appeared to be a appropriate survey method. A telephone call would help to obtain a higher response rate. Response rate is usually high and the answers may be expected to be moderately accurate in a telephone survey. Using a local population keeps telephone cost low and makes follow-up more efficient and economical (Dillman, 1978). The telephone interview with a sample from a completely listed population has a high rate of representativeness (Dillman, 1978). Telephone interviews do not lend themselves to deep and complex questions, therefore the survey needs to be concise and clearly worded. "Simplicity is imperative for the telephone interview" (Dillman, p.58).

A voluntary 10- to 15-minute telephone interview with parents of elementary and middle school students was conducted. An introductory letter was sent to the parents of the target child explaining the purposes of the research, soliciting their cooperation and assuring confidentially of responses. (See Appendix D.) In addition to the letter a printed card was included with the response code for the attitude scales. The letter indicated a phone call to the parent would be forthcoming. Dillman, Gallegos and Frey (1976) explained this procedure eliminates the element of surprise and gives the interviewer credibility with the respondent. The interviewer's first comments on the phone referred to the letter sent. Most parents responded that

they were familiar with the letter thus helping to establish rapport.

The phone interview was planned at a convenient time for the parent. Interview calls were made between 6 p.m. and 9 p.m., Monday thru Saturday, and some call backs were scheduled to be completed in the daytime. If the selected parent was not home a call was made at a later date and time. Some calls were made on Sunday afternoon as a last resort in order to talk with parents who were difficult to reach. Every effort was made to encourage both male and female parents to cooperate in order to obtain responses representative of both sexes.

Respondents who indicated they owned a home electronic video game were asked if they would cooperate further by completing a Pattern of Use Log. After confirming the correct address by telephone, the family was mailed a Pattern of Use Log. A copy may be found in Appendix C. The log was to be completed in the next week and returned to the researcher in a self-addressed, stamped envelope. After a completed Use Log was returned the investigator sent a letter of appreciation (Appendix D) to the family along with free arcade tokens or, if the parents preferred, coupons for free roller skating.

If the Pattern of Use Log was not returned within three weeks a follow-up postcard reminded the family to return the log to the researcher. In addition a follow-up phone call was made to ask the cooperation of the family in returning

the Use Log. A second log was sent if the Use Log had been misplaced. During the follow-up phone calls some individuals commented that the Use Log had not been returned because the video game had not been played at all. The information on non-use was recorded on the master interview log.

Instrument Construction

Scale Construction and Analysis of Pilot Study

Attitudes Toward Future Technology Scale. The researcher developed a Likert-type instrument, Attitudes Toward Future Technology Scale. Positive and negative statements about future technology were developed from information gleaned in the review of literature. The items focused on future technology in relation to: society in general, work, education, leisure, family, options and sex differences. Initially approximately four times as many items as desired in the final version were constructed, which according to Thurstone (1959) is a desirable procedure.

Edwards' (1957) criteria for editing statements were used to determine acceptable items. The criteria included:

1. Avoid statements that refer to the past rather than to the present.
2. Avoid statements that are factual or capable of being interpreted as factual.

3. Avoid statements that may be interpreted in more than one way.
4. Avoid statements that are irrelevant to the psychological object under consideration.
5. Avoid statements that are likely to be endorsed by almost everyone or by almost no one.
6. Select statements that are believed to cover the entire range of the affective scale of interest.
7. Keep the language of the statements simple, clear, and direct.
8. Statements should be short, rarely exceeding 20 words.
9. Each statement should contain only one complete thought.
10. Statements containing universals such as all, always, none, and never often introduce ambiguity and should be avoided.
11. Words such as only, just, merely, and others of a similar nature should be used with care and moderation in writing statements.
12. Whenever possible, statements should be in the form of simple sentences rather than in the form of compound or complex sentences.
13. Avoid the use of words that may not be understood by those who are to be given the completed scale.
14. Avoid the use of double negatives. (Edwards, 1957, pp.13-14)

Content validity was assessed by the ratings of a panel of judges. The judges were selected for their familiarity with the general public and their knowledge of the literature about future trends. The five judges were either university staff, faculty or extension personnel in the area of Family Relations and Child Development. The directions to the judges included a check sheet for the following:

1. Does the item relate to future technology? (yes or no)
2. Is the statement about future technology worded in a positive (+), negative (-), or neither (?) direction?
3. Which category fits the general focus of the item? Society in general, Work, Education, Leisure, Family/Home, Options/Flexibility, or Sex Differences?

The judges were asked to make written comments about the items according to the criteria listed below:

1. Are the items clear?
2. Are the items direct and easy to understand?
3. Are the items specific?
4. Does the statement contain only one complete thought?
5. Are the items written in an easily understood language or vocabulary?
6. Could the statements be interpreted as fact or factual?

When the judges' comments were returned, the previously determined criteria for selection of items were applied. Items were selected if three of the five judges:

1. Stated yes, the item did relate to the construct.
2. Agreed the item was positively or negatively worded.
3. Agreed on the category designation for the statement.

The panel of judges assessed 106 items. Of these, 54 items met the selection criteria and further analysis and were retained for the pilot test. In an effort to further refine the scale and number of items the investigator eliminated items perceived as duplicates. Further analysis of the items eliminated those not worded clearly and specifically and those with more than one thought. Since the scale was to be read over the telephone in the final form items needed to be clear, concise and as specific as possible. The resulting 54 items became the pilot version of the Attitudes Toward Future Technology Scale. See Appendix A.

Attitudes Toward Home Electronic Video Game Scale. The investigator also developed a Likert-type instrument entitled Attitudes Toward Home Electronic Video Games Scale. The literature about video games provided positive and negative statements about home electronic video games. Edwards' (1957) criteria were again used to edit the statements. The video game items focused on the categories of:

society in general, values, education, leisure, family and parent-child socialization, peers and sex differences. Approximately four times as many items (104 items) were constructed initially as were to be in the final scale (Thurstone, 1959).

Adult individuals with expertise relating to video games were difficult to locate. Affirming their lack of knowledge relating to video games, the same panel of judges assessed the video game items. The directions for judging the video game scale items were similar to the previous directions and are as follows:

1. Does the item relate to home electronic video games? (yes or no)
2. Is the statement about home electronic video games worded in a positive (+), negative (-), or neither (?) direction?
3. Which category fit the general focus of the item? Society in general, Values, Education, Leisure, Family and Parent-child Socialization, Peers and Sex Differences.

The same written comments were requested as was true for the Attitudes Toward Future Technology Scale. The judges found the category designations more difficult to assess than the previous scale. In particular the judges found it difficult to discriminate between values and family and between values and education. Thus their written comments about the categories were considered before evaluating the items.

The panel of judges assessed 104 items. Further analysis of the items eliminated those not worded clearly and specifically and those with more than one thought. The resulting 53 items composed the pilot test. The final categories were: peers, family, society in general, education, values and leisure. The rewritten 53 items composed a pilot version of the Attitudes Toward Home Electronic Video Games Scale. (See Appendix A.)

Pilot Test of Attitude Scales. Both attitude scales were presented in a questionnaire to a group of twenty-five adult males and females, the majority of whom were parents. The scales began with a definition of future technology and of home electronic video games. The respondents were asked to respond according to the response code: Strongly Agree, Agree, Undecided, Disagree, and Strongly Disagree. The respondents were also encouraged to write comments about the items on the scale. Positively worded items were scored as follows: Strongly Agree, 5; Agree, 4; Undecided, 3; Disagree, 2; and Strongly Disagree, 1. Negatively worded items were scored in the reverse, for instance: Strongly Agree, 1; Agree, 2; Undecided, 3; Disagree, 4; and Strongly Disagree, 5.

The pilot versions of the Attitudes Toward Future Technology Scale and Attitudes Toward Home Electronic Video Games Scale were statistically analyzed for reliability. SPSSx, Statistical Package for Social Sciences X - 1983

version, alpha model reliability was applied. A Cronbach's alpha was computed. For the total Future Technology Scale the alpha coefficient was .61. Negatively correlated items were eliminated from the scale. The alpha score with negative items eliminated was .64.

The Attitudes Toward Future Technology subscales were analyzed for reliability. Table II indicates subscales and appropriate alpha scores. Items were eliminated in the subscales when the removal of the items improved the alpha score. The work subscale items needed to be rewritten completely since the items were apparently assessing the opposite of what was desired. Examining the overall reliability and the reliability of the subscales resulted in

TABLE II

ATTITUDES TOWARD FUTURE TECHNOLOGY SUBSCALE RELIABILITY ON PILOT STUDY

Sub Scales	Number of Items	Alpha Coefficient
Education	13	.40
Family	9	.19
Leisure	3	.49
Options	7	.31
Work	9	-.34
Society	12	.57

retention of 15 items. Since the scales were to be read over the telephone the entire scale needed to be short, with each item clear and concise. Items were rewritten to be sure each statement was in the simplest language and sentence structure. The final version of the Attitudes Toward Future Technology Scale included 15 items, 11 positive and 4 negative, categorized by: education (4), sex differences (1), society (2), family (2), leisure (1), options (1) and work (4). The final form of the scales may be found in Appendix B.

The items in the pilot version of the Attitudes Toward Home Electronic Video Games Scale were statistically analyzed for reliability using the SPSS^{X} alpha model. For the total scale the alpha was .94. Negatively correlated items were eliminated from the scale but did not result in a significant change in the alpha score (from a score of .94336 to .94577).

The Attitudes Toward Home Electronic Video Games subscales were analyzed for reliability. Table III indicates alpha scores by subscales. Negatively correlated items were eliminated. Since the overall reliability was high those items with the highest total scale correlations were retained. In a subjective assessment of the items the researcher eliminated items believed to be of less importance as determined by the review of literature. Rewriting the items for clarity and conciseness resulted in a final form. The final version of the Attitudes Toward Home

TABLE III

ATTITUDES TOWARD HOME ELECTRONIC VIDEO GAMES
SUBSCALE RELIABILITY ON PILOT STUDY

Sub Scales	Number of Items	Alpha Coefficient
Society	4	.28
Leisure	4	.60
Family	3	.47
Peers	5	.51
Values	15	.80
Education	21	.91

Electronic Video Games Scale contained 19 items, 10 positive and 9 negative, categorized by: Values (4), Leisure (2), Society (1), Family (1), Peers (2), and Education (9). (See Appendix B.)

Content validity for the attitude scales was assumed on the basis of: a) the solicited expert judgment of professional home economists and counselors in determining the selection of items for the scales and wording of the items, b) incorporation of many items as a result of a pilot study done in November, 1983, and c) all of the conditions reflected in the attitude scales being selected from the literature relating to future technology and video games.

Reliability and Factor Analysis of Final Scales

Attitudes Toward Future Technology Scale. The initial reliability analysis of the final version of the Attitudes Toward Future Technology Scale resulted in an alpha coefficient of .52. Nunnally (1978) suggested "in the early stages of research on predictor tests or hypothesized measures of a construct...reliabilities of .70 or higher will suffice" (p.245). The future technology scale initially did not meet the reliability criteria. In an effort to strengthen the scale reliability several items were omitted.

Factor analysis of the future technology scale had resulted in the fifteen items clustering into six factors. One item (#24) needed to be rescored to reverse a negative factor loading. After varimax rotation, four items appeared to be weak items based on their overall factor loading. These items, #23, #25, #29, and #33 were therefore omitted. A subsequent factor analysis of the future technology scale with eleven items resulted in four factors. The first factor accounted for 19% of the variance; the second, third, and fourth factors accounted for 16%, 13%, and 10% respectively. The total variance accounted for was 58%. Table IV lists the scale items by factor with a tentative dimension title.

Revision of the Attitudes Toward Future Technology Scale resulted in an alpha coefficient of .69 which would be acceptable according to Nunnally (1978). Spearman-Brown

TABLE IV

FACTOR ANALYSIS OF ITEMS IN THE ATTITUDES TOWARD FUTURE TECHNOLOGY SCALE

		$\bar{X}$	SD
Factor 1	Work dimension		
Item 32	Parents need to be aware their children's future job market will be highly technical.	4.27	.59
34	Knowledge of the computer keyboard will be an important work skill in the future.	4.29	.59
35	Computers will have a tremendous influence on the future job market.	4.28	.62
Factor 2	Benefits for children dimension		
Item 21	Computers help children understand the use of information.	4.07	.64
22	Children who can program computers achieve a sense of accomplishment.	4.28	.60
26	Computers will play an important role in the intellectual development of children.	3.97	.73
Factor 3	Use of time dimension		
Item 28	The home owner could be in control of the environment in the home through the use of computer technology.	3.74	.89
30	Future workers with work time freed by machines, computers and robots can spend time in other activities.	3.78	.71
Factor 4	Unnamed		
Item 24	Computers and technical devices will play a large role in guiding our behavior in the future.	3.91	.97

TABLE IV (Continued)

Factor 4 Unnamed (Continued)		$\bar{X}$	SD
Item 27	Children using a computer cover the same material somewhat faster.	3.53	.77
31	Our future society will offer individuals a wide variety of opportunities to express themselves.	3.86	.69

split-half reliability was .64. Additional development of the Attitudes Toward Future Technology Scale would be possible building on the dimensions resulting from factor analysis.

Attitudes Toward Home Electronic Video Games Scale. The pilot version of this scale reflected a high reliability (.94). The final version of the Attitudes Toward Home Electronic Video Games Scale had an alpha coefficient of .89 for nineteen items. One item (#43), which was a problem item for the respondents during the interview, was omitted. The alpha coefficient for eighteen items remained .89; the Spearman-Brown split-half reliability was .88.

Factor analysis of the video games scale resulted in three factors. The items composing these dimensions are noted in Table V. Factor one accounted for 20% of the variance, factor two 17%, and factor three 14% of the variance. The total variance accounted for was 51%. The

reliability and factor analysis of the Attitudes Toward Home Electronic Video Games Scale would indicate the scale is ready for use in future studies.

Scoring for Scales. The Likert-style scale items which were worded positively were scored as follows: Strongly Agree, 5; Agree, 4; Undecided, 3; Disagree, 2; Strongly Disagree, 1. Negatively worded items were scored: Strongly Agree, 1; Agree, 2; Undecided, 3; Disagree, 4; Strongly Disagree, 5. The scores on the Attitudes Toward Future Technology Scale could range from 15 to 75. The range of scores on the Attitudes Toward Home Electronic Video Games Scale

TABLE V

FACTOR ANALYSIS OF ITEMS IN THE ATTITUDES TOWARD HOME ELECTRONIC VIDEO GAMES SCALE

		$\bar{X}$	SD
Factor 1 Negative effect dimension			
Item 37	Playing video games is not a constructive way for children to spend free time.	3.16	1.04
38	Video games encourage passive behavior.	3.13	.97
39	Playing video games takes away from time families spent together.	2.93	1.15
40	Children who play video games are isolating themselves from friends.	3.33	1.00
48	Playing video games is detrimental to a child's school grades.	3.47	.89

TABLE V (Continued)

			$\bar{X}$	SD
Factor 1		Negative effect dimension (Continued)		
Item	50	Playing video games encourages violence.	3.64	.86
Factor 2		Unnamed		
Item	42	Video games are silly and senseless.	3.61	.95
	44	Video games help children have knowledge about technology.	3.33	.98
	46	Playing video games helps children improve their eye movements.	3.95	.75
	47	Children's learning can be stimulated by the use of video games.	3.65	.85
	53	Problem solving skills used in playing video games won't help in other activities.	3.51	.83
	54	Video games are an enjoyable alternative to boring television shows.	3.86	.76
Factor 3		Skills dimension		
Item	36	Playing video games with another person teaches children how to handle competition.	3.57	.87
	41	Reaching a goal is one reason children find video games appealing.	3.67	.75
	45	Playing video games helps children learn to cope with failure.	3.04	1.00
	49	Children who master video games gain confidence in their ability to master complex learning situations.	3.36	.89
	51	Video games are helping to change television from a passive to an active pastime.	3.49	.87
	52	Video games get people fascinated with problem solving.	3.48	.85

were from 19 to 95. The higher the score on the scale the more positive was the respondent's attitude toward the variable being measured.

Interview Schedule

In addition to the two scales described previously, an interview schedule was developed asking the following information: (1) number of children, (2) age of children, (3) sex of children, (4) whether or not the family owned a home electronic video game, (5) whether or not the family owned a home computer, (6) approval or disapproval of arcade video game playing and (7) parent's occupation, education and age range.

Hollingshead's Two Factor Index of Social Position (1957) was used to ascertain the position individuals occupy in the societal status. The highest educational level of the main wage earner, weighted with a factor weight of four, plus the occupational level of the breadwinner, weighted with a factor weight of seven, combined to give an Index of Social Position. This index of social status did not require information about income which might be difficult to obtain in a telephone interview. Group I was the highest group and group V was the lowest group, but Hollinghead did not name the groups.

All parents were asked open format questions about what they saw as the advantages and disadvantages of video game ownership, the most important reason(s) children play video

games and concerns about arcade game playing. Owners of video games were asked: (1) what brand video game they owned, (2) satisfaction with the performance of their video game, (3) length of time they had owned the video game, (4) the number of video game units owned, (5) room in which the video game unit was located and (6) to estimate the average playing time per month the family used the video game unit. (See Appendix C.)

Pattern of Use Log. A Pattern of Use Log was developed by the researcher to record the time spent playing video games. The log contained a place to record: date, who was playing, whether playing alone or with someone, name of video game played, time play started and stopped and highest score reached. (See Appendix C.) The Pattern of Use Log was mailed to families who owned video games to record their playing time for one week. A self-addressed, stamped envelope was included for the return of the log.

Pilot Study. The final version of the attitude scales, interview schedule and Use Log were pilot tested with six families. Telephone interviews were conducted in the same manner as was proposed in the research design. The respondents were encouraged to comment on the interview process and questions. The pilot study process resulted in a change in the order of questions in the attitude scales and further refinement of the wording of the attitude statements and interview questions. The families also returned the Pattern

of Use Log which provided helpful information about the feasibility of its' use. The pilot study also provided the researcher with some experience in the interview process. The experience was helpful in gaining familiarity with the statements, terms and technique for recording responses.

Analysis of the Data

Responses to the two attitude scales and interview questions were coded for computer analysis. The open format responses were categorized and numerically coded for ease in quantifying the answers. The Pattern of Use Log was coded for descriptive analysis and in addition was analyzed qualitatively. The SPSS^{x} Statistical Package for the Social Sciences (1983) was used for analysis of the data.

The Attitudes Toward Future Technology Scale and Attitudes Toward Home Electronic Video Games Scale were treated statistically with factor analysis and reliability tests. Frequency distributions were compiled for the description of the respondents and responses to the interview questions. A comparison of owners' and nonowners' responses to the interview questions was analyzed with an SPSS^{x} Crosstabs procedure. The differences between the total scores of owners and nonowners on Attitudes Toward Future Technology and Attitudes Toward Electronic Video Games , number of children, sex and age of the target child and socioeconomic status of the parent were analyzed with a *t*-test. The Pattern of Use Log was analyzed with descriptive statistics.

Hypotheses

The following hypotheses were tested in the research.

1. There will be no significant difference between owners of home electronic video games and non-owners concerning the following:
   a) perceptions of future technology as assessed by the Attitudes Toward Future Technology Scale.
   b) attitudes toward home electronic video games as assessed by the Attitudes Toward Home Electronic Video Games Scale.
   c) number of children in family.
   d) sex of the target child.
   e) age of the target child.
   f) socioeconomic status of family as measured by the main breadwinners occupation and level of education.

CHAPTER IV

QUANTITATIVE ANALYSIS OF THE RESULTS

The purpose of this study was to examine whether ownership of a home electronic video game was associated with parents' attitudes toward future technology and parents' attitudes toward home electronic video games as assessed by instruments developed in this research project. This chapter presents the results of the study as analyzed quantitatively. First will be a description of the sample. A discussion of the hypotheses will be presented in the next section. The frequency and distribution of the open format questions will be in the third section. Chapter V will discuss the results qualitatively.

Description of the Parents and Families

Table VI presents information describing certain of the parents' demographic characteristics. Mothers were the respondents 69% of the time and father were the respondents 30% of the time. Also one grandfather, a guardian of the child, responded to the interview questions. Information about age, education and occupation was collected for both parents, not just the respondent.

TABLE VI

CHARACTERISTICS OF PARENTS

Variable	Classification	Number	Percent
Sex of respondent	Male	71	30.1
	Female	165	69.9
Parent role of respondent	Father	70	29.7
	Mother	165	69.9
	Grandparent	1	.4
Age of father in family	25-35	85	36.0
	36-45	107	45.3
	46-55	17	7.2
	56-65	1	.4
	No information	26	11.0
Age of mother in family	25-35	139	58.9
	36-45	87	36.9
	46-55	9	3.8
	No information	1	.4
Education completed by father in the family	Grade school	1	.4
	Some high school	3	1.3
	High school	16	6.8
	Some college or technical school	64	27.1
	Undergraduate degree	43	18.2
	Graduate degree	83	35.2
	No information	26	11.0

TABLE VI (Continued)

Variable	Classification	Number	Percent
Education completed by mother in the family	Grade school	2	.8
	Some high school	8	3.4
	High school	48	20.3
	Some college or technical school	76	32.2
	Undergraduate degree	49	20.8
	Graduate degree	52	22.0
	No information	1	.4
Occupational status of father in the family	Student/full time at home	6	2.5
	Unskilled	2	.8
	Semiskilled	3	1.3
	Skilled manual	31	13.1
	Clerical, technician	19	8.1
	Administrative personnel, small business owner	52	22.0
	Business managers, lesser professionals	48	20.3
	Higher executives, major professionals	49	20.8
	No information	26	11.0
Occupational status of mother in the family	Student	8	3.4
	Full time homemaker	75	31.8
	Unskilled	9	3.8

TABLE VI (Continued)

Variable	Classification	Number	Percent
Occupational status of mother in the family (continued)	Semiskilled	10	4.2
	Skilled manual	7	3.0
	Clerical, technician	49	20.8
	Administrative personnel, small business owner	25	10.6
	Business manager, lesser professionals	47	19.9
	Higher executives, major professionals	5	2.1
	No information	1	.4
Educational - occupational classification*	Group I	50	21.2
	Group II	83	35.2
	Group III	76	32.2
	Group IV	22	9.3
	Group V	5	2.1

*Hollingshead's Two Factor Index of Social Position (1957).

The fathers of the target child ranged in age from 25 to 55 years with the majority (45%) of the fathers 36-45 years of age. The next largest group of fathers (36%) were 25-35 years of age. The age range for the mothers of the target child was from 25 to 55 years of age; 59% were in the 25-35 age range. The next largest group of mothers (37%) was the

36-45 age range.

The interviewer asked for the level of education completed by the father and by the mother in the family. Over half (53%) of the fathers and almost half (43%) of the mothers had completed a college degree or graduate work. In addition 27% of the fathers and 32% of the mothers had attended some college or technical school. The parents were well educated individuals. Graduate degrees were held by both the mothers (22%) and fathers (35%).

The occupational status of the fathers included the following percentages of the total group: administrative personnel and small business owners (22%), business managers and lesser professionals (20%) and higher executives and major professionals (21%). Sixty-three percent of the fathers were in the three upper occupational classes. The largest occupational grouping for the mothers was full-time homemaker (32%). For mothers the category clerical and technician (21%) and business manager and lesser professionals (20%) were the next largest groups. Thirty-one percent of the mothers were in the upper occupational classes.

Using the main breadwinners' education and occupation as an indicator of social class position 21% of this population would be class I (the highest possible class). The next highest groups would include class II, 35% and class III, 32%. The majority of this population might be categorized as middle and upper middle class. A very small proportion (11%) of the population would be considered to be in

the lower or upper lower class categories.

The families are described in Table VII. The majority of the families (88%) were two-parent households; 11% were one-parent families. Among the respondents 63% owned home electronic video games and 37% were nonowners. Since the sample was selected with ten percent of each grade, kindergarten through seventh, the characteristics of the families reflect an equal distribution of the grade of the target children. The age of the target child was from 5 to 13 years; eleven-year-olds were the largest group (17%) and nine-year-olds were next (15%). The sex of the target child was relatively evenly proportioned between male, 49% and female, 51%. The number of children in the family ranged from one to six with the majority of families reporting two children.

TABLE VII

CHARACTERISTICS OF FAMILIES

Variable	Classification	Number	Percent
Number of parents in household	None	1	.4
	One	27	11.4
	Two	208	88.1
Ownership of video game	Nonowner	88	37.3
	Owner	148	62.7

TABLE VII (Continued)

Variable	Classification	Number	Percent
Grade of target child	Kindergarten	32	13.6
	1	30	12.7
	2	30	12.7
	3	28	11.9
	4	24	10.2
	5	27	11.4
	6	32	13.6
	7	33	14.0
Age of target child	5	18	7.6
	6	25	10.6
	7	32	13.6
	8	25	10.6
	9	35	14.8
	10	22	9.3
	11	41	17.4
	12	23	9.7
	13	15	6.4
Sex of target child	Male	115	48.7
	Female	121	51.3

TABLE VII (Continued)

Variable	Classification	Number	Percent
Number of children	1	22	9.3
	2	123	52.1
	3	62	26.3
	4	23	9.7
	5	4	1.7
	6	2	.8

Examination of Hypotheses

The first hypothesis to be examined was:

Hypothesis 1a: There will be no significant difference between owners of home electronic video games and nonowners concerning the perceptions of future technology as assessed by the Attitudes Toward Future Technology Scale.

A t-test was used to determine if the difference between mean total future technology scores for owners and nonowners of video games was significant. The highest possible score a respondent could attain was 75. A high score reflects a more positive perception of future technology. Table VIII provides the information that owners and nonowners of home video games did not differ significantly in their mean total scores. Acceptance of future technology was not associated with ownership of a home electronic video game. Hypothesis 1a could not be rejected.

TABLE VIII

DIFFERENCES BETWEEN OWNERS AND NONOWNERS OF HOME VIDEO GAMES ACCORDING TO TOTAL FUTURE TECHNOLOGY SCORE

Groups	N	Mean	SD	t Value	p
Nonowners	88	43.76	4.39	-0.60	.548
Owners	148	44.10	3.62		

Information was also collected on owners and nonowners attitudes toward video games. The hypothesis stated:

> Hypothesis 1b: There will be no significant difference between owners of home electronic video games and nonowners concerning the attitudes toward home electronic video games as assessed by the Attitudes Toward Home Electronic Video Games Scale.

Owners and nonowners of video games did differ significantly ($p<.001$) in their attitudes toward video games. The highest possible score on the scale would be 95. The higher score reflects a more positive attitude toward video games. Owners were more positive in their attitudes toward home electronic video games. Hypothesis 1b would be rejected. The information in Table IX reflects the results of the comparison of mean total scores.

TABLE IX

DIFFERENCES BETWEEN OWNERS AND NONOWNERS OF HOME VIDEO GAMES ACCORDING TO TOTAL HOME ELECTRONIC VIDEO GAME SCORES

Group	N	Mean	SD	*t* Value	*p*
Nonowner	88	56.75	10.22	-6.84	0.0001
Owner	148	65.41	7.84		

The characteristics of a family that might be important in noting differences between owners and nonowners were examined. The first characteristic examined was the number of children in the family.

> Hypothesis 1c: There will be no significant difference between owners of home electronic video games and nonowners concerning the number of children in the family.

As illustrated in Table X owners and nonowners were significantly different ($p<.003$) from each other in terms of the number of children in the family. Owners had a lower mean number of children than nonowners. However, it should be noted that the majority of the families (78%) had two or three children and only 12% of the sample had more than three children. Hypothesis 1c could be rejected. Caution should be exercised in discussing this finding.

TABLE X

DIFFERENCES BETWEEN OWNERS AND NONOWNERS OF HOME VIDEO GAMES ACCORDING TO NUMBER OF CHILDREN IN FAMILY

Group	N	Mean	SD	*t* Value	*p*
Nonowners	88	2.69	1.04	3.01	.003
Owners	148	2.30	0.80		

The next hypothesis to be examined concerned the sex of the target child.

Hypothesis 1d: There will be no significant difference between owners of home electronic video games and nonowners concerning the sex of the target child.

The sex of the target child did not differ significantly between owner and nonowner groups as noted in Table XI. Hypothesis 1d could not be rejected.

TABLE XI

DIFFERENCES BETWEEN OWNERS AND NONOWNERS OF HOME VIDEO GAMES ACCORDING TO SEX OF THE TARGET CHILD

Group	N	Mean	SD	*t* Value	*p*
Nonowners	88	1.57*	0.50	1.32	.190
Owners	148	1.48*	0.50		

*Males were given a value of 1 and females a value of 2 in computer coding.

The sample was selected by targeting a particular child in a school population. The mean age of the target child was compared between owners and nonowners of home video games. The hypothesis stated:

> Hypothesis 1e: There will be no significant difference between owners of home electronic video games and nonowners concerning the age of the target child.

Results of a *t*-test showed that owners and nonowners of home electronic video games were significantly ($p<.001$) different from each other according to the mean age of their target child. (See Table XII.) The mean age of the target child of the owners was older than the mean age of the nonowners target child. Hypothesis 1c would be rejected.

TABLE XII

DIFFERENCES BETWEEN OWNERS AND NONOWNERS OF HOME VIDEO GAMES ACCORDING TO AGE OF THE TARGET CHILD

Group	N	Mean	SD	*t* Value	*p*
Nonowners	88	8.34	2.42	-3.33	.001
Owners	148	9.37	2.23		

Hollingshead's Two Factor Index of Social Position (Hollinghead, 1957) was used to measure socioeconomic status. The highest educational level of the main wage

earner, plus the occupational level of the breadwinner, combined to give an Index of Social Position. The owners and nonowners were then compared by social position. The hypothesis stated:

> Hypothesis 1f: There will be no significant difference between owners of home electronic video games and nonowners concerning the socioeconomic status of the family as measured by the main breadwinners occupation and level of education.

The t-test was used to determine if a significant difference existed between the owners' socioeconomic status and the nonowners' socioeconomic status. No significant differences existed thus hypothesis 1f could not be rejected. Table XIII presents the statistical results for this hypotheses.

TABLE XIII

DIFFERENCES BETWEEN OWNERS AND NONOWNERS OF HOME VIDEO GAMES ACCORDING TO SOCIOECONOMIC STATUS

Group	N	Mean	SD	t Value	p
Nonowners	88	2.46*	1.10	1.08	.282
Owners	148	2.30*	0.91		

*Socioeconomic status ranged from a high position of 1 to a low position of 5.

When summarizing the statistical verification of the hypotheses one will note that owners of home electronic

video games differed significantly from nonowners in their attitudes toward home electronic video games. With regard to characteristics of the family, owners and nonowners differed significantly on number of children in the family and age of the target child.

Responses to the Open Format Questions

Sudman and Bradburn (1982) wrote about the open format question as "an absolutely essential tool when you are beginning work in an area and need to explore all aspects of an opinion area" (p.151). Since limited research had been located on home electronic video games the open format question was included to assist in determining possible future directions for research. The parents were asked to respond to four open format questions. Both owner and non-owner parents were asked what they thought might be advantages and disadvantages of owning a home electronic video game. The parents were also asked to respond to the question, what are the most important reason(s) children play home video games? The other question related to arcade video games and was worded, "In general, do you have any worries or concerns about arcade game playing?"

Parents' comments were written down in their own words. After the interviewing was completed the responses were categorized and the categories given a code number. Table XIV summarizes the advantages of owning a home video game according to owners and nonowners.

Nonowners' most frequent response was that they saw no advantages (45%) to owning a home video game. The second most frequent response was that home video games were viewed as another form of recreation (14.7%). Nonowners also mentioned that home video games might stimulate eye-hand coordination (9.8%), serve an educational purpose (5.9%) or develop specific skills (5.9%). The category labeled specific skills developed included comments such as: persistence, fine motor skills, increased concentration, speed of perception and learning how to control the knobs.

By contrast only 4.9% of the owners commented there were no advantages to owning a home video game. Owners' most frequent response to the advantages of owning a home video game was a "form of recreation" (24.7%). The second most frequent response the owners listed was that the games "stimulated eye-hand coordination" (13.3%). In addition, owners mentioned "for social purposes" (9.1%) and "family entertainment" (8.7%) as advantages of video games. Mitchell's (1983) study of twenty families reported similar responses.

The responses to the question about what were disadvantages of owning a home video game were also extremely varied. Table XV presents the categories of disadvantages as mentioned by respondents. Nonowners' most frequently mentioned disadvantage was over-absorption in the video game playing (19.3%). This disadvantage was closely followed by both time taken from other activities (18.4%) and no

TABLE XIV

OWNERS' AND NONOWNERS' PERCEPTIONS OF THE ADVANTAGES OF OWNING A HOME VIDEO GAME

Response Category	Nonowner N	Nonowner %*	Owner N	Owner %**
No advantage	46	45.1	13	4.9
Stimulates eye-hand coordination	10	9.8	35	13.3
Family entertainment	3	2.9	23	8.7
Social purposes	1	1.0	24	9.1
Educational purposes	6	5.9	13	4.9
Another form of recreation	15	14.7	65	24.7
Build confidence in self	3	2.9	7	2.7
Baby-sitter	1	1.0	2	.8
Fun, relaxation	5	4.9	19	7.2
Challenging	1	1.0	4	1.5
Prefer family play video games at home	2	2.0	14	5.3
Technology/computer	2	2.0	9	3.4
Brought parent and child together to play	0	0.0	8	3.0
Sportsmanship	1	1.0	4	1.5
Specific skills developed	6	5.9	23	8.7
	T=102	100%	T=263	100%

*Percent is the percentage of nonowners stating the response.
**Percent is the percentage of owners stating the response.

disadvantages (19.4%). Time wasted (7.9%) and a need for for supervision or control by parents (6.1%) were the next most frequent responses.

By contrast owners said most frequently that they saw no disadvantages to owning video games (37.5%). Owners were also concerned about over-absorption in video game playing (11.4%) but to a lesser extent than nonowners. There were also differences between nonowners and owners in their response to the disadvantage time taken from other activities. Owners' mentioned this disadvantage less frequently (8.5%) than did nonowners (19.4%). Owners were much more aware of specific difficulties such as fighting between children (7.4%) and the fact that one cannot play a video game and watch television at the same time (6.8%). Table XV presents a summary of the disadvantages of owning a home video game reported by the subjects of this study.

TABLE XV

OWNERS' AND NONOWNERS' PERCEPTIONS OF THE DISADVANTAGES OF OWNING A HOME VIDEO GAME

Response Category	Nonowner		Owner	
	N	%*	N	%**
No disadvantages	21	18.4	66	37.5
Takes away from family time	6	5.3	3	1.7

TABLE XV (Continued)

Response Category	Nonowner N	Nonowner %*	Owner N	Owner %**
Can't play a video game and watch television	3	2.6	12	6.8
Time taken from other activities	21	18.4	15	8.5
Fighting between children (who's first and which game)	1	0.9	13	7.4
Over-absorption in video game playing	22	19.3	20	11.4
Time wasted	9	7.9	3	1.7
Money wasted	6	5.3	7	4.0
Fad	4	3.5	7	4.0
Competition	1	.9	2	1.1
Solitary activity	6	5.3	2	1.1
Clutter in the house	0	0.0	3	1.7
Needs to be controlled and/or supervised by parents	7	6.1	7	4.0
Not suitable for more than two people	1	.9	5	2.8
Bad for television set	0	0.0	1	.6
Frustrating	2	1.8	2	1.1
Violent	3	2.6	2	1.1
Noisy	1	.9	5	2.8
Not related to computers	0	0.0	1	.6
	T=114	100%	T=176	100%

*Percent is the percentage of nonowners stating the responses.
**Percent is the percentage of owners stating the response.

Table XVI reflects the parents' responses to the next open format question about why they think children play home video games. If the researcher had asked children the same question the responses might be quite different but the parents' opinions provided some interesting perceptions. Nonowners stated the fad (14.1%) and the challenge of the game (14.1%) as the reasons children played. The fascination of the game (11.1%) and the characteristics such as action, noise, color and visual nature of the games (11.1%) were the next most frequent responses by nonowners. Owners also reported the challenge (18.8%) as a prime reason for video game playing. However, owners' ranked fun and entertainment (15.3%) and the competition of the game (14.8%) as the next most important reason children play home video games. Table XVI presents more detailed information about the most important reasons children play home video games.

TABLE XVI

OWNERS' AND NONOWNERS' PERCEPTIONS OF THE MOST IMPORTANT REASONS CHILDREN PLAY HOME VIDEO GAMES

Response Category	Nonowners		Owners	
	N	%*	N	%**
Fad	19	14.1	18	7.9
Challenge	19	14.1	43	18.8
Competition	12	8.9	34	14.8

TABLE XVI (Continued)

Response Category	Nonowners N	Nonowners %*	Owners N	Owners %**
Fun, entertainment	11	8.1	35	15.3
To win	9	6.7	21	9.2
Fascinating	15	11.1	17	7.4
Similar to other activities they enjoy	1	.7	4	1.7
Social purposes	1	.7	4	1.7
Anybody can play; no skills or body type needed	0	0.0	4	1.7
Way to spend time	11	8.1	9	3.9
Sportsmanship	1	.7	1	.4
Technology	4	3.0	8	3.5
Visual nature, action, noise, colors of the games	15	11.1	13	5.7
Child controls the game	4	3.0	6	2.6
Specific skills developed	11	8.1	11	4.8
Unsure	2	1.5	1	.4
	T=135	100%	T=229	100%

*Percent is the percentage of nonowners stating the response.
**Percent is the percentage of owners stating the response.

Table XVII presents the comparison of responses between owner and nonowner parents when asked about arcade video

games. This open format question sought to explore the parents' concerns (or worries) about video arcades or video game rooms. The nonowners' prime concern was with the money wasted (21.1%). The next most frequent comments were that the parent had no concerns (17.2%) about arcades and that parents needed to supervise or control (13.3%) the frequenting of arcades. Similarly, owners were also very concerned about the money wasted (28.1%). Owner parents' second most frequent comment was that they had no concern about arcades (18.7%). Their third greatest concern was the clientele (12.3%) of the game room. In summary, owner and nonowner parents were generally very similar in their main concerns about video arcades or game rooms.

The responses to the open format statements provided a wide variety of opinions by the parents. Comparing owners and nonowners, owners perceived more advantages to home video game ownership and emphasized the fun, recreation and family entertainment aspects of ownership. Perhaps not surprisingly, nonowners did not view ownership as an advantage. However, they did concede that the games might be another form of recreation.

Owners did not particularly view home video game ownership as a disadvantage and yet agreed with nonowners in that they shared a concern centered on over-absorption of children in playing video games. With regard to the reasons children play home video games, owners and nonowners stated the challenge of the game was important. Owners then

emphasized the fun and entertainment aspect whereas non-owners stated game playing was a fad and just fascinating. Finally in stating their concerns about video arcades or game rooms owners and nonowners both mentioned the money wasted first and next that they had no concerns about

TABLE XVII

OWNERS' AND NONOWNERS' CONCERNS ABOUT ARCADES OR GAME ROOMS

Response Category	Nonowners N	Nonowners %*	Owners N	Owners %**
No concerns	22	17.2	38	18.7
Parents need to supervise and control	17	13.3	22	10.8
Too much time spent at it	11	8.6	10	4.9
Money wasted	27	21.1	57	28.1
Takes away from other activities	2	1.6	3	1.5
Clientele	13	10.2	25	12.3
Not a constructive way to spend time	14	10.9	13	6.4
Environment of game room	8	6.3	17	8.4
Peer pressure	1	.8	4	2.0
Lack of social interaction	1	.8	1	.5
Types of games	3	2.3	2	1.0
Reputation of game room	2	1.6	2	1.0
Location of game room	0	0.0	2	1.0

Table XVII (Continued)

Response Category	Nonowners N	Nonowners %*	Owners N	Owners %**
Not as well supervised as parents would like	7	5.5	3	1.5
Have a video game at home	0	0.0	4	2.0
	T=128	100%	T=203	100%

*Percent is the percentage of nonowners stating the response.
**Percent is the percentage of owners stating the response.

arcades. Thus in the samples' freely expressed attitudes and opinions about home and arcade video games both owner and nonowners had some clear similarities and some important differences.

The open format questions provided a rich source of information in regard to attitudes toward home electronic video games. The responses provide additional depth and variety to the research. The high response rate to the research study and the parents' receptiveness and eagerness to respond to the open format questions would seem to indicate these parents' willingness to discuss video games and express their opinions.

CHAPTER V

QUALITATIVE ANALYSIS OF THE RESULTS

Differences between owners and nonowners were examined in the discussion of the hypotheses in Chapter IV. This chapter will discuss the qualitative results gleaned from the interview process. The respondents' comments about the attitude scale items and the interview questions give further impressions and information. The second section in this chapter provides additional descriptive information about video games and computers that was not part of the hypotheses. The third section discusses the results of the Pattern of Use Log. The Pattern of Use Log results are descriptive and provide a profile of the subsample family's playing of home electronic video games.

Interview Process

Although parents are very busy people, the telephone interview was a very viable way to reach parents. Most respondents appeared to be willing to express their attitudes and opinions about video games. The high response rate (96%) supports this statement. In addition, the interviewer subjectively felt most parents were accepting and positive, as opposed to hostile or negative about being

interviewed. Care had to be taken to keep the telephone interview to a reasonable length; another subjective measure of parents' willingness to respond.

However, one problem did arise. The research design proposed that in two-parent households the selected respondent would alternate between mothers and fathers. Although the interviewer asked for the father when telephoning alternate families, the father was not always willing to respond to the interview questions or the attitude scales. When the father answered the telephone, which was not as frequently as the mother, he might comment "I'll let you talk to my to my wife" or "you need to talk to my wife." Obviously it was not possible to get an equal representation of mothers and fathers, when fathers were unwilling to respond.

An advantage of a telephone interview was the unrestricted comments made by interviewees. The Attitudes Toward Future Technology Scale elicited opinions about some specific items. One respondent did not like the idea of computers guiding our behavior but did not disagree with the possibility that this might happen. Other parents would agree with a predicted technological trend and then indicate "they hoped that didn't happen." With regard to children's use of the computer one respondent remarked he did not approve of the computer's playing a role in the intellectual development of children. Along the same line at the end of the interview one mother commented "computers are good things but, elementary children don't need to learn to use

them; they need to learn to use their brain first." Parents expressed many opinions, some of them conflicting.

The future technology scale item "Future workers with work time freed by machines, computers, and robots, can spend time in other activities" (#10) elicited an interesting array of responses. Some believed this might happen but they weren't sure how good that would be because individuals needed something to do. A similar response was that "humans had a need to grow and change" and that may or may not be facilitated by the computer. The same item, along with item #13 "Workers will not be totally replaced by robots in American factories," triggered responses about unemployment and technology taking over more people's jobs. Summarizing the points of view about the attitudes toward future technology were two comments made at the close of the interview. One father commented "technology could take over and he would not like to see that happen" and on the other hand another parents' opposing statement was "(I) don't see technology out of control; the computer will be used as a tool to help us expand our thinking and horizons."

The parents' response to scale items on the Attitudes Toward Home Electronic Video Games Scale were primarily of such a nature as to be considered qualifiers of the items. For instance, video game play "could" be addictive, game playing "doesn't necessarily" take away from family time, certain games "might" help children's learning or "might" encourage violence. For instance the statement (#13)

"Playing video games is detrimental to a child's school grades" elicited qualifying comments such as: "depends on how much it is played," "video games are in the same category as television" and "homework must be done first."

The most frequent response the parents made about home video game playing was that "parents need to control and supervise" the child's playing time. At least twenty-five parents made such a comment directly and others alluded to it by comments about "depends on how much the games are played." One parent phrased it slightly differently and stated "if parents have taught restraint children will do O.K." Thus the parents are reporting the need for control and supervision of video game playing.

Opinions expressed about video games in general include: "dislike(s) video games in general," "very anti-video game," "video games drive the mother crazy," "video games are not how they want their children to spend their time." In addition freely expressed comments indicated differences of opinion between husband and wife or family and relatives. For instance one father commented his mother-in-law bought the home video game and the father "disapproved of video games completely." One parent stated the wife and husband do not agree on video games. Other ways disagreement was apparent were statements that "the unit was purchased by the husband and the wife wasn't consulted." The parent who responded to the telephone interview and attitudes scales may or may not have been the

parent who purchased or approved of the purchase of the unit. The higher mean total Attitudes Toward Home Electronic Video Games Scale score for owners might indicate the parent who approved of video games was the respondent but such a question was not directly asked. The arrival in the home of a video game unit was not necessarily a decision agreeable to all.

Three parents' comments about their child's use of video games lent support to the limited research on video games. One child had a brain tumor and the family used a video game unit as an activity for the daughter to regain brain function. In another family a daughter had a car accident and had been in a coma. The parents had, on their own initiative, used the video game to help her to recover her brain function. A mother also remarked that her son had learning disabilities and the video game playing, along with other activities, seemed to have aided him in his learning processes. Cobb's (1982) research on the use of video games with stroke victims would be supported by these individuals' comments.

The unsolicited comments from the telephone interview not only supported the parents' willingness to express opinions and be interviewed, but also provided a wide variety of responses. A person-to-person interview, as opposed to a written instrument, provided additional insight into parents' behavior and attitudes. Probing into some of the respondents' remarks allowed the additional depth of

information that may be useful in future research.

Additional Descriptive Information

Exploratory research projects give rise to many questions to which researchers desire answers. In an effort to limit the time of the interview to ten to fifteen minutes many possible questions were omitted. However the related literature suggested a few additional questions to ask. Table XVIII presents the distribution of the responses.

TABLE XVIII

VIDEO GAME INFORMATION ABOUT OWNERS OF HOME VIDEO GAMES

Variable	Categorization	Number	Percent
Brand of video game	Atari	120	81.6
	Intellivision	14	9.5
	Texas Instrument	5	3.4
	Odyssey	2	1.4
	Colecovision	4	2.7
	Don't Know	2	1.4
Satisfaction with video game unit performance	Yes	131	90.3
	No	14	9.7

TABLE XVIII (Continued)

Variable	Categorization	Number	Percent
Number of years owned video game	Less the one year	35	23.6
	One to two years	70	47.3
	Over two years	43	29.1
Room in which video game unit is located	Living room	50	33.8
	Den	15	10.1
	Family room	18	12.2
	Recreation room	3	2.0
	Game-TV room	6	4.1
	Study	2	1.4
	Children's room	9	6.1
	Bedroom	13	8.8
	Spare bedroom	3	2.0
	Parent's bedroom	3	2.0
	Child's bedroom	24	16.2
	Kitchen	2	1.4
Average family video game usage per month	1 or 2 times a month	50	35.2
	1 or 2 times a week	46	32.4
	3 or 4 times a week	31	21.8
	Everyday	15	10.6

The majority of the owners of video game units had

Atari brand video games (81.6%). The second, but far less frequent brand, was Intellivision (5.9%). Even though a fairly new electronic device the vast majority (90.3%) of owners were satisifed with their game unit. The few who were dissatisfied most frequently mentioned the joy sticks as the part of the unit that had malfunctioned.

The largest number of families had owned their game unit one to two years (47.3%). The majority of families had only one (94.5%) game unit but some of those with multiple units still had a Pong game, the first video game. Video game units were located in many rooms of the home. The living room housed the largest proportion (33.8%) of the units followed by the child's bedroom (16.2%). Living room, family room, recreation room, and den combined were the location for 58.1% of the game units. Bedrooms of all types housed 29% of the game units. One might say the video game units were usually in a place typically open to all the family members, a social setting.

The parents were asked to estimate, in one month's time, how much their family used their video game unit. Most of the families used their unit once or twice a month (35.2%), followed by once or twice a week (32.4%). Some parents commented during the interview, they thought there ought to be a category between those two groupings. Only 10.6% of the families used their game unit every day. Parents also commented the weather and a new game cartridge effected how much the video game unit was played.

The parents were also asked if they owned a home computer. (See Table XIX.) The majority (53%) did not, although 21.6% responded they planned to own a home computer. Sixty families (25.4%) owned home computers. In questioning the parents further about how their children used the home computer, at least twenty parents indicated their children played games on the computer. Interestingly then, even if a child did not have access to a home video game they might have access to a home computer on which to play games.

TABLE XIX

HOME COMPUTER OWNERSHIP OF OWNERS AND NONOWNERS OF HOME VIDEO GAMES

Variable	Categorization	Number	Percent
Home Computer Ownership	No	125	53.0
	Yes	60	25.4
	Not Yet	51	21.6

As noted in Table XX, in an effort to compare opinions of parents about arcades or game rooms with parents attitudes toward home electronic video games, parents were asked the following: "On a scale of 1 to 5, with 1 being definitely no, and 5 being definitely yes, do you approve of your

TABLE XX

ARCADE GAME PLAYING APPROVAL OF RESPONDENTS

Variable	Categorization	Number	Percent
Approval of arcade game playing	Definitely no	43	18.2
	No	41	17.4
	Maybe	66	28.0
	Yes sometimes	52	22.0
	Definitely yes	34	14.4

children playing video games in arcades?" The greatest number of parents said maybe (28%) and the mean of 2.97 indicates a fairly even distribution. The most common additional comment about arcades again related to parental supervision. Chapter IV included the material about parental concerns about arcades.

Pattern of Use of Home Electronic Video Games By Video Game Owners

During the telephone interview 148 (63%) of the parents indicated they owned a home electronic video game. In order to determine how families used home video games the owner-parents were asked if they were willing to have their family record their family's video game playing for one week. Some parents indicated they did not use their home video game unit enough (35% of the owners used their video game

once or twice a month) to record video game use. A few children had just received their report cards and were not allowed to play home video games. Other reasons mentioned for not recording their home video game use included: the television set was broken, at present the video game was not in operation, the family was in the process of moving residences and the video game unit was broken. The telephone interviews were conducted from January through March and as the weather improved parents indicated their children were playing outside more and not playing home video games. Thus the response to the question about completing a Pattern of Use Log resulted in 85 Use Logs being mailed out.

Thirty-four Use Logs were returned by the families; four families had not played but returned the blank log. The follow-up postcard and telephone call reminded families to return the Use Log. Of some significance perhaps was that during the follow-up telephone call the interviewer was told by 18 (21%) of the families reached that the video game unit had not been used during the weeks period when video game use was to be recorded. One reason for the small number of completed Pattern of Use Logs was that families had not used their home electronic video game. Only the families who mailed back the Pattern of Use Log are included in the following discussion about video game use.

The families (see Table XXI) that returned the Pattern of Use Log had from one to four children with 59% (N=20) of the families composed of two children. The age of the

target child ranged from 6 to 13; 18 of the target children were males, 16 were females. The families who completed the the Pattern of Use Log tended to have parents who were educated beyond high school and who would be classified as middle to upper social class.

TABLE XXI

CHARACTERISTICS OF FAMILIES RESPONDING TO THE USE LOG

Variable	Classification	Number	Percent
Number of parents	One	1	2.9
	Two	33	97.1
Age of target child	6	2	5.9
	7	3	8.8
	8	6	17.6
	9	3	8.8
	10	3	8.8
	11	7	20.6
	12	6	17.6
	13	4	11.8
Sex of target child	Male	18	52.9
	Female	16	47.1
Number of children	1	2	5.9
	2	20	58.8

TABLE XXI (Continued)

Variable	Classification	Number	Percent
Number of children	3	11	32.4
	4	1	2.9
Number of males in household	1	2	5.9
	2	19	55.9
	3	10	29.4
	4	3	8.8
Number of females in household	1	10	29.4
	2	18	52.9
	3	6	17.6
Age of father in family	25-35 years	10	29.4
	36-45 years	20	58.8
	46-55 years	3	8.8
	No information	1	2.9
Age of mother in family	25-35 years	16	47.1
	36-45 years	16	47.1
	46-55 years	2	5.9
Education completed by father in family	High school	2	5.9
	Some college or technical school	10	29.4
	Undergraduate degree	8	23.5
	Graduate degree	13	38.2
	No information	1	2.9

TABLE XXI (Continued)

Variable	Classification	Number	Percent
Education completed by mother in family	High school	6	17.6
	Some college or technical school	12	35.3
	Undergraduate degree	10	29.4
	Graduate degree	6	17.6
Occupational status of father in family	Unskilled	1	2.9
	Skilled manual	5	14.7
	Clerical, technician	1	2.9
	Administrative personnel, small business owners	12	35.3
	Business managers, lesser professionals	6	17.6
	Higher executive, major professionals	8	23.5
	No information	1	2.9
Occupational status of mother in family	Student	1	2.9
	Full time homemaker	11	32.4
	Unskilled	1	2.9
	Semiskilled	2	5.9
	Skilled manual	1	2.9
	Clerical, technician	7	20.6
Occupational status of mother in family	Administrative personnel, small business owners	5	14.7
	Business managers, lesser professionals	5	14.7
	Higher executives, major professionals	1	2.9

TABLE XXI (Continued)

Variable	Classification	Number	Percent
Educational-occupational by classification*	Group I	8	23.5
	Group II	10	29.4
	Group III	14	41.2
	Group IV	2	5.9

*Hollingshead's Two Factor Index of Social Position (1957).

Families were asked to complete the Use Logs in an effort to determine who played and how much time was spent playing home video games. Four families returned the Use Log blank indicating the home video game had not been used in one weeks time. There was great variation in use by the remaining families. Table XXII presents a summary of the video game use.

TABLE XXII

FAMILIES RETURNING THE PATTERN OF USE LOG: FREQUENCY OF USE BY WEEK, DAY AND NUMBER OF GAMES

Variable	Classification	$\bar{X}$	SD	Number	Percent*
Family use of video game	No Use			4	11.8
	Use			30	88.2

TABLE XXII (Continued)

Variable	Classification	$\bar{X}$	SD	Number	Percent*
Number of days video games were played in one week	0	3.67	2.06	1	3.3
	1			3	10.0
	2			7	23.3
	3			3	10.0
	4			7	23.3
	5			3	10.0
	6			1	3.3
	7			5	16.7
Number of times played a week	1-7	10.73	12.78	14	46.7
	8-14			11	36.7
	15-21			3	10.0
	21 and over			2	6.7
Number of times played a day	1-4	4.27	3.82	21	70.0
	5-8			6	20.0
	10-17			3	10.0
Number of different games played	1	4.23	2.79	4	13.3
	2			5	16.7
	3			6	20.0
	4			2	6.7
	5			6	20.0
	6			2	6.7
	7			2	6.7
	8			1	3.3

TABLE XXII (Continued)

Variable	Classification	$\bar{X}$	SD	Number	Percent*
Number of different games played	10			1	3.3
	13			1	3.3

*excludes missing values

In seven days the average (mean) number of days video games were played was 3.67 days. The number of times video games were played in one week ranged from one to seventy; the average number of times played was 10.73. The average number of times video games were played in one day was 4.27; the range was from 1 to 17 times. The number of different games played ranged from one to thirteen; three and five games were the most frequently reported number of different games played. Table XXIII lists the most frequently played games. Pac-Man was the most frequently played followed by Circus Atari. There were 9 games played between 5 and 8 times; 23 were played between 2 and 4 times and 16 games were played only 1 time.

TABLE XXIII

MOST FREQUENTLY PLAYED HOME VIDEO GAMES

Game	Number of times played
Pac-Man	34
Circus Atari	23
Dragon Fire	22
Donkey Kong	20
Missle Command	17
Dig Dug	17
Ms Pac-Man	16
Video Pinball	15
Atari Variety	12
Smurf	9

Game playing time was calculated in minutes to more easily allow comparisons. Some families recorded the use, but not the amount of minutes played. Table XXIV presents the information for all 34 families returning the Pattern of Use Log. Table XXV presents the playing time for those families who used the video game unit in one weeks time (30 families). By comparison Table XXVI reports the playing time only for the family members who played. Some family members playing times were difficult to interpret. Therefore the playing times can only be reported as

approximations or estimates.

TABLE XXIV

TOTAL AMOUNT OF VIDEO GAME PLAYING TIME FOR ALL FAMILIES RETURNING THE PATTERN OF USE LOG

Category	Range in Minutes	N	Total Time in Minutes	Time Per Family Unit in Minutes
Total time played per week	0-580	34	4613	135.7
Time played with friend	0-220	34	634	18.6
Time played with same sex	0-338	34	1113	32.7
Time played with opposite sex	0-195	34	797	23.4
Time played by guest	0-220	34	691	20.3
Time played with parents	0-125	34	450	13.2
Time played by mother	0-189	34	629	18.5
Time played by father	0-235	34	1014	29.8
Time played by girls	0-315	34	1638	48.2
Time played by boys	0-430	34	2435	71.6
Time played alone	0-294	34	2619	77.0

For all respondents to the Pattern of Use Log, the family's total playing time ranged from 0 to 580 minutes, with the average playing time being 135.7 minutes (2 hours, 16 minutes) per week. For all thirty-four families in the group, fathers (29.8 minutes) played more than mothers (18.5 minutes), boys (71.6 minutes) played more than girls (48.2 minutes). However, time played alone (77 minutes) was the largest amount of average time per family unit. By breaking these times down even further it can be projected that more time was spent playing with the same sex (32.7 minutes) which could have included an adult and child as well as child with child. By comparison opposite sex playing time was only 23.4. minutes.

The information in Table XXV includes only those thirty families who played their home electronic video game in the week they recorded the playing time. One family played but did not record the number of minutes. The time block that was the most frequent response was 31 to 60 minutes (26.7%). Again more time was spent playing with the same sex ($\underline{M}$=31.1 minutes) than the opposite sex ($\underline{M}$=26.6 minutes). The largest category was the time played alone ($\underline{M}$=87.3 minutes) followed by the 81.2 minutes average playing time for boys. Time spent playing home video games with parents ($\underline{M}$=15 minutes) was relatively low. For twenty-three of the thirty families no parent played with the child.

The average time in minutes, presented in Table XXVI, is much higher. This table gives data only for those

players in families who played home video games and recorded their time. In comparison to what previously had been mentioned, more playing time was spent with the opposite sex (M=79.7 minutes) than the same sex (M=74.2 minutes). Average time playing with friend (M=63.4 minutes) and by a guest (M=57.6 minutes) are also much higher than in the previous tables. However, only ten friends and twelve guests played in these family units. Boys had the highest average time, 116 minutes, followed by time spent playing alone, 100.7 minutes. Very few mothers (7) and fathers (11) played in the thirty families recording their home video game playing time.

The home video game playing time needs to be viewed cautiously since the sample is very small and four families returned the Pattern of Use Log with no playing time for the week. Of those families who did return the Use Log home video game playing varied greatly. The largest amount of time spent playing tended to be time played alone. Boys played more than girls. This finding would be consistent with Mitchell's (1983) data. Although owners may have reported an advantage of ownership of home video games as family entertainment, home video games are difficult to play as or in a group. This subgroup of sample families tended to play more individually or with one other family member, usually a child with a child. Cautious interpretation of this data would seem to indicate that home electronic video game playing is kept in perspective and does not consume

inordinate amounts of time either by individuals or total family units.

TABLE XXV

VIDEO GAME PLAYING TIME FOR ALL FAMILY UNITS WHO PLAYED HOME VIDEO GAMES

Category	Range in Minutes	$\bar{X}$ in Minutes	SD	Number of Families	Time in 30 minute Blocks	Number	Percent
Total time played per week	0-580	153.8	148.0	30	No time	1	3.3
					1 - 30	3	10.0
					31 - 60	8	26.7
					61 - 90	2	6.7
					91 - 120	0	0.0
					121 - 150	3	10.0
					151 - 180	3	10.0
					181 - 210	3	10.0
					211 - 240	1	3.3
					241 - 270	2	6.7
					271 - 300	0	0.0
					301 - 580	4	13.3
Time played with friend	0-220	21.1	51.5	30	No time	20	66.7
					1 - 30	4	13.3
					31 - 60	4	13.3
					61 and over	2	6.7

TABLE XXV (Continued)

Category	Range in Minutes	$\bar{X}$ in Minutes	SD	Number of Families	Time in 30 minutes Blocks	Number	Percent
Time played with same sex	0-338	37.1	80.8	30	No time	15	50.0
					1 - 30	8	26.7
					31 - 60	3	10.0
					61 and over	4	13.3
Time played with opposite sex	0-195	26.6	54.4	30	No time	20	66.7
					1 - 30	5	16.6
					31 - 60	0	0.0
					61 and over	5	16.7
Time played by guest	0-220	23.0	50.9	30	No time	18	60.0
					1 - 30	5	16.7
					31 - 60	5	16.6
					61 and over	2	6.7
Time played with parents	0-125	15.0	37.1	30	No time	23	76.7
					1 - 30	4	13.3
					31 - 60	0	0.0
					61 and over	3	10.0

TABLE XXV (Continued)

Category	Range in Minutes	$\bar{X}$ in Minutes	SD	Number of Families	Time in 30 minute Blocks	Number	Percent
Time played with mother	0-189	21.0	51.4	30	No time	23	76.7
					0 - 30	3	10.0
					31 - 60	0	0.0
					61 and over	4	13.3
Time played with father	0-235	33.8	61.4	30	No time	19	63.3
					0 - 30	3	10.0
					31 - 60	2	6.7
					61 and over	6	20.0
Time played by girls	0-315	54.6	80.1	30	No time	12	40.0
					0 - 30	7	23.3
					31 - 60	3	10.0
					61 and over	8	26.7
Time played by boys	0-430	81.2	104.8	30	No time	9	30.0
					0 - 30	2	6.7
					31 - 60	7	23.3
					61 and over	12	40.0

TABLE XXV (Continued)

Category	Range in Minutes	$\bar{X}$ in Minutes	SD	Number of Families	Time in 30 minutes Blocks	Number	Percent
Time played alone	0-294	87.3	90.5	30	No time	4	13.3
					0 - 30	7	23.4
					31 - 60	5	16.6
					61 and over	14	46.7

TABLE XXVI

VIDEO GAME PLAYING TIME BY FAMILY UNIT:
ONLY RESPONDENTS WHO PLAYED

Category	Range in Minutes	$\bar{X}$ in Minutes	SD	Number of Families	Time in 30 minute Blocks	Number	Percent
Total time played per week	13-580	159.1	146.8	29	0 - 30	3	10.3
					31 - 60	8	27.6
					61 - 90	2	6.9
					91 - 120	0	0.0
					121 - 150	3	10.4
					151 - 180	3	10.3
					181 - 210	3	10.4
					211 - 240	1	3.4
					241 - 270	2	6.9
					271 - 300	0	0.0
					over 301	4	13.8
Time played with friend	8-220	63.4	74.6	10	0 - 30	4	40.0
					31 - 60	4	40.0
					61 and over	2	20.0
Time played with same sex	5-338	74.2	102.8	15	0 - 30	8	53.3
					31 - 60	3	20.0

TABLE XXVI (Continued)

Category	Range in Minutes	$\bar{X}$ in Minutes	SD	Number of Families	Time in 30 minute Blocks	Number	Percent
					61 and over	4	26.7
Time played with opposite sex	8-195	79.7	69.5	10	0 - 30	5	50.0
					31 - 60	0	0.0
					61 and over	5	50.0
Time played by guest	4-220	57.6	67.0	12	0 - 30	5	41.5
					31 - 60	5	41.5
					61 and over	2	16.7
Time played by parents	10-125	64.3	54.3	7	0 - 30	4	57.1
					31 - 60	0	0.0
					61 and over	3	42.9
Time played with mother	10-189	89.9	74.5	7	0 - 30	3	42.9
					31 - 60	0	0.0
					61 and over	4	57.1
Time played with father	8-235	92.2	70.7	11	0 - 30	3	27.3
					31 - 60	2	18.2
					61 and over	6	54.5

TABLE XXVI (Continued)

Category	Range in Minutes	$\bar{X}$ in Minutes	SD	Number of Families	Time in 30 minute Blocks	Number	Percent
Time played by girls	7-315	91.0	86.3	18	0 - 30	7	38.9
					31 - 60	3	16.7
					61 and over	8	44.4
Time played by boys	10-430	116.0	108.0	21	0 - 30	2	9.5
					31 - 60	7	33.4
					61 and over	12	57.1
Time played alone	3-294	100.7	89.9	26	0 - 30	7	26.9
					31 - 60	5	19.3
					61 and over	14	53.8

CHAPTER VI

SUMMARY AND CONCLUSIONS

The purpose of this research was to examine whether ownership of a home electronic video game was associated with parents' attitudes toward future technology and attitudes toward home electronic video games. An additional purpose was to determine the pattern of use of home electronic video games among owner families. Two attitude scales were constructed to assess parents' attitudes. These were titled Attitudes Toward Future Technology and Attitudes Toward Home Electronic Video Games. A Pattern of Use Log was also developed to be completed by families owning home video games.

The random sample was selected by targeting ten percent of the population of elementary and middle school children in the Stillwater, Oklahoma, school system. During the early months of 1984, the parents of the target child were interviewed by telephone. Parents were asked to respond to: two attitude scales, a series of interview questions about home electronic video games and a series of questions designed to gather demographic information about the sample. The parents in the sample were well-educated individuals, in the middle and upper social class as determined by main wage

earners occupation and education. The majority of the households were two-parent families; more mothers than fathers were willing to be interviewed. The majority of the families had two children.

A subgroup of owners of home electronic video games were asked during the telephone interview if their family would complete a Pattern of Use Log. The owner families recorded information for one week about home video game play. Information collected included: the number of times the unit was played, what time of day the unit was played and for how long, who played and which games were played. The respondents who completed the Pattern of Use Log were similar to the subgroup of owners in demographic characteristics.

Content validity of the constructed scales was assumed based on: the scale items reflected the relevant literature, the expert opinion of judges and a pilot test of the scales. The reliability analysis of the final form of the Attitudes Toward Future Techology Scale resulted in an alpha coefficient of .52. Factor analysis of the scale resulted in fifteen items clustering to six factors. Refinement of the scale by omission of weak items resulted in an alpha coefficient of .69 and four factors accounted for 58% of the variance.

The final form of the Attitudes Toward Home Electronic Video Games Scale, after factor analysis yielded three factors. The three factors accounted for 51% of the

variance. The alpha coefficient for reliability of the video game scale was .89 for eighteen items.

The t-test was used to determine the differences between the means of the total scores of the owners and non-owners of home electronic video games on the Attitudes Toward Future Technology score and Attitudes Toward Home Electronic Video Games score. The t-test was also used to examine differences between selected family characteristics of owners and nonowners. Following are the results of the statistical analysis.

1. There is no significant difference between owners of home electronic video games and nonowners on total Attitudes Toward Future Technology scores. The researcher proposed that owners would be more receptive to computers and other technological innovations in the human constructed environment. As assessed by the Attitudes Toward Future Technology Scale owners and nonowners did not differ significantly in their attitudes.

2. There is a significant difference between owners of home electronic video games and nonowners on total Attitudes Toward Home Electronic Video Games scores. Owners of home video games had a higher mean score as assessed by the attitude scale. The more positive attitude of the owner parents toward home electronic video games may have allowed the family members to be influenced by a new leisure time device. The human behavioral environment of owner families included a home electronic video game which could influence the

development of the humans in the household.

3. Regarding the characteristics of the family, there was a significant difference between owners of home electronic video games and nonowners in number of children in the family and age of the target child. Owner families had a lower mean number of children although this information should be viewed cautiously since the majority of families had two children. The mean age of the target child was higher in families who owned home video games. Throughout the family life cycle the age of the children tends to influence the families' leisure activities (Crandall et al., 1980) and this may also influence video game ownership decisions by parents.

4. There were no significant differences between owners of home electronic video games and nonowners in the family characteristics of sex of the target child and socioeconomic status. The education and occupational status of the breadwinner did not differ between owners and nonowners.

The descriptive information in response to the open format questions indicated some distinct differences as well as some similarities between owners and nonowners of home video games. Owners and nonowners were of the opinion that home video games might stimulate eye-hand coordination, be another form of recreation, serve an educational purpose or develop specific skills. However, nonowners most frequently reported no advantages to owning a home video game. Owners, on the other hand, mentioned the advantages of fun,

recreation and family entertainment. In response to the question about disadvantages of home video games owners most frequently reported no disadvantages; nonowners were concerned about overabsorption in video game playing.

Parents' perceptions of why children play home video games varied somewhat between owners and nonowners. Nonowners mentioned video games were a fad and fascinating as reasons for playing video games. Owners reported the challenge and fun and entertainment as the reasons children play video games. Owners and nonowners were alike in their concern about the money wasted playing video games in arcades or game rooms.

The ecosystems approach for studying home electronic video games was further supported by the respondents' comments about parental control. A frequent comment during the interview was the need for parents to control the children's video game play. The parental intervention in the individuals' behavior within the family affects the child's near environment and further reinforces the family values. A possible area for future research would be to explore the variable of parental control and a family's access to new technology or new entertainment forms.

The Pattern of Use Log results indicated a wide range of time spent playing home video games, from 0 to 580 minutes per week. Home video game playing did not dominate any of the subgroup of families responding to the Use Log. Video game play time was predominately a child's activity

and most of the time it was a solitary activity. The subgroup of families completing the Pattern of Use Log appeared to have kept home video game playing in perspective.

Conclusions

On the basis of the results of this study, the following conclusions seem valid:

1. Owners and nonowners of home electronic video games did not differ in their attitudes toward future technology as measured by the scale developed by the investigator. The scale items typically were agreed with by the great majority of respondents as reflected by the item means and standard deviations. The respondents generally agreed the predicted technological advances might occur even if they personally did not like the prediction. Perhaps they did not perceive future technology as something they, as individuals, had much control over.

Further thought needs to be given concerning the results which were not significant. The research was intended to explore a fairly new area, video games. One variable thought to be related to video game ownership was attitudes toward future technology. Perhaps the concept of future technology was too abstract in comparison to the more specifically focused home video game ownership. Why a person owns a home video game may be effected by other factors. These could include concepts such as leisure orientation,

income and media influence. Perhaps, as the findings seem to imply, a person's attitudes toward future tchnology have little connection to attitudes toward the purchase and ownership of home electronic video games.

Many of the Attitudes Toward Future Technology Scale items related to children's exposure and experiences with computers. As a technology of the future, computers are predicted to be an important part of the real world. Some parents commented during the interview that, in their opinion, there was no connection between computers and home video games. Naisbitt (1982) has suggested technological innovations, computers, could follow a line of least resistance particularly in the leisure realm. New technology would be less threatening in the pleasure aspect of our lives than in our jobs. A few parents at least see no connection between technology in the leisure realm and computers. Again, in this study future technology did not prove to be an appropriate variable to discriminate between owners and nonowners.

The sample in this research reported a fairly high level of education. It has been noted that people with higher educational backgrounds tend to view the future differently than do those with little education. Perhaps this highly educated sample was more in agreement with the predicted technological trends. A population with a greater representation of people with little education might have had different attitudes toward future technology.

In addition, persons from lower socioeconomic levels have less of a future orientation and are more present-oriented. As supported by research data, middle and upper class persons plan and prepare for the future which is reflected in their money management practices and retirement choices. By contrast lower socioeconomic classes are more present-oriented; these people tend to live for today. The attitude scale that was developed did not measure the future orientation of the respondent. An area that might have been examined would be the future orientation of the parent. A sample population which included greater numbers of respondents from lower and broader socioeconomic levels could be surveyed to note attitudes toward home video games, video game ownership and future orientation.

Using the ecosystem framework for this research project suggested that there was an interaction between the family and the human constructed environment through the ownership of a home video game. Family system theory suggests families vary in their openness to the outside environment. Famlies could conceivably be viewed as being on a continuum of open to closed in their receptiveness to external influence. Further consideration might be given to the variable of openness to the external environment and how such a variable might relate to home video game ownership.

2. Owners and nonowners differed significantly in their Attitudes Toward Home Electronic Video Games, as measured by the scale constructed by the researcher. As

might be expected owners were positive in their attitudes toward home video games. Based on the responses to the attitude scale, comments during the interview process, and responses to the open format questions, owner parents did not view the presence in the home of a video game as a negative influence on the family. It is not known if the owners' attitudes were more positive about home video games before the purchase of a unit or if the presence in the home of the unit contributed to a more positive attitude. A follow-up study of the nonowners of home video games could ascertain if they purchased a game unit and how such a purchase related to their previous attitudes toward home video games.

3. Owner parents generally viewed home video games as an advantage for their family to own. Parents frequently mentioned advantages such as the challenge of the game, competition, fun and entertainment aspects of video game ownership. In the opinion of owner parents video game playing also contributed to specific skills such as eye-hand coordination and persistence with a task.

4. Nonowner parents in this sample also appeared to be content with their decision not to own a home video game. These parents saw no particular reason to own a home video game aside from warding off pressure from their children to own a game unit. Current trends, as reflected in game unit sales and game cartridges, may indicate that the video game fad may be diminishing. A later study with these families

would help clarify whether a video game unit was purchased and the decision processes leading to such purchases.

5. Contrary to public media speculation, none of the group of owner families in this study appeared to have become video game "addicts." When asked the question how much the family unit played video games per month, the most frequent response was "once or twice a week" or, even less than this amount. The Pattern of Use Log response clearly indicated that many video game units were never played during the one week period the video game use data was to be recorded. Further, the Pattern of Use Log results clearly indicate a moderate amount of family home video game playing per week; a moderate amount being one to four playing times per week.

Parents reported game unit usage was high when it was new and increased when a new game cartridge was purchased. The suggestion that video games are a fad would tend to be supported by these comments. Overall, in this sample, the families appear to have kept home video game playing in perspective.

6. Although the owner families reported that one advantage was family entertainment, very little of the playing time reported by the families recording their game use was family time. Occasionally parents, usually the father, played with their children. Most often children played alone, with each other or with a friend. Parents commented during the interview that the family had infrequent "tournaments" or that the whole neighborhood occasionally

congregated to play. However, the Pattern of Use Log data did not indicate any tournament play during the week use was recorded. Based upon this particular sample it would appear that home video games did not have any significant influence on either increasing or decreasing joint family time and interaction.

7. The study found that only two characteristics of the family were significantly related to home video game ownership. These were: age of the target child and number of children in the family. The mean age of the target child was older in owner families. Perhaps older schoolage children may be more interested in home video games as a form of recreation. This higher interest on the part of the older target children may relate to their increasing small muscle coordination and to their cognitive development. Older schoolage children thus have the physical and intellectual capacity to develop their skill at playing video games. The increasing skill reinforces both the achievement of the skill and the feeling of success. Both would tend to relate to the possibility that home electronic video game playing builds self-esteem.

An additional factor to be considered which relates to the age of the target child is the area of supervision and control on the part of the parents. Many parents commented that there was a need to control and supervise home video game play. Older schoolage children, perhaps through socialization, would be likely to be aware of their parent's

expectations for their behavior and use of time. Parents might perceive a need for less supervision and control of an older child. Further support for this point might come from our examination of the data collected to determine the position in the family of the target child. Is the target child the oldest of younger siblings or the youngest child of older siblings? Further research into home video game ownership, the age of the child, and family developmental stage would appear to be a distinct area to examine for purposes of further refining the general findings of this study.

8. The telephone interview yielded information that might also lead to future research. These owners and non-owners reported being satisfied with their video game ownership. Yet occasionally the respondent would remark that there was a difference of opinion between the spouses. The parent who responded to the interview may or may not have been the parent who approved of the purchase of the home video game unit. Further inquiry into the decision making process surrounding the purchase of the game unit might provide information about the following: which parent suggested the purchase, were children influential in the purchase decision, what part did media influence play in the decision, who actually went to the store to buy the unit and how mutually satisfied are the mother and father with the decision after it is made. Similar information about the purchase of a home computer would perhaps give some

comparable data about family's decisions. Such family decision making process information would give further data about the difference of opinion between the spouses and provide data related to power and influence in the family.

9. This research was an exploratory study. By definition, an exploratory study seeks to overview, generally, a broad area of a fairly recent trend, problem, or topic. Further, an exploratory study that serves its purpose well will raise questions worthy of more detailed further research.

This study generally meets the criteria of an exploratory study. The population in the study was selected at random by targeting children in kindergarten through seventh grades. The parents of the target children were the respondents. The parent respondents had high educational and occupational levels. If this sample of parents is representative, then home electronic video games seem to be a problem to families of no greater or lesser a degree than is perhaps television. Families tend to not abuse the technology of home electronic video games. Children are apparently not becoming addicted to home electronic video games. Family dynamics are seemingly not radically changed by owning or not owning a game unit. A decision to own or not own a game unit seems to be based on attitudes, which are either for or against; there seem to be few parents that are indifferent or neutral about the value of video games.

While these trends, among others, are indicated, these trends are still, at best, tentative. Obviously, as.time passes these trends can be better validated or altered. As suggested earlier in this conclusion section, there are still significant questions or be answered. These include: replication with a sampling of a more hetergeneous population of subjects; a closer look at the home video game relationship to leisure, usage primarily by older children of owners, specific advantages and/or disadvantages as measured by behavior, rather than stated opinion; and, the family decision making process among family units to purchase or not purchase game units. These serve as only examples of further potentially useful refinements of this study.

Implications for Future Research

Home electronic video game playing may or may not continue with the same intensity as it had one or two years ago. However, further examination of the patterns of purchase and use of home electronic video game ownership and home computer ownership might support Naisbitt's (1982) suggestion that a technological device follows the line of least resistance. A video game unit, a leisure time device, may serve as an introduction to home computers or other technological innovations in the families. Perhaps these owner families have used home video games as an introduction to technology. A later study of the same families might

yield information to support this point.

A salient area for future research might be that of parental control. Perhaps nonowners differ from owners in their willingness to control video games after the unit is in the home. Perhaps nonowners exercise a different form of control and management of the family unit. The money management practices of the family might also be a way parents exert control over children's activities.

A third area for future research might be the leisure time activities of the family ecosystem. Home electronic video game playing may be just one of the many different devices family's use for recreation. Or it may be that the more global work-leisure value regulates whether a parent allows the child leisure activities. The "work before play" ethic in some households could mean very little leisure time is acceptable. Home electronic video game playing may also be related to a family's television viewing behavior. Mitchell's (1983) study reported the activity most influenced by video game playing was television viewing time.

Differences did exist between owners of home electronic video games and nonowners. Future research might examine other reasons for these differences in an effort to better understand families and technology.

A SELECTED BIBLIOGRAPHY

Andrews, M. P., Bubolz, M. M., & Paolucci, B. (1980). An ecological approach to study of the family. Marriage and Family Review, 3(1/2), p.29-49.

Babbie, E. R. (1979). The practice of social research (2nd ed.). California: Wadsworth.

Bernstein, P. (1981, July 27). Atari and the video-game explosion. Fortune, 104, 40-46.

Big ticket video is the season's star. (1981, December 21). Business Week, 39-40.

The boom in video games. (1976). Dun's Review, 108, 54-55.

Boulding, E. (1978). Working women and family wholeness. In Leisure, Work and the Family Proceedings Series of the Family Study Center Conference, Vol. 2. (pp.10-23).

Bresnick, P. (1982). Catalogers look at popular arcade games, manufacturer backing to pick best titles. Merchandising, 7(9), 51.

Brody, G. H., Stoneman, Z. & Sanders, A. K. (1980). Effects of television viewing on family interactions: An observational study. Family Relations, 29, 216-220.

Bubolz, M., Eicher, J. & Sontag, M. (1979, Spring). The human ecosystem: A model. Journal of Home Economics, 71, 28-31.

Burgess, E. W. (1926). The family as a unity of interacting personalities. The Family, 7(1), 3-9.

Carlson, J. E. (1979). The family and recreation: Toward a theoretical development. In W. R. Burr, R. Hill, F. I. Nye & I. L. Reiss, (Eds.), Contemporary theories about the family Vol. 1 (pp. 439-452). New York: Free Press.

Chaffee, S. (1982). Introductory comments. In D. Pearl, L. Bouthilet & J. Lazar (Eds.), Television and behavior: Vol. 2 technical reviews (pp. 260-263). Maryland: National Institute of Mental Health.

Chew. R. (1977, June 13). Electronic games score high. Advertising Age, 48, pp. 2, 94.

Cobb, J. (1982). Video therapy-path to recovery for brain injured. Electronic Education, 2(3), pp. 14, 38, 39.

The computer society, living: pushbutton power. (1978, February 20). Time, 111(1),46-49.

Condry, J. & Keith, D. (1983, September). Educational and recreational uses of computer technology: Computer instruction and video games. Youth and Society, 15, 87-112.

Conference issues and implications. (1978). In Leisure, Work and the Family Proceeding Series of the Family Study Center Conference, Vol. 2. (pp. 47-52). Stillwater, OK: Oklahoma State University.

Crandall, R. (1979). Social interaction, affect and leisure. Journal of Leisure Research, 11, 165-181.

Crandall, R., Nolan, M., & Morgan, L. (1980). Leisure and social interaction. In S. E. Iso-Ahola (Ed.), Social psychological perspectives on leisure and recreation (pp. 285-306). Springfield, Ill.: Thomas.

Dickerson, M. D. (1982). Characteristics of owners and non-owners of personal computers. Unpublished doctoral dissertation, Oklahoma State University, Stillwater, OK.

Dillman, D. A. (1978). Mail and telephone surveys. New York: Wiley.

Dillman, D. A., Gallegos, J. G., & Frey, J. H. (1976). Reducing refusal rates for telephone interviews. Public Opinion Quarterly, 40, 66-78.

Edwards, A. L. (1957). Techniques of attitude scale construction. New York: Appleton.

Fetterman, J. (1981). The impact of technology on the ethical development of children. Journal of Children in Contemporary Society, 14(1), 23-27.

Golden, F. (1982, May 9). Here come the microkids. Time, 119, 50-56.

Hess, R. D. & Handel, G. (1959). Family worlds: A psychosocial approach to family life. Chicago: University of Chicago.

Hollingshead, A. B. (1957). Two factor index of social position. New Haven, CN.: Yale Station.

The increasingly serious business of playing games with television. (1977). Broadcasting, 92, 49-52.

Iso-Ahola, S. E. (1980). Toward a dialectical social psychology of leisure and recreation. In S. E. Iso-Ahola (Ed.), Social psychological perspectives on leisure and recreation (pp. 19-37). Springfield, Ill.: Thomas.

Katz, A. (1983). The surgeon general says ... Electronic Games, 1(12), pp. 6, 102.

Kelly, J. R. (1975). Life styles and leisure choices. The Family Coordinator, 24, 185-190.

Kelly, J. R. (1978). Family leisure in three communities. Journal of Leisure Research, 10(1), 47-60.

Kerlinger, F. (1973). Foundations of behavioral research. (2nd ed.). New York: Holt.

Kiesler, S., Sproull, L., & Eccles, J. S. (1983, March). Second-class citizens? Psychology Today, pp. 41-48.

Klionsky, M. (1982). At video magic 'open door' policy is key to selling loads of videogames. Merchandising, 7(9), 53.

Leichter, H. J. (1974). Some perspectives on the family as educator. In H. J. Leichter (Ed.), The family as educator. New York: Teachers College Press.

Malone, T. W. (1981). Toward a theory of intrinsically motivating instruction. Cognitive Science, 4, 333-369.

Mansfield, M. (1982, August 30). The big bang marketing of home videogames. Advertising Age, 53 (Section 2), pp.M-2, M-3, M-30.

Marich, B. (1982, January 11). Video game ads to explode. Advertising Age, 53, 3.

Mayhew, D. (1982). Tomorrow's technology an owner's manual. The Graduate Woman, 76(6), 14-16.

McLeod, J. M., Fitzpatrick, M. A., Glynn, C. J., & Fallis, S. F. (1982). Television and social relations: Family influences and consequences for interpersonal behavior. In D. Pearl, L. Bouthilet, & J. Lazar (Eds.), Television and behavior Vol. 2 techical reviews (pp. 272-286). Maryland: National Institute of Mental Health.

Meszaros, P. S. (1981). Toward the year 2000: directions for home economics programs. Unpublished paper.

Mitchell, E. (1983). The effects of home video games on children and families. In Video Games and Human Development: A Research Agenda for the '80s, Symposium held at Harvard Graduate School of Education. Cambridge, MA: Monroe C. Gutman Library.

Mittenthal, S. (1982, July 20). Video games: Are they harmful to our children? Family Circle, 95, pp. 26, 28, 36.

Murray, J. P. & Kippax, S. (1978). Children's social behavior in three towns with differing television experience. Journal of Communication, 28(1), 19-29.

Naisbitt, J. (1982). Megatrends: Ten new directions transforming our lives. New York: Warner Books.

Nulty, P. (1982, November 15). Why the craze won't quit. Fortune, 106, 114-124.

Nunnally, J. C. (1978). Psychometric Theory. (2nd ed.). New York: McGraw.

Odyssey, a game you play through your TV set. (1973, February). Consumer Reports, 38, 81-83.

On TV games. (1978, April). Merchandising, 3, pp. 32, 34.

Orthner, D. (1975, April). Familia ludens: Reinforcing the leisure component in family life. The Family Coordinator, 24, 175-183.

Orthner, D. (1978). Leisure, work and the family: Life cycle changes and patterns. In Leisure, Work and the Family Proceedings Series of the Family Study Center Conference, Vol. 2 (pp. 1-9). Stillwater, OK: Oklahoma State University.

Orthner, D. & Mancini, J. A. (1980). Leisure behavior and group dynamics: The case of the family. In S. E. Iso-Ahola (Ed.), Social psychological perspectives on leisure and recreation (pp. 307-328). Springfield, Ill.: Thomas.

Paolucci, B., Hall, O., & Axinn, N. W. (1977). Family decision making: An ecosystem approach. New York: Wiley.

Papert, S. (1980). Mindstorms. New York: Basic Books.

Reynolds. P. (1982-83, December, January). Electronic video games: Friendly or hostile invasion? PTA Today, 8, pp. 3, 7-9.

The riches behind video games. (1981, November 9). Business Week, 9, 98-99.

Schlater, J. D. (1970). National goals and guidelines for research in home economics. (A study sponsored by: Association of administrators of home economics). East Lansing, MI: Michigan State University.

Selltiz, C., Jahoda, M., Deutsch, M., & Cook, S. (1959). Research methods in social relations (rev. ed.). New York: Holt.

Silverman, W. (1981, October). Fall video game shortages expected, yet promos continue. Merchandising, 6, 75.

Silverman, W. (1982, January). Atari previews $300 video-game system, other suppliers also advance in technology. Merchandising, 7, 78-79.

Smith, P. (1981). The impact of computerization on children's toys and games. Journal of Children in Contemporary Society, 14, 73-82.

SPSS^{x} user's guide. (1983). New York: McGraw-Hill.

Stearns, P. (1982). Machines, people and the future. The Graduate Woman, 76, 17-19.

Sudman, S. & Bradburn, N. M. (1982). Asking questions. San Francisco: Jossey-Bass.

Thompson, B. & Cloer, T. (1981). A learning aid: Imaginative electronics applied to education. Journal of Children in Contemporary Society, 14, 83-87.

Thurstone, L. L. (1959). The measurement of values. Chicago: University of Chicago Press.

Tittnich, E. M. & Brown, N. (1981). Positive and negative uses of technology in human interactions. Journal of Children in Contemporary Society, 14, 15-21.

Toffler, A. (1980). The Third Wave. New York: Bantam Books.

Turkle, S. (1980, January-February). Computer as rorschach. Society, 17, 15-24.

Video games and human development: A research agenda for the '80s. (1983). Papers and Proceedings of a Symposium at Harvard Graduate School of Education. Cambridge, MA: Monroe C. Gutman Library.

Wanner, E. (1982, October). The electronic boogeyman. Psychology Today, 16, 8-11.

Why electronic games will be hard to find. (1979, November 19). Business Week, 52.

Winning with video games (1981). Institutional Investor, 15, 279-281.

APPENDIXES

APPENDIX A

PILOT FORM OF THE ATTITUDE SCALES

PILOT VERSION

ATTITUDES TOWARD FUTURE TECHNOLOGY SCALE

Future Technology Directions:

The following are statements about attitudes toward future technology. Future technology is being defined as "the application of scientific knowledge and research to develop products which eliminate hand operations or improve processes which increase productivity at some point yet to come." Please indicate the degree to which you agree or disagree with each statement by circling the appropriate letter. The response code is: SA=Strongly Agree; A=Agree; U=Undecided; D=Disagree; SD=Strongly Disagree.

SA A U D SD 1. Today's parents can predict the work opportunities their children may have as adults.

SA A U D SD 2. In the future individuals will select the information they want rather than having it selected for them by the newspapers and television.

SA A U D SD 3. The influence of computers on the future job market is overrated.

SA A U D SD 4. Workers will increasingly be replaced by robots in American factories.

SA A U D SD 5. Technological devices will play a large role in guiding our behavior in the future.

SA A U D SD 6. Computers help children understand the concept of systems.

SA A U D SD 7. Computers help children understand the use of information.

SA A U D SD 8. Children who can program computers achieve a sense of control.

SA A U D SD 9. Computers provide intense, visual learning experiences.

SA A U D SD 10. The person who knows the language of computers will have a skill needed for future jobs.

SA A U D SD 11. Parents will be able to have more control of their child's education through personal computers.

SA A U D SD 12. Computers will play an important role in the intellectual development of children.

SA A U D SD 13. Knowledge of the computer keyboard will be an important work skill in the future.

SA A U D SD 14. Computerized instruction in the classroom will encourage children to be self-centered.

SA A U D SD 15. Technology as a major focus in our society is beyond human control.

SA A U D SD 16. Leisure time will be greatly increased in the future society.

SA A U D SD 17. More future homes will have an appliance to provide educational programs and personal finance information.

SA A U D SD 18. Computer literary will be a basic survival skill in our future society.

SA A U D SD 19. Future workers liberated by machines, computers, and robots, can work and spend time in other activities.

SA A U D SD 20. The society of the future will offer individuals a wide variety of opportunities for self-expression.

SA A U D SD 21. Computer technology will take all the subjective/feeling dimension out of decisions.

SA A U D SD 22. The computer will dehumanize our society.

SA A U D SD 23. Children need to learn coping skills for living in the changing world of the future.

SA A U D SD 24. Learning to choose wisely among alternatives will be more important for children in the future.

SA A U D SD 25. Children will need to learn different ways of thinking to use and program the computers.

SA A U D SD 26. Computer technology makes it possible to intrude on an individual's privacy.

SA A U D SD 27. Interactive or two-way television will be available in most homes in the future.

SA A U D SD 28. In the future robots will perform routine chores in businesses.

SA A U D SD 29. Females are more anxious than males about working with computers.

SA A U D SD 30. Most blue collar jobs will be filled with robots in the future.

SA A U D SD 31. A job skill for the future will be one related to building and maintaining robots.

SA A U D SD 32. There is little need to be future oriented.

SA A U D SD 33. In the near future machines will be available that type directly from a persons spoken word.

SA A U D SD 34. In the future classroom most instruction will be acquired at the computer console.

SA A U D SD 35. The home of the future will have a voice activated computer that controls utilities and home appliances.

SA A U D SD 36. Ignorance of computers will cause people to be illiterate in the future.

SA A U D SD 37. The home-centered life of the future will be mind expanding because of world-wide communication networks.

SA A U D SD 38. People are fearful of computers.

SA A U D SD 39. Teleshopping, a technology that allows one to shop from home, will be common in the future.

SA A U D SD 40. Home based shopping will enable customers to select exactly what they want and have it made to order.

SA A U D SD 41. Many people believe technology is no longer under their control.

SA A U D SD 42. Automatic teller machines and computerization of bank records will encourage banking from home in the future.

SA A U D SD 43. Children using a computer cover the same material somewhat faster.

SA A U D SD 44. New communications technology offers the possibility of distributing specialized information to small special interest groups.

SA A U D SD 45. In the future, workers will need to be periodically retrained as their jobs are outdated by technology.

SA A U D SD 46. In order to serve human needs technology needs to be under the control of people.

SA A U D SD 47. Children need to help parents understand the excitement of computers.

SA A U D SD 48. The home of the future will have an "electronic hearth" around which a family will work and play.

SA A U D SD 49. The home owner will be in complete control of the environment in the home through the use of microcomputer technology.

SA A U D SD 50. Electronic games are America's fastest growing sport.

SA A U D SD 51. A computer is a new technological gadget for people to own.

SA A U D SD 52. Children using a computer like to learn.

SA A U D SD 53. Today's parents are not rearing their children for living with future technology.

SA A U D SD 54. Technology is a tool which will allow us to do some of the things that we've always wanted to do.

PILOT VERSION

ATTITUDES TOWARD HOME ELECTRONIC VIDEO GAMES

Video Game Directions:

The following are statements about home electronic video games. A home electronic video game has been defined as "a programmable electronic device that attaches to and functions through the television set." Trade names of home electronic video games include: Atari, Intellivision and Colecovision.

Please indicate the degree to which you agree or disagree with each statements by circling the appropriate letter. The response code is: SA=Strongly Agree; A=Agree; U=Undecided; D=Disagree; SD=Strongly Disagree.

SA A U D SD 1. Home electronic video games are primarily played because they are entertaining.

SA A U D SD 2. Home electronic video games encourage an attitude of violence in players.

SA A U D SD 3. Home electronic video games do not help children have knowledge about technology.

SA A U D SD 4. Mastery at playing home electronic video games helps children have a higher status in their peer group.

SA A U D SD 5. Playing home electronic video games takes away from time families spend together.

SA A U D SD 6. Playing home electronic video games does not stimulate children's creativity.

SA A U D SD 7. Playing home electronic video games together allows parents and children to be on an equal level.

SA A U D SD 8. Chidlren who play home electronic video games are isolating themselves from peers.

SA A U D SD 9. Video games played at home are more acceptable than the video games played in arcades.

SA A U D SD 10. Playing home electronic video games helps children learn to think ahead.

SA A U D SD 11. Children become addicted to playing home electronic video games.

SA A U D SD 12. Playing home electronic video games is a way to unwind and relax.

SA A U D SD 13. By mastering a home electronic video game children can feel better about themselves.

SA A U D SD 14. The aggressive content of home electronic video games is contributing to a violent society.

SA A U D SD 15. Home electronic video game playing helps children improve their reflexes.

SA A U D SD 16. Home electronic video games do not help children learn to use their intuition.

SA A U D SD 17. Home electronic video games do not help children learn to cope with failure.

SA A U D SD 18. Home electronic video games are an enjoyable alternative to boring television shows.

SA A U D SD 19. Home electronic video games are an electronic fad.

SA A U D SD 20. Children play home electronic video games when they need to be doing their homework.

SA A U D SD 21. Playing home electronic video games encourages violence and aggression.

SA A U D SD 22. Home electronic video games are silly and senseless.

SA A U D SD 23. Playing home electronic video games does not help children improve their eye movements.

SA A U D SD 24. Home electronic video games encourage children to sit and be passive.

SA A U D SD 25. Instant satisfaction of impulses is encouraged when children play home electronic video games.

SA A U D SD 26. Usually home electronic video games are not a common interest for children and teenagers.

SA A U D SD 27. Playing home electronic video games is not a constructive way for children to spend free time.

SA A U D SD 28. Strategies used in playing home electronic video games will be useful in future jobs in business.

SA A U D SD 29. Reaching a goal is one reason children find home electronic video games appealing.

SA A U D SD 30. Trying to improve your own score is one reason home electronic video games are appealing.

SA A U D SD 31. It is hard for a group of people to play home electronic video games.

SA A U D SD 32. Home electronic video games are useful with children who have learning problems.

SA A U D SD 33. Home electronic video games help children learn patience.

SA A U D SD 34. Home electronic video games encourage passivity.

SA A U D SD 35. Children who skillfully operate a home electronic video game will have an easier time adjusting to programming a computer.

SA A U D SD 36. Children's learning can be stimulated by the use of home electronic video games.

SA A U D SD 37. Playing home electronic video games is detrimental to school grades.

SA A U D SD 38. Parents use home electronic video games as a baby sitter.

SA A U D SD 39. Home electronic video games are not an effective way to test coordination skills.

SA A U D SD 40. Part of the appeal of home electronic video games is that they involve skill.

SA A U D SD 41. Children who master home electronic video games gain confidence in their ability to master complex learning situations.

SA A U D SD 42. Eye-finger coordination is developed by playing home electronic video games.

SA A U D SD 43. Children enjoy the challenge presented by home electronic video games.

SA A U D SD 44. Home electronic video games are helping to change television from a passive to an active pastime.

SA A U D SD 45. Home electronic video game playing may discharge aggression in a socially unacceptable way.

SA A U D SD 46. Peer acceptance can be developed better in organized group activities than by playing home electronic video games.

SA A U D SD 47. The challenge of playing home electronic video games is one way to motivate children to learn.

SA A U D SD 48. Playing home electronic video games with another person allows children the opportunity to learn how to handle competition in a positive way.

SA A U D SD 49. Home electronic video games can increase a sense of inadequacy in women.

SA A U D SD 50. Problem solving skills utilized in playing home electronic video games are not transferred to other activities.

SA A U D SD 51. Home electronic video games are a natural progression from television to computer literacy.

SA A U D SD 52. Home electronic video games get people fascinated with problem solving.

SA A U D SD 53. Home electronic video games are far removed from reality.

APPENDIX B

FINAL FORM OF THE ATTITUDE SCALES

FINAL VERSION
ATTITUDES TOWARD FUTURE TECHNOLOGY SCALE

SA A U D SD 1. Computers help children understand the use of information.

SA A U D SD 2. Children who can program computers achieve a sense of accomplishment.

SA A U D SD 3. Females are more uncomfortable than males about working with computers.

SA A U D SD 4. Computers and technical devices will play a large role in guiding our behavior in the future.

SA A U D SD 5. Many people believe technology is no longer under their control.

SA A U D SD 6. Computers will play an important role in the intellectual development of children.

SA A U D SD 7. Children using a computer cover the same material somewhat faster.

SA A U D SD 8. The home owner could be in control of the environment in the home through the use of computer technology.

SA A U D SD 9. Today's parents are not rearing their children for living with future technology.

SA A U D SD 10. Future workers with work time freed by machines, computers, and robots, can spend time in other activities.

SA A U D SD 11. Our future society will offer individuals a wide variety of opportunities to express themselves.

SA A U D SD 12. Parents need to be aware their children's future job market will be highly technical.

SA A U D SD 13. Workers will not be totally replaced by robots in American factories.

SA A U D SD 14. Knowledge of the computer keyboard will be important work skill in the future.

SA A U D SD 15. Computers will have a tremendous influence on the future job market.

FINAL VERSION
ATTITUDES TOWARD HOME ELECTRONIC VIDEO GAMES SCALE

SA A U D SD 1. Playing video games with another person teaches children how to handle competition.

SA A U D SD 2. Playing video games is not a constructive way for children to spend free time.

SA A U D SD 3. Video games encourage passive behavior.

SA A U D SD 4. Playing video games takes away from time families spend together.

SA A U D SD 5. Children who play video games are isolating themselves from friends.

SA A U D SD 6. Reaching a goal is one reason children find video games appealing.

SA A U D SD 7. Video games are silly and senseless.

SA A U D SD 8. A child's acceptance by their friends can be developed better in organized group activities than by playing video games.

SA A U D SD 9. Video games help children have knowledge about technology.

SA A U D SD 10. Playing video games helps children learn to cope with failure.

SA A U D SD 11. Playing video games helps children improve their eye movements.

SA A U D SD 12. Children's learning can be stimulated by the use of video games.

SA A U D SD 13. Playing video games is detrimental to a child's school grades.

SA A U D SD 14. Children who master video games gain confidence in their ability to master complex learning situations.

SA A U D SD 15. Playing video games encourages violence.

SA A U D SD 16. Video games are helping to change television from a passive to an active pastime.

SA A U D SD 17. Video games get people fascinated with problem solving.

SA A U D SD 18. Problem solving skills used in playing video games won't help in other activities.

SA A U D SD 19. Video games are an enjoyable alternative to boring television shows.

APPENDIX C

ADDITIONAL DATA COLLECTION INSTRUMENTS

INTERVIEW SCHEDULE

Hello! Is this the parent of _____? I am calling from Oklahoma State University to get information from parents on their attitudes toward future technology and home electronic video games and video game ownership. Your telephone number was drawn in a random sample of elementary and middle school parents in Stillwater. A letter was sent to you last week indicating that we would be calling. Did you receive the letter? If you can locate the orange response card it will be helpful in answering some statements. The questions I need to ask only take a few minutes. Is this a convenient time to talk? (Yes or No) What time would be convenient for me to call back? (note time and date)

If you have any questions after I finish my interview I would be happy to answer them. If you would like some information about our results I will send them to you when they are ready.

Is this a home which has two parents residing in the home?

No _____ (single parent family)

Yes ____ If Yes,

I need to talk to the father/mother in this home.

(alternate)

Is this person home? Could I speak to them? When might I call and be able to reach them? (note time and day)

Respondent - _____ Mother _____ Father

Please tell me the ages, sex and name of all your children residing at home.

Age Sex Name

_____

_____

I would like to have you respond to a series of statements about future technology. (Future technology is being defined as "the application of scientific knowledge and research to develop products which eliminate hand operations or improve processes which increase productivity at some point in time yet to come.") There are no right or wrong answers; you are simply telling me how you feel about the statements. Respond to each statement with one of the following responses. STRONGLY AGREE, AGREE, UNDECIDED, DISAGREE, STRONGLY DISAGREE. The orange response card in your advance letter gave you the choices.

ATTITUDES TOWARD FUTURE TECHNOLOGY STATEMENTS

1. Computers help children understand the use of information.
2. Children who can program computers achieve a sense of accomplishment.
3. Females are more uncomfortable than males about working with computers.
4. Computers and technical devices will play a large role in guiding our behavior in the future.
5. Many people believe technology is no longer under their control.

6. Computers will play an important role in the intellectual development of children.
7. Children using a computer cover the same material somewhat faster.
8. The home owner could be in control of the environment in the home through the use of computer technology.
9. Today's parents are not rearing their children for living with future technology.
10. Future workers with work time freed by machines, computers, and robots, can spend time in other activities.
11. Our future society will offer individuals a wide variety of opportunities to express themselves.
12. Parents need to be aware their children's future job market will be highly technical.
13. Workers will not be totally replaced by robots in American factories.
14. Knowledge of the computer keyboard will be an important work skill in the future.
15. Computers will have a tremendous influence on the future job market.

The next series of statements concerns your attitudes toward home electronic video games.

A home electronic video game has been defined as a "computerized electronic device that attaches to and works through the television set." Trade names of games include: Atari, Intellivision and Colecovision. Please respond to each statement with the same response code we used above -- STRONGLY AGREE, AGREE, UNDECIDED, DISAGREE, AND STRONGLY DISAGREE. Each time I use the word video game I am referring to home electronic video game.

ATTITUDES TOWARD HOME ELECTRONIC VIDEO GAMES

1. Playing video games with another person teaches children how to handle competition.
2. Playing video games is not a constructive way for children to spend free time.
3. Video games encourage passive behavior.
4. Playing video games takes away from time families spend together.
5. Children who play video games are isolating themselves from friends.
6. Reaching a goal is one reason children find video games appealing.
7. Video games are silly and senseless.
8. A child's acceptance by their friends can be developed better in organized group activities than by playing video games.
9. Video games help children have knowledge about technology.

10. Playing video games helps children learn to cope with failure.
11. Playing video games helps children improve their eye movements.
12. Children's learning can be stimulated by the use of video games.
13. Playing video games is detrimental to a child's school grades.
14. Children who master video games gain confidence in their ability to master complex learning situations.
15. Playing video games encourages violence.
16. Video games are helping to change television from a passive to an active pastime.
17. Video games get people fascinated with problem solving.
18. Problem solving skills used in playing video games won't help in other activities.
19. Video games are an enjoyable alternative to boring television shows.

There are a few questions left.

Do you own a home electronic video game?

No _____

Yes ____ If yes,

What brand is it? _____

Are you satisfied with the performance of your unit?

Yes _____

No _____

How long have you owned your video game?

_____ less than 1 year

_____ 1 to 2 years

_____ over 2 years

In which room is your video game located?_____

Do you own more than one unit?

_____ No

_____ Yes

In one month's time, on the average, would you say your family uses your video game unit:

_____ once or twice a month

_____ once or twice a week

_____ three or four times a week

_____ everyday

Everyone -

What do you think the advantages might be in owning a video game?

What do you think the disadvantages might be in owning a video game?

In your opinion, what are the most important reason(s) (your) children play home video games?

On a scale of 1 to 5, with 1 being definitely not to 5 being definitely yes, do you approve of your children playing video games in arcades?

Where would you rate yourself on that question?

1 2 3 4 5

In general, do you have any concerns or worries about arcade game playing?

Do you own a home computer?

_____ No

_____ Yes If yes, what brand is it?_____

How long have you owned your home computer?

_____ less than one year

_____ 1 to 2 years

_____ over 2 years

The last items are some demographic information about you (and your spouse).

Indicate the age range for yourself, and your spouse

Self		Spouse
_____	Under 25	_____
_____	25 to 35	_____
_____	36 to 45	_____

Self		Spouse
_____	46 to 55	_____
_____	56 to 65	_____
_____	over	_____

What is the highest grade or level of education you have completed and that your spouse completed?

Self	Spouse	
_____	_____	Attended graduate or professional school
_____	_____	Graduated from a regular four year college
_____	_____	Some college or technical school after high school
_____	_____	Finished high school
_____	_____	Some high school
_____	_____	5 to 8 years of grade school
_____	_____	0 to 4 years of grade school
_____	_____	Don't know/no response

As specifically as possible:

What is your current occupation (be specific)?

What is your spouses current occupation?

Since you indicated you owned a home electronic video game, I would like to send you a form to have your children and you keep track of how much your family plays your video game unit in the next week. At the end of that time there will be a self-addressed, stamped envelope to mail the form back to me.

I have your address listed as -----

Is that correct?

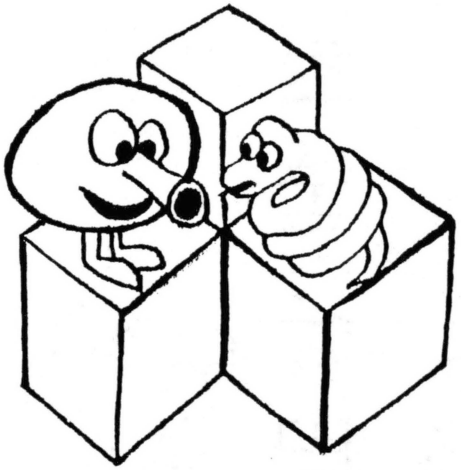
THANK YOU VERY MUCH FOR YOUR COOPERATION. I APPRECIATE YOUR TIME VERY MUCH.

Do you have any questions or comments?

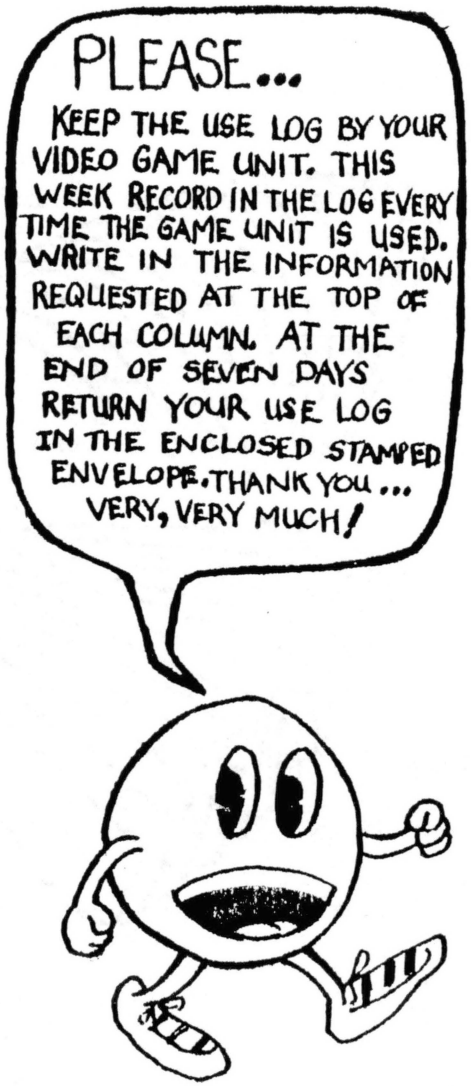
When the study is finished we would be happy to send a copy of the results.

Are you interested in receiving a copy? Yes _____ No _____

Again, thank you for your time.



VIDEO GAME USE LOG



VIDEO GAME USE LOG

Keep the use log by your video game unit and record every time the game unit is used in the next week. Record the information indicated at the top of the column. (Male=M, Female=F)

Date of Month	Played Alone (√)	WHO PLAYED Write in name of family member	Age	M F	WHO PLAYED Write in name of guest	Age	M F	Name of Video Game Played	Time Started	Time Stopped	Highest Score or Highest Level Reached

Unsolicited Comments

DATA COLLECTION RESPONSE SHEET

_____ 1. Id. code
_____ 2. Number of parents (1) (2)
_____ 3. Mother (1) Father (2)
4. Children Name 5.Age 6.Sex

_____
_____
_____
_____
_____

Future Technology Scale

_____ 1. SA A U D SD
_____ 2. SA A U D SD
_____ 3. SA A U D SD
_____ 4. SA A U D SD
_____ 5. SA A U D SD
_____ 6. SA A U D SD
_____ 7. SA A U D SD
_____ 8. SA A U D SD
_____ 9. SA A U D SD
_____10. SA A U D SD
_____11. SA A U D SD
_____12. SA A U D SD
_____13. SA A U D SD
_____14. SA A U D SD
_____15. SA A U D SD

Video Game Scale

_____ 1. SA A U D SD
_____ 2. SA A U D SD
_____ 3. SA A U D SD
_____ 4. SA A U D SD
_____ 5. SA A U D SD
_____ 6. SA A U D SD
_____ 7. SA A U D SD
_____ 8. SA A U D SD
_____ 9. SA A U D SD
_____10. SA A U D SD
_____11. SA A U D SD
_____12. SA A U D SD
_____13. SA A U D SD
_____14. SA A U D SD
_____15. SA A U D SD
_____16. SA A U D SD
_____17. SA A U D SD
_____18. SA A U D SD
_____19. SA A U D SD

Unsolicited Comments

_____ 7. Owner/Nonowner (No) (Yes)

_____ 8. Brand _____

_____ 9. Satisfied with Performance (Yes) (No)

_____10. If no _____

_____11. Length of time owned

_____ Less than 1 year

_____ 1 to 2 years

_____ over 2 years

_____12. Room located _____

_____13. Number owned (1) (2) (3)

_____14. Use in one month

_____once or twice a month

_____once or twice a week

_____3 or 4 times a week

_____everyday

15 - 17. Advantages of ownership _____

_____

_____

18 - 20. Disadvantages of ownership _____

_____

_____

21 - 25. Reasons children play _____

_____

_____

_____26. Arcade approval (1) (2) (3) (4) (5)

27 -28 Concerns about arcades _____

_____

_____

_____29. Ownership of home computer (No) (Yes)

_____30. Brand _____

_____31. Length of ownership

_____ less than 1 year

_____ 1 to 2 years

_____ over 2 years

Unsolicited Comments

32 - 33.Age

Self	Spouse	
_____	_____	Under 25
_____	_____	25-35
_____	_____	36-45
_____	_____	46-55
_____	_____	56-65
_____	_____	over 66

34 - 35.Education

Self	Spouse	
_____	_____	Attended Grad. or Prof. School
_____	_____	Graduated from 4 yr. college
_____	_____	Some college or tech. school
_____	_____	Finished High School
_____	_____	Some High School
_____	_____	5 to 8 years of grade school
_____	_____	0 to 4 years of grade school
_____	_____	Don't know/no response

36. Self occupation_____

37. Spouse occupation_____

_____ 38 - 39. SES

____40 Use log (No) (Yes) Type of reward _____

____41 Copy of results (No) (Yes)

APPENDIX D

LETTERS AND CORRESPONDENCE

Oklahoma State University

DEPARTMENT OF FAMILY RELATIONS
AND CHILD DEVELOPMENT

STILLWATER, OKLAHOMA 74074
241 HOME ECONOMICS WEST
(405) 624-5057

January, 1984

Dear Parent,

The Department of Family Relations and Child Development (FRCD) at Oklahoma State University is currently involved in a research study in an attempt to understand factors that influence family ownership of a home electronic video game. Home electronic video games are more commonly known by their manufacturers names, for instance, Atari, Colecovision and Intellivision. We will be assessing parents' attitudes toward home video games and toward future technology. Television and newspaper stories have been focusing our attention on future technology, as well as video games, but very little information is available on what parents think about these areas or how the games are used in families.

My name is Kay Murphy and as a doctoral student in the FRCD department I am conducting this research. Your family was selected from a random sample of Stillwater elementary and middle school children. Within the next week you will be receiving a telephone call asking for your cooperation to respond to a brief telephone interview. Your opinions are very important to us as we work to examine families' attitudes toward video games and future technology. The enclosed card gives a sample of the responses which are possible in answering the attitude statements. Keep the card handy by the telephone for use in the interview.

Your answers are to be confidential, your participation is voluntary and the interviews will be made at a time convenient to you. If you are interested in receiving the results of the research project please tell the interviewer when she calls.

Thank you for your time and consideration. I hope I can count on your participation.

Sincerely,

Kay Murphy

Kay Murphy
Doctoral Student, FRCD

Althea Wright

Althea Wright, Ed.D.
Associate Professor, FRCD

RESPONSE CARD

The interviewer will be asking you to respond to some attitude statements about video games and future technology. There are no right and wrong answers. Please indicate the degree to which you agree or disagree with each statement. The response code is:

Strongly Agree	(SA)
Agree	(A)
Undecided	(U)
Disagree	(D)
Strongly Disagree	(SD)

POSTCARD

REMEMBER THE BRIGHT ORANGE
VIDEO GAME USE LOG
YOU RECEIVED ABOUT TWO WEEKS AGO

--IF YOU HAVE COMPLETED IT, PLEASE RETURN IN THE ENVELOPE THAT WAS PROVIDED.

--IF YOU HAVE NOT COMPLETED IT, WOULD YOU PLEASE HAVE YOUR FAMILY KEEP TRACK OF THEIR VIDEO GAME PLAYING FOR ONE WEEK AND THEN RETURN IT.

--IF YOU CAN'T FIND THE USE LOG, CALL KAY MURPHY AT 624-5061 OR 372-9562 FOR A REPLACEMENT.

THANK YOU!

THANK YOU!

THANKS!

FOR YOUR HELP IN THE VIDEO GAME STUDY.

Kay R. Murphy

VITA 2

Kay Rohl Murphy

Candidate for the Degree of

Doctor of Philosophy

Thesis: FAMILY PATTERNS OF USE AND PARENTAL ATTITUDES TOWARD HOME ELECTRONIC VIDEO GAMES AND FUTURE TECHNOLOGY

Major Field: Home Economics

Biographical:

Personal Data: Born in Buffalo, New York, November 15, 1942, the daughter of Mr. & Mrs. Burton H. L. Rohl. Married Patrick M. Murphy, April 2, 1966.

Education: Attended grade school in Alden, New York; graduated from Alden Central School, Alden, New York, in June, 1960. Attended Merrill-Palmer Institute, Detroit, Michigan, as part of undergraduate work; received a Bachelor of Science degree from State University College at Buffalo, New York, with a major in Home Economics Education in June, 1964; received a Master of Science degree from Oklahoma State University, Stillwater, Oklahoma, with a major in Family Relations and Child Development in July, 1968. Completed requirements for the Doctor of Philosophy degree in December, 1984.

Professional Experience: Home Economics teacher, Estee Junior High School, Gloversville, New York, 1964-66; Liaison Teacher for Home Economics--Pre-Kindergarten Program, Schenectady City Schools, Schenectady, New York, 1966-67. Recipient of General Food Fund Fellowship for graduate study, 1967-78. Instructor in Family Relations and Child Development, Oklahoma State University, 1968-71, 1973 to present.

Professional Organizations: Phi Upsilon Omicron, Kappa Delta Pi, Omicron Nu, Phi Kappa Phi, American Home Economics Association, National Council on Family Relations.