

ATTITUDES OF SELECTED COMPUTER OWNERS
ABOUT PRIVACY, SECURITY, AND THE
INTERACTIVE COMPUTER SYSTEM

By

JUDITH FERN RUSH KAUTZ

Bachelor of Arts

Fresno State University

Fresno, California

1969

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

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1984
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Thesis Approved:

A handwritten signature in cursive script, likely reading "William H. Hall", written over a horizontal line.

Thesis Adviser

A handwritten signature in cursive script, likely reading "Margaret Weber", written over a horizontal line.

A handwritten signature in cursive script, likely reading "Norman N. Murkum", written over a horizontal line.

Norman N. Murkum
Dean of the Graduate College

ACKNOWLEDGMENTS

Many people provided assistance and encouragement to the author during the preparation of this study and throughout the period of her graduate work, and she extends her appreciation to each. Special thanks goes to her supervisor, Mr. James Ragan, and to her co-workers for their interest and encouragement.

Great appreciation is extended to the author's major advisor, Dr. William L. Johnston, for his guidance and support, and for his patience. Special thanks are also expressed to committee members, Dr. Margaret Weber and Dr. Carl Hall, for their invaluable assistance.

The author is deeply grateful to her father, Warren Rush, who instilled in her a great respect for higher education and the will to achieve it. She offers special thanks to her mother, Vicie Rush, for her interest and unflagging support, even across the miles. Finally, deepest gratitude is extended to her husband, Ronald Kautz, for his encouragement, love, and support throughout the course of graduate study.

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION	1
Purpose and Objectives	5
Assumptions	6
Limitations	6
Definition of Terms	6
II. REVIEW OF LITERATURE	8
The Interactive Computer System	8
The Concern for Privacy	10
Privacy, Security, and Interactive Computer Systems	14
Summary	17
III. METHOD AND PROCEDURE	18
Research Design	18
The Sample	18
The Instrument	19
Data Collection	20
Statistical Analysis	21
IV. FINDINGS	24
Description of All Respondents	24
Description of Interactive and Noninteractive System Users	26
Attitudes About Privacy and Potential Legislation by System Participation, Age, and Educational Level	31
The Concern for Privacy and Security and the Affect on System Participation	36
V. SUMMARY	44
Purpose and Objectives	44
Discussion of Major Findings	45
Implications	47
Recommendations	49

Chapter	Page
A SELECTED BIBLIOGRAPHY	51
APPENDIXES	54
APPENDIX A - REQUEST FOR MEMBERSHIP LIST	55
APPENDIX B - QUESTIONNAIRE ON COMPUTER PRIVACY .	57

LIST OF TABLES

Table	Page
I. Distribution of Demographic Characteristics of the Sample	25
II. Distribution of Demographic Characteristics of the Sample	27
III. Characteristics of Interactive System Users	30
IV. Attitude Toward Privacy and Potential Legislation by System Participation	32
V. Attitude Toward Privacy and Potential Legislation by Age	34
VI. Attitude Toward Privacy and Potential Legislation by Educational Level	35
VII. Concern for Privacy and Security as It Relates to System Participation	37
VIII. Reasons for Not Joining an Interactive System When Privacy Did Not Impact Decision	38
IX. Interactive System Users' Concern for Privacy In Interaction With Other Computers	39
X. Concern for Privacy in Relation to Use of a Home Computer as an Extension of an Office Computer	40
XI. Concern for Privacy in Relation to Type of Service Used	41
XII. Concern for Privacy in Relation to Number of Services Used	42
XIII. Concern for Privacy in Relation to Method of Access to System	42
XIV. Concern for Privacy in Relation to Hours of Interaction	42

CHAPTER I

INTRODUCTION

The purchase and use of personal computers for the home increases as their availability and practicality grows. In 1982 an estimated one and one half to two million microcomputers were in use, and that number is expected to grow to five million by 1985, and to as many as 10 to 15 million by the end of the decade (Westin, 1982). These personal computers are used for a variety of purposes including entertainment (games), business (privately operated or as an extension of an office computer), study, or services (home banking, electronic mail, shop-at-home purchasing, etc.). Many of these functions require the use of a two-way system via the telephone network or a cable. Whether these two-way systems are used in interchanges with other home computers (as in an electronic bulletin board), connected with an office mainframe computer, or joined to a home information system (electronic mail or home banking, for example), the issue of privacy and security of personal information is sure to arise.

The primary concern for privacy in the 1970s centered around the record-keeping systems, the kind with databases of information about people who conducted transactions with

them, applied for loans, or otherwise provided information related to consumption of services or products (Ware, 1982b). However, today, with the advent of two-way interactive systems, the significant increase in the purchase of personal computers, and the numerous services provided to the consumer with a home or business terminal, the privacy issue has taken on new dimensions (Westin, 1982). The fact is that participants in these systems provide a significant and highly detailed record of personal data to the operator managing the systems.

It is generally recognized that knowledge of consumer preferences and buyer behavior is basic to marketing of goods and services, granting of credit, employment and insurance decisions, and many other activities. Federal and state governments, too, rely a great deal on computerized personal information for tax compliance, law enforcement, licensing and other administrative purposes (Westin, 1982). In response to this automated data collection, the United States expanded traditional privacy expectations to apply to all collection and uses of personal information, whether manual or automated. The Federal Privacy Act of 1974 is one example of a broad fair information privacy code applying to all federal agencies for this purpose. Specific federal and state privacy codes to cover particular areas like credit reporting were also enacted to provide detailed regulation to certain areas requiring detailed information (Westin, 1982). With the advent of

the interactive system, should such systems be characterized as essentially an expansion of the activities of telephone communications, banking and credit card shopping for privacy protection? Or do these systems need new privacy rules?

The privacy debate is of particular concern now in light of a series of incidents occurring during the summer of 1983 when a group of young computer enthusiasts cracked codes and gained access to several large corporation computers. This group of Milwaukee youths (calling themselves the "414s" after their Area Code) infiltrated the files of a nuclear weapons research lab and more than 50 other organizations. Another group broke into a San Francisco firm's computer and did \$260,000 worth of damage. The 1983 movie release of "Wargames", whose hero is a young man who forges his grades in the high school computer and then penetrates a secret Pentagon computer program, further sensationalized the issue. Additionally, in June 1984, the American Bar Association released results of a study polling 275 businesses and public agencies on whether they were victims of computer crime. Twenty-seven percent of those polled experienced incidents with losses estimated at half a billion dollars. ("When Thieves Sit Down at Computers", 1984). One example related how a computer consultant phoned a Los Angeles bank, gave the proper code words and wired 10.2 million dollars to his Swiss bank account. In another instance, four men were indicted on charges of penetrating

electronic mail accounts of the National Aeronautics and Space Administration, the United Auto Workers, the Ratheon Company, and others ("When Thieves Sit Down at Computers", 1984).

Authorities in the field of computer crime and privacy believe that new laws are inevitable. Mr. Willis H. Ware, who served as chairman of the Special Advisory Committee on Automated Personal Data Systems (a group providing a report, Records, Computers and the Rights of Citizens, generally regarded as the intellectual foundation for the Federal Privacy Act of 1984) believes that new privacy issues will "transcend established jurisdictional, industrial, or legal boundaries" (1982a, p. 8). Ware (1982a) purports that the federal government cannot avoid becoming involved, but maintains that the depth of this involvement can be limited "if the private sector gets with it and responds adequately and properly" (p. 8). Dr. Alan F. Westin, author of many books on privacy, and past Vice Chairman of the New Jersey State Commission on Individual Liberty and Personal Privacy, believes that since interactive systems now offer credit card, banking, news, entertainment, shopping and other specific information services, they have become a new form of consumer organization. As such, extensive privacy rules "are called for to provide legal rights of confidentiality and access covering the cable or telephone-based system as a new multiservice provider, as well as any outside providers that were also allowed to offer services on the

system" (Westin, 1982, p. 112).

These experts highlight the need for continuing study with the aim of developing new privacy legislation. Government and business policy makers must balance the wants of the consumer and the needs of business institutions for information about people with the privacy standing of the individual. Knowledge of consumer views is essential to this task. The present study was designed to provide information to the privacy protection deliberations of government and business policy makers in Oklahoma.

Purpose and Objectives

Consumers of computer systems have increased their participation in interactive computer systems. The purpose of this study was to assess the concern for privacy among computer owners and to compare attitudes about privacy of computer owners who participate in such interactive systems with those who do not participate in such systems.

The objectives of this study were to assess 1) the attitudes of computer owners regarding privacy and legislation as they relate to personal information stored in computers, 2) if there are significant differences in these attitudes between interactive system participants and non-participants, 3) if demographic variables such as age and educational level of computer owners affect their attitudes about privacy, and 4) if participation in an interactive system is determined by attitudes about privacy.

The individuals studied were all members of an Oklahoma City computer user's group, the International 99/4 user's group. This population was divided into two groups, those who participated in an interactive system, and those who did not participate in such a system.

Assumptions

For this study, the following assumptions were made.

1. The user's group selected is typical of user's groups in Oklahoma.
2. Respondents answered the questionnaire honestly and accurately.
3. Legislators and policy makers utilize concerns of consumers when considering the formulation of new policy.

Limitations

The following limitations were established for this research study.

1. Selection of the sample was limited to members of the International 99/4 user's group.
2. Findings are limited to 1984.

Definition of Terms

The following terms were defined for use in this study.

Interactive System is a group of two or more computers, connected by cables or wires, which can communicate with each other; used synonymously with network.

Modem (modulator-demodulator) is a device, usually attached to a telephone, which connects one computer to another so they may communicate using telephone lines.

Password is a "consecutive sequence of alpha-numeric characters which acts as a key to unlock a portion of a computer's memory" (Logsdon, 1980, p. 168).

User's group is a group of computer owners who meet regularly to trade information on items of interest about their particular type of computer or operating system.

The terms "microcomputer", "personal computer", and "computer" were used interchangeably throughout the study.

Compuserve and The Source are home information systems which offer to subscribers such services as electronic mail, electronic bulletin boards, stock market information, and other related items.

CHAPTER II

REVIEW OF LITERATURE

The review of literature for this study includes a discussion of the development of the interactive computer system, and traces the evolution of the concern for the privacy of the individual with respect to computer technology. An analysis of the interrelationship between privacy, security and the interactive system concludes the chapter.

The Interactive Computer System

In the early 1970s, when gasoline prices drove the cost of transportation to record levels, business institutions researched ways to transfer information across the country using some other means besides gasoline-powered vehicles. Computer systems linked through lines began transmitting and receiving information stored in corporate databases in a matter of minutes rather than the normal week common with the postal system. As computer technology advanced and computers became more common and less expensive, normally printed information became available as a product accessible to anyone with a computer terminal. Stock market prices, news, advertisements and the like all became available to subscribers with a personal computer.

Today the trend in the computer industry is toward creating networks (Shotwell, 1981). Computer networks are very similar to the electronic information networks used by telephones, television, and radio; they use many of the same wires and antennas installed over the years for these media. Networks can interconnect computers within a building or across several continents via adaptors, called modems, that connect a local network to a telephone system, microwave or satellite (Shotwell, 1981).

The actual interconnection of two or more computer devices requires compatibility of four dimensions of product design: 1) Items of information must be transferred from one device to another at the same transfer rate (speed). 2) The format and procedure for sending information from one computer to another must be the same; that is, the series of steps that are part of the transfer must occur in the same order. 3) Communication codes used to send information from one device to another must match. 4) The physical means for interconnecting the devices must be compatible; wires, cables or radio transmitters must be able to "talk" to each other (Shotwell, 1981).

When a computer network is established, such a network becomes interactive: computer terminals can communicate with other computers, large or small. Some of the most popular are the home information systems like Compuserve or The Source. Participants in such networks may obtain electronic mail and banking services, make purchases, trade

stocks or view the news. User's groups, collections of computer enthusiasts who meet frequently to share information about their units, may also interconnect their computers using modems or cables for information exchange. Such groups may also operate an electronic bulletin board, which allows a fast, nationwide exchange of messages, advertisements, hints, and any other information a user may wish to transmit. It was through such a bulletin board that the Milwaukee group, the "414s", met and developed their plan to access the large mainframe computers owned by several businesses throughout the United States.

The Concern for Privacy

The concern for the privacy of an individual, "the right to be left alone", (Ware, 1980, p. 11) has endured throughout the history of the United States. During that history, American courts have recognized a right to privacy in four sets of circumstances: 1) when a person or organization in-trudes upon another's solitude, 2) when there has been a public disclosure of embarrassing private facts, 3) publicity that places an individual in a false light in the eyes of the public, and 4) the use by one person of another's name or likeness for the first person's profit. Generally, it has been the response to the perceived threat from advances in technological applications, such as photography and telegraphy, for example (Smith, 1982).

Public concern increased in the 1960s when computer

technology allowed the processing and storage of information efficiently and rapidly (Noll, 1980). In the early 1970s, growing public concern over the erosion of privacy focused on "massive databases and their potential threats to individual rights" (Smith, 1982, p. 303). This fueled the continuing debate over the advantages gained from the rising technology versus the "potential abuse or misuse of personal information by business and by government" (The Dimensions of Privacy, 1979, p. 3). Particularly, the primary concern dealt with longitudinal databases which assemble information about persons from a variety of sources, thus inviting abuse of the information by anyone gaining access. The other side of the issue considered the significant value of files of this kind to social and economic research, and the necessity of this data for society to "understand its own social processes and analyze its problems" (Simon, 1981, p. 430).

The early 1970s produced a number of Congressional hearings and reports relating to privacy. One of the most significant was Records, Computers, and the Rights of Citizens, published by the Department of Health, Education and Welfare, which reviewed computer-introduced changes in record-keeping and suggested policy responses to these changes (Rule, McAdam, Stearns, and Uglow, 1980).

The mid-1970s brought a response to privacy concerns in the form of new laws and policies, specifically, the Federal Privacy Protection Act of 1974, which required that reason-

able steps be taken by federal agencies to protect personal data (Ware, 1982b). This legislation also created the Privacy Protection Study Commission, which published a report, Personal Privacy in an Information Society, in 1977. This document, the principle result of the commission's efforts, studied information systems of government and private agencies and recommended applications of the Privacy Act to those systems (Rule et al., 1980).

In 1978, Sentry Insurance sponsored a National Opinion Research Survey of Attitudes Toward Privacy, conducted jointly by Louis Harris and Associates, Inc. and Dr. Alan F. Westin, Professor of Public Law and Government at Columbia University and widely regarded as a leading authority on privacy matters. The survey's purpose was to "learn to what degree privacy can and should be protected in an intensely service-oriented, technologically-based society-- a society whose collective 'marketplace' is fundamentally fueled by the collection, storage, and use of the personal information of its citizens" (The Dimensions of Privacy, 1979, pp. 3-4). To this end, this survey explored five general areas: the personal dimensions of privacy, the employee/employer relationship, the privacy-intensive industries, government and privacy, and how to protect privacy. Results indicated that Americans were extremely concerned about threats to their individual privacy. Additionally, 75 percent believed the right to privacy should be akin to the "inalienable American right to life,

liberty and the pursuit of happiness" (The Dimensions of Privacy, 1979, p. 5). With respect to computers, 54 percent of the respondents considered present uses of the computer as an actual threat to personal privacy. Further, 88 percent of the respondents felt that they should be told how information would be used when it was collected by an organization (The Dimensions of Privacy, 1979).

Another study, entitled Personal Privacy in a Computer Information Society and conducted in 1982 by Dr. Ronald Lee Esquerra, sought to learn the views of Arizona residents regarding their personal privacy and their relationship with certain public and private institutions. Results showed personal privacy as an issue of serious public concern, with Arizona residents requesting further government laws and business policies and practices to protect their privacy (Esquerra, 1982).

Presently, concerns for privacy of the individual take on a new dimension. Modern digital computer technology allows the manipulation of data in very general ways, faster than the human brain; modern communication technology moves that information from place to place and delivers it wherever is desired. The marriage of these two technologies, and what they jointly make possible, will certainly affect the privacy issue (Ware, 1981). The application here involves the computer connected to a network via a communication link to form the interactive computer system.

Privacy, Security and Interactive Computer Systems

The potential for loss or misuse of information is considerably enhanced in an interactive system. If the home computer is connected to a network and private information is kept in the memories of central computer networks, little regulation exists to prosecute unauthorized access or misuse of that data (Moses, 1980). In processes such as electronic mail and shop-at-home services, personal information may not be used so much for record-keeping as it is to complete a transaction. The information seems "perpetually in transit" rather than stored in memory. Additionally, interactive systems operate in "real time", allowing interception to change or prevent the transaction (Smith, 1982). Although many laws and regulations have been proposed, the home computer field is still largely unregulated and the threat of invasion of privacy remains (Moses, 1980).

Robert Ellis Smith (1982), publisher of Privacy Journal, a Washington monthly newsletter, and author of Privacy: How to Protect What's Left of It, maintains that privacy in the computer field contains several different concepts, one of which is computer security. "Security is not synonymous with privacy," says Smith, "although it is one important component of the total privacy issue" (p. 298). Mr. Willis Ware (1983) uses the term privacy in the context of record-keeping privacy, "the use of information about people to make decisions and judgments about them" (p. 2). He goes

on to make the following distinction between privacy and security, and their relationship to one another.

Record-keeping privacy concerns personal information kept in computer-based systems, and the essence of it is protecting such information and controlling its use for authorized purposes. In contrast, computer security is that body of technology, techniques, procedures, and practices that provides the protective mechanisms to assure the safety of both the computer systems themselves and the information within them; and in addition, limits access to such information solely to authorized users...The important point to be noted is that a comprehensive set of security safeguards within and around a computer-based information system is an essential prerequisite for assuring personal privacy (p. 2-3).

A system serving the consumer must be secure for proper operation, preservation of confidentiality of stored information, and for accountability purposes (Smith, 1982). Many institutions with interactive systems have developed precautions for physical security. Passwords are frequently used as a method of controlling access. If they are guarded carefully, passwords aid considerably in keeping data secure. However, given a valid password, an intruder can change, interrogate or delete any information file available through that password, usually without a trace (Logsdon, 1980).

In recent years, one other development impacting the privacy/security issue has surfaced: computer-matching programs where one agency checks its records against another's, generally to discover fraud and waste (Samuels, 1984). Specific examples include the crosscheck of draft

registration lists with social security and motor vehicle records by the Selective Service System to locate and prosecute young men who have not yet registered for the draft, and the Internal Revenue Service's match of lifestyle data kept by various businesses with its internal records to trigger tax audits. This practice surfaces several constitutional issues regarding protection against unreasonable search and seizure, the right against self-incrimination, the presumption of innocence, and the right of personal privacy (Samuels, 1984).

During the past year, there have been numerous incidents of individuals and groups entering the databases of interactive computer networks, using simple home computers and modems. In some cases files were damaged or funds stolen, and in others, nothing except entry was gained. In response to such incidents, Congress recently passed legislation authorizing a government-run computer crime study. The legislation will not prevent computer crimes from occurring, but it will provide the first systematic effort to gather information and examine legal issues ("Zeroing-In on Computer Crime", 1984).

Twenty-one states have enacted some kind of legislation to deal with computer crime; however, much of it has to do with issues such as software piracy of trade secrets rather than aiming at the protection of privacy of the individual. Congress is also considering similar action; one law under consideration is the Computer Security Act, which would

outlaw theft and abuse of computers owned by the federal government. This law, if passed, would also facilitate punishment of interstate computer crimes involving private systems ("California Law to be Effective Weapon", March 1984).

Summary

The increasing popularity of interactive computer systems adds a new dimension to the concern for privacy in the 1980s. Although the concern for the privacy of an individual has endured throughout the history of the United States, a growing public concern over the erosion of privacy surfaced in the 1970s with the emergence of large databases stored in computers. Even though the Federal Privacy Protection Act of 1974 required that federal agencies take reasonable steps to protect personal data, surveys taken in 1978 and 1982 revealed that personal privacy is still an area of public concern.

Privacy of the individual with regard to data stored in and transmitted by computers cannot be separated from the issue of security, particularly since safeguards must exist to protect private information. However, few laws exist requiring those safeguards, and many unauthorized intrusions into computer databases have occurred the past year.

A number of laws regarding computer crime are under consideration; consumer views need to be considered when enacting such legislation.

CHAPTER III

METHOD AND PROCEDURE

This chapter describes the design of the research, the population studied, the procedures used in developing and implementing the data-gathering instrument, and analysis of the data.

Research Design

Because of the nature of the study and the instrument used to collect the data, the design for this study was descriptive survey. Babbie (1983) suggests that "description is the precise measurement and reporting of the characteristics of some population or phenomenon under study" (p. 98). He also suggests that descriptive studies answer the question "what's so?" (p. 98).

The Sample

The nature of the survey dictated that all respondents own or use personal computers and that at least a representative group participate in an interactive system. Since computer user's group members are generally users of a particular brand or type of computer system who may possess the capability to participate in an interactive system, the

population from which the sample was taken was limited to members of such a user's group. An initial sampling of the various user's groups available in Oklahoma revealed that the International 99/4 user's group possessed the largest membership. Since most user's groups are formed for the same purposes, mainly to share information and software relative to a particular brand or kind of computer, it was assumed that members of the International 99/4 group were representative of those in a typical user's group in Oklahoma City. A letter was sent to the president of the group requesting names and addresses of group participants who resided in Oklahoma City (Appendix A). In response to this request, mailing labels for 407 names were provided, and this entire population was selected for use in the study.

The Instrument

A review of survey instruments used in other research studies, particularly those concerning attitudes about privacy, and an examination of literature about questionnaire formulation were conducted before the instrument was developed. A two-page, self-administered questionnaire was then specifically designed for the study (Appendix B). The 15 items included multiple choice, questions with Likert-type responses, and dichotomous questions which elicited yes or no responses. The multiple choice questions were used to gather information about types of services and accesses utilized by respondents in interactive systems. The Likert-

type questions allowed respondents to express their concerns about privacy to degrees. Some open-ended questions allowed respondents to provide additional information and demographic data such as age, educational level, and occupation.

The questionnaire was examined for technical accuracy and clarity by the Tinker Data Services Center at Tinker Air Force Base in Oklahoma City. It was also reviewed by faculty members of the College of Home Economics of Oklahoma State University and revised as a result of their recommendations. The instrument was then pilot-tested by 25 computer owners for clarity of questions. Two questions were reworded based on pretest responses.

Data Collection

To facilitate handling, the questionnaire was printed by a local reproduction service so that a single 8½ by 11 sheet, with questions front and back was produced. A cover letter explained the purpose of the study and assured respondents that their privacy would be maintained in analysis of the data. The cover letter, questionnaire, and a self-addressed, stamped envelope were stuffed in business-size envelopes and a mailing label attached to each one. Respondents who desired results of the study were requested to place their names and addresses in the upper left corner of their return envelopes. A total of 407 questionnaires were mailed at the beginning of the week and respondents

were given 10 days in which to reply.

A total of 246 usable questionnaires were returned for a 60 percent response rate. These included 82 interactive system participants and 164 who did not participate in such a system. Fifty-one respondents requested results of the study be sent to them. Eighteen questionnaires were also completed and returned by user's group members who did not use or own a personal computer. These were not considered in the analysis of data.

Statistical Analysis

Data from the questionnaire was manually tabulated and analyzed using frequency distributions and chi square. In descriptive statistics, frequency distribution is an organized display of data which counts the number of times a characteristic occurs, or which separates into groups and shows the number of observations that fall into each group (Minium, 1978). Both absolute frequencies, actual numbers of cases, and relative frequencies, showing proportions of total number of cases, were displayed.

In the questionnaire, for example, respondents with interactive systems were asked to indicate how many hours in a 24 hour period they interacted with other computers. Their choices were: less than one, one to three, four to six, seven to nine, and 10 or more. The number who responded in each category were totaled within that category and the percentage determined. Characteristics of the

sample were described in this manner using frequency distributions.

Chi square is a frequently-used statistic which measures the discrepancy between observed and expected responses (Minium, 1978). A comparison which results in a significant chi square value would indicate that a relationship exists between the two measured variables. Tests of significance provide a means to estimate the significance of associations between variables, and assist in ruling out associations that may not represent genuine relationships in the population under study (Babbie, 1983). For the purposes of this study, a .05 level of significance was used.

Chi square analysis was utilized to test whether a relationship existed between attitudes about privacy and participation in an interactive computer system. This method was also used to ascertain if there was a relationship between attitudes about privacy and the demographic variables of age and educational level.

Finally, correlations between variables were measured using a form of frequency distribution, bivariate analysis; results were displayed on contingency tables. This analysis was accomplished by first dividing the cases into groups according to their attributes of one variable. Each of these subgroups was then described in terms of attributes of another variable. Finally, the first variable subgroups were compared with one another in terms of the

attributes of the second variable (Babbie, 1983).

For instance, in this study the first variable was the respondent's attitude about privacy, and the subgroups were those concerned about privacy and those unconcerned. The second variable was participation in an interactive system, and its subgroups were those who participated in such a system and those who did not participate. Percentages of the subgroups were compared to ascertain if there was a correlation between those concerned about privacy and those unconcerned, in terms of their participation in an interactive system.

CHAPTER IV

FINDINGS

The purpose of this study was to explore the attitudes of computer users toward privacy, privacy legislation, and participation in interactive systems. This chapter presents a description of all respondents, a description of interactive system participants and nonparticipants, and an analysis of attitudes about privacy and potential legislation by interactive system participation, age, and educational level.

Description of All Respondents

Questionnaire respondents provided certain demographic data which appear in Table I. This information included age, educational level, and occupation, as well as type of computer system used by each respondent.

The median age of respondents was 40 years, with ages ranging from 10 to 74 years. Slightly more than 58 percent of the respondents were between 31 and 50 years while the remaining 42 percent were spread almost equally between the under 30 group and those over 50 years of age.

The level of education attained by respondents was very high. Almost 65 percent possessed at least a bachelor's

TABLE I
DISTRIBUTION OF DEMOGRAPHIC CHARACTERISTICS
OF THE SAMPLE

Variable	Frequency	Percent
N=246		
Age		
Under 21	13	5.28
21-30 years	41	16.67
31-40 years	95	38.62
41-50 years	48	19.51
51-60 years	31	12.60
61 years and older	18	7.32
Level of Education		
Under 12 years	11	4.47
High school graduate	21	8.54
Some college (13-15 years)	55	22.36
Bachelor's degree	96	39.02
Master's degree	54	21.95
Doctoral degree	9	3.66
Occupation		
Professional	158	64.23
Technical and clerical	42	17.07
Laborer	11	4.47
Student	15	6.10
Retired	15	6.10
Other	5	2.03
Type of Computer System		
Interactive	82	33.33
Noninteractive	164	66.67

degree, and 25.6 percent achieved a master's degree or higher. An additional 22.4 percent had attended college for one to three years. Slightly more than four percent were still in high school.

Since the question regarding occupation was open-ended, responses were classified into the following general categories: professional, technical and clerical, laborer, student, retired, and other. The majority of respondents, more than 64 percent, served in professional capacities. These included such occupations as engineer, accountant, physician, lawyer, Air Force officer, educator and geologist. Technical and clerical positions such as electronic technician, secretary, and bank clerk comprised 17 percent of the sample. The remaining 19 percent included laborers, students, and retirees, with a very small percentage classified as other.

All respondents were separated into two categories, interactive and noninteractive system users. Exactly two-thirds of the computer users responding to the survey did not participate in an interactive system, while the remaining one-third did interact with other computers.

Description of Interactive and Noninteractive System Users

Demographic data of computer users were analyzed by system participation, and a summary is included in Table II. Almost eight percent more interactive system users

TABLE II
DISTRIBUTION OF DEMOGRAPHIC CHARACTERISTICS
OF THE SAMPLE

Variable	Interactive System		Noninteractive System	
	Frequency	Percent	Frequency	Percent
	N=82		N=164	
Age				
Under 21	5	6.10	8	4.88
21-30 years	9	10.98	32	19.51
31-40 years	36	43.90	59	35.98
41-50 years	15	18.29	33	20.12
51-60 years	12	14.63	19	11.58
61 years and older	5	6.10	13	7.93
Level of Education				
Under 12 years	4	4.88	7	4.27
High school graduate	3	3.66	18	10.98
Some college (13-15)	15	18.29	40	24.39
Bachelor's degree	29	35.36	67	40.85
Master's degree	27	32.93	27	16.46
Doctoral degree	4	4.88	5	3.05
Occupation				
Professional	55	67.07	103	62.80
Technical and clerical	14	17.07	28	17.07
Laborer	5	6.10	6	3.66
Student	5	6.10	10	6.10
Retired	2	2.44	13	7.93
Other	1	1.22	4	2.44

fell in the 31-40 year age bracket than did the noninteractive system users. The groups were nearly equal for respondents over 40 years of age; however, nearly nine percent fewer interactive system users fell between 21 and 30 years than did the other group. Respondents under 21 years old were nearly equal for both groups.

Interactive system users were considerably more educated than noninteractive system participants. Over 73 percent of system users possessed at least a bachelor's degree while only 60 percent of the noninteractive group had a comparable level of education. Almost 33 percent of the interactive system users had attained master's degrees as compared to 16.5 percent of the noninteractive system group. Fifteen percent of the noninteractive system users only had high school educations in contrast to nine percent of the interactive system users. A six percentage point differential existed in those who had some amount of college, with those using interactive systems reporting the lower percentage.

The majority of interactive system participants listed professional occupations, over four percent greater than the other group. Both groups contained equal percentages of persons holding technical and clerical positions, and of those attending school. Retirees belonging to the noninteractive category outnumbered system users, while the proportion of laborers was larger for the interactive system participants.

Interactive system users responded to additional questions regarding their computer systems, and these data are reported in Table III. The information they provided included types of services and methods of access used, as well as hours spent in interaction with other computers.

A major portion of these respondents, almost 66 percent, subscribed to an information service like CompuServe or The Source. This group also included nearly 30 percent who participated in an electronic bulletin board in addition to the information service. A number of users interacted with an electronic bulletin board alone, accounting for an additional 23 percent. The remaining 11 percent utilized electronic banking or securities trading services.

Interactive system participants reported one other use for their computers. When asked if they employed their systems as an extension of a business or office computer to work at home, 22 percent responded yes, while the remainder stated they did not.

The method most often utilized to access interactive systems was the password. Over 63 percent system users reported the password as the sole method employed. An additional 19.5 percent, those participating in two services, gained access freely or used a password depending on which service they were entering at the time. The remainder, 17 percent, employed services which offered free access with no restrictions.

Most system users spent less than one hour in a 24

TABLE III
CHARACTERISTICS OF INTERACTIVE SYSTEM USERS

Variable	Frequency	Percent
N=82		
Type of Service		
Information service alone	30	36.58
Information service and electronic bulletin board	24	29.27
Electronic bulletin board alone	19	23.17
Electronic banking	5	6.10
Securities trading	4	4.88
Use as Extension of Office Computer		
Yes	18	21.95
No	64	78.05
Method of Access		
Password alone	52	63.41
Password and free access	16	19.51
Free access alone	14	17.07
Hours of Computer Interaction In a 24 Hour Period		
Less than 1	59	71.95
1-3	18	21.95
4-6	5	6.10

hour period in interaction with other computers. Nearly 72 percent reported themselves in this category. Almost 22 percent used their systems for one to three hours, while six percent interacted for four to six hours a day. No respondent reported a use greater than six hours.

Attitudes About Privacy and Potential
Legislation by System Participation,
Age, and Educational Level

To assess general attitudes about privacy and potential legislation, all computer users who returned the survey were asked two questions pertaining to recent incidents involving break-ins to large business computers using small home computers with interactive capabilities. They were asked if these unauthorized accesses were violations to personal privacy, and if they believed laws should be enacted to make this type of access a punishable offense.

Chi square analysis was performed on all responses to assess whether attitudes expressed were independent of participation in an interactive system. As Table IV reveals, there were no significant differences between interactive and noninteractive system user responses. For this group, attitudes about these instances being violations of personal privacy were independent of system participation. Additionally, although the percentage of interactive system users favoring legislation was slightly smaller than the nonparticipant group, the majority of both groups were in

TABLE IV
ATTITUDE TOWARD PRIVACY AND POTENTIAL LEGISLATION
BY SYSTEM PARTICIPATION

There have been a number of incidents recently where a group of people gained access to large mainframe computers using their personal computers and modems connected to telephones.

Do you believe this unauthorized access is a violation of personal privacy?

<u>Response</u>	<u>Type of System</u>		
	Interactive	Noninteractive	Total
Yes	86.58%	88.41%	88.21%
No	8.54	5.49	6.50
No opinion	4.88	6.10	5.29
	100 (82)	100 (164)	100 (246)

Chi square = 1.495, ns

Do you believe laws should be enacted to make this type of access a punishable offense?

<u>Response</u>	<u>Type of System</u>		
	Interactive	Noninteractive	Total
Yes	78.05%	81.71%	80.49%
No	12.19	9.75	10.57
No opinion	9.76	8.54	8.94
	100 (82)	100 (164)	100 (246)

Chi square = .471, ns

df = 2

ns = not statistically significant

favor of legislation requiring punishment for computer intruders. For the computer owners surveyed, attitude toward computer intrusion as a punishable offense was also independent of system participation.

An analysis using chi square to determine if attitude regarding computer intrusions as a violation of privacy was independent of age also revealed no significant results (Table V). The percentage of those over 50 years old who responded affirmatively to the question on unauthorized accesses as a violation of personal privacy was 12 points higher than those 30 years and younger who responded similarly. However, differences between these groups were not significant enough to reject independence between these two variables. Responses on the enactment of legislation were much closer among the three age groups; chi square analysis again revealed no significant relationship between age and respondents' attitudes about the legislation.

To test the significance of responses to the two questions by those with varying degrees of education, respondents were divided into three categories, 12 years and under, 13 to 15 years, and 16 years or greater, representing the highest level of education achieved. Table VI displays the results of the chi square analysis performed to test the relationship between attitudes and these educational levels. Those computer users in the two higher level groups replied affirmatively to both questions in greater percentages than the lower group. Although the

TABLE V
ATTITUDE TOWARD PRIVACY AND POTENTIAL LEGISLATION
BY AGE

There have been a number of incidents recently where a group of people gained access to large mainframe computers using their personal computers and modems connected to telephones.

Do you believe this unauthorized access is a violation of personal privacy?

<u>Response</u>	<u>Age</u>			
	30 and below	31-50	Over 50	Total
Yes	79.63%	89.51%	91.84%	88.21%
No	11.11	6.29	2.04	6.50
No opinion	9.26	4.20	6.12	5.29
	100 (54)	100 (143)	100 (143)	100 (246)

Chi square = 5.658, ns

Do you believe laws should be enacted to make this type of access a punishable offense?

<u>Response</u>	<u>Age</u>			
	30 and below	31-50	Over 50	Total
Yes	74.08%	84.62%	75.52%	80.49%
No	12.96	9.09	12.24	10.57
No opinion	12.96	6.29	12.24	8.94
	100 (54)	100 (143)	100 (49)	100 (246)

Chi square = 3.936, ns

df = 4

ns = not statistically significant

TABLE VI
ATTITUDE TOWARD PRIVACY AND POTENTIAL LEGISLATION
BY EDUCATIONAL LEVEL

There have been a number of incidents recently where a group of people gained access to large mainframe computers using their personal computers and modems connected to telephones.

Do you believe this unauthorized access is a violation of personal privacy?

<u>Response</u>	<u>Educational Level</u>			Total
	12 and under	13-15	16 and over	
Yes	78.13%	87.27%	89.94%	88.21%
No	15.62	5.46	5.03	6.50
No opinion	6.25	7.27	5.03	5.29
	100 (32)	100 (55)	100 (159)	100 (246)

Chi square = 5.412, ns

Do you believe laws should be enacted to make this type of access a punishable offense?

<u>Response</u>	<u>Educational Level</u>			Total
	12 and under	13-15	16 and over	
Yes	71.87%	81.82%	81.76%	80.49%
No	25.00	7.27	8.81	10.57
No opinion	3.13	10.91	9.43	8.94
	100 (32)	100 (55)	100 (159)	100 (246)

Chi square = 8.856, ns

df = 4

ns = not statistically significant

percent of no responses by the least educated was considerably higher than those in the other two categories, and although the chi square value was higher than in previous analyses, totals still were not of the degree to indicate a significant relationship between these attitudes and respondents' educational levels.

The Concern for Privacy and Security and the Affect on System Participation

Two questions in the survey sought to determine to what degree the concern for privacy and security impacted the respondent's decision to join or not to join an interactive system. In question nine, answered only by interactive system users, respondents indicated to what extent they considered privacy and security of their files when they elected to join such a system. Their choices were not at all, considered somewhat, or considered a great deal, with intervals between these responses considered equal. Question 10 respondents were those who chose not to participate in an interactive system. They specified to what degree privacy and security of their files impacted their decision not to become a part of such a group; their answers were limited to did not affect decision, was one of several reasons, or was the main reason. For purposes of analysis, responses to these two questions were categorized relative to extent of concern for privacy and security; that is, responses "not at all" and "did not affect

decision" to questions nine and ten respectively indicated no concern, "considered somewhat" and "was one of several reasons" equated to some concern, and "considered a great deal" and "was the main reason" reflected considerable concern.

Results of a comparison of this concern for privacy and security are illustrated in Table VII. The majority of those who were not concerned about privacy, almost 75 percent, chose not to participate in an interactive system; that is, concern for privacy did not affect their decision on participation in such a group. Conversely, 70.5 percent who were somewhat concerned about privacy still elected to join the interactive group. None of those with considerable concern about their privacy decided to participate in an interactive system. However, these respondents numbered only 14 or 5.7 percent of the total of 246 who returned the questionnaire.

TABLE VII

CONCERN FOR PRIVACY AND SECURITY AS IT RELATES
TO SYSTEM PARTICIPATION

<u>Type of System</u>	<u>Degree of Concern for Privacy and Security When Considering System Participation</u>		
	No concern	Some concern	Great concern
Interactive	25.41%	70.59%	0.0 %
Noninteractive	74.59	29.41	100
	100 (181)	100 (51)	100 (14)

Those respondents who indicated that a concern for privacy had no affect on their decision not to participate were asked "why?". Since this was an open-ended question, responses were varied; these are shown in Table VIII. It is significant to note that 42 percent cited a lack of knowledge about the capabilities of the system as the major reason why privacy did not impact their decision. Another 37.8 percent stated their primary reason to be not enough money to purchase the equipment for such a system. The remaining 20 percent listed an assortment of responses ranging from no need for the system to no time to use it.

TABLE VIII

REASONS FOR NOT JOINING AN INTERACTIVE SYSTEM
WHEN PRIVACY DID NOT IMPACT DECISION

Reason	Frequency	Percent
N=164		
Not enough knowledge about system	69	42.07
No money to purchase the system	62	37.80
No need for the system	12	7.32
No time to use the system	8	4.88
Do not use computer enough	5	3.05
Just got computer	5	3.05
Other	3	1.83

While the ninth and tenth questions on the survey

attempted to assess to what degree the concern for privacy and security impacted each respondent's decision on participation in an interactive system, question eight sought to determine the level of concern users experienced once they joined such a system. The results of this question are displayed in Table IX. Greater than 62 percent of these respondents stated they were not concerned at all about the privacy of their information. Almost 32 percent expressed some concern in their interaction with other computers, while only six percent reported a great deal of concern.

TABLE IX
INTERACTIVE SYSTEM USERS' CONCERN FOR PRIVACY IN
INTERACTION WITH OTHER COMPUTERS

Degree of concern	Frequency	Percent
	N=82	
Not concerned at all	51	62.20
Somewhat concerned	26	31.70
Very concerned	5	6.10

A series of bivariate tables were constructed to examine the percentages of interactive system users who were concerned or unconcerned about privacy in relation to the variables of type and number of services, method of access, and time of interaction with other computers. Table X

illustrates the concern for privacy felt by those who used their system as an extension of an office computer as compared with those who did not. Results revealed that a greater percentage of those connected to the office computer exhibited a concern for privacy than those who used their systems for other purposes; these percentages were 61.1 percent and 21.9 percent respectively.

TABLE X
CONCERN FOR PRIVACY IN RELATION TO USE OF A HOME
COMPUTER AS AN EXTENSION OF AN OFFICE COMPUTER

Attitude About Privacy	Home Computer Connection to Office Computer	
	Users	Nonusers
No concern	38.89%	78.13%
Concern	61.11	21.87
	100 (18)	100 (64)

A comparison of the privacy concerns of information service subscribers and electronic bulletin board subscribers is displayed on Table XI. More of those interacting with an electronic bulletin board service, a total of 36.8 percent, exhibited concern for privacy than those participating in an information service, 30 percent. This seven percent differential may be due to the fact that information

services generally require password entry, while electronic bulletin boards are freely accessed.

TABLE XI
CONCERN FOR PRIVACY IN RELATION TO TYPE OF SERVICE USED

Attitude About Privacy	Type of Service Used		
	Information Service	Electronic Bulletin Board	Both Services
No concern	70.00%	63.16%	58.33%
Concern	30.00	36.84	41.67
	100 (30)	100 (19)	100 (24)

The number of services in which a user enrolled did not appear to be related to the concern for privacy, shown in Table XII. A slightly smaller percentage of those utilizing two services exhibited a concern for privacy than those who subscribed to just one service; only 29.2 percent of two-service subscribers were concerned as compared with 34.5 percent of the one-service group. Additionally, there was virtually no difference in concern for privacy between those who accessed their services with passwords and those who had free access (Table XIII).

Differences in percentages of those concerned about privacy did exist between users with respect to the number

TABLE XII
CONCERN FOR PRIVACY IN RELATION TO
NUMBER OF SERVICES USED

Attitude About Privacy	Number of Services Used	
	One	Two
No concern	65.52%	70.83%
Concern	34.48	29.17
	100 (58)	100 (24)

TABLE XIII
CONCERN FOR PRIVACY IN RELATION TO
METHOD OF ACCESS TO SYSTEM

Attitude About Privacy	Method of Access	
	Password	Free
No concern	57.69%	57.14%
Concern	42.31	42.86
	100 (52)	100 (14)

TABLE XIV
CONCERN FOR PRIVACY IN RELATION TO HOURS OF INTERACTION

Attitude About Privacy	Hours of Interaction in 24		
	Less than 1	1-3	4-6
No concern	69.49%	50.00%	100%
Concern	30.51	50.00	0
	100 (59)	100 (18)	100 (5)

of hours the interactive systems were operated. Table XIV shows that a greater percentage of those who operated their systems for one to three hours were concerned about privacy than those whose systems were active for less than one hour. However, the group who activated their systems for four to six hours were not concerned at all. These differences may be attributable to the great disparity in numbers of respondents in each of the three groups. For example, respondents in the less-than-one-hour category numbered 59, while those in the four-to-six-hour group totaled 5.

CHAPTER V

SUMMARY

Purpose and Objectives

The purchase and use of personal computers for the home increases as their availability and practicality grow. They are used for a variety of purposes, many of which require the use of a two-way system, where a home terminal is linked to another system via the telephone network or a cable. Participants in these systems provide a significant record of personal data, and also possess the capability to gain entry into computer systems containing sensitive information about a variety of subjects.

The advent of the interactive system, its popularity, and the capabilities it possesses have generated renewed interest in privacy of the individual and the protection of that privacy through legislation. The issue poses several questions. Are computer owners concerned about privacy? Do those who gain unauthorized entry into corporation databases violate personal privacy? Should laws be enacted making such entry a punishable offense? Are those computer owners who possess interactive system capability more concerned about privacy than those who do not?

The purpose of this study was to assess the concern

for privacy among computer owners, and to compare those attitudes of computer owners who participate in interactive systems with those who do not participate in such systems. Specific objectives were to assess 1) the attitudes of computer owners regarding privacy and legislation as they relate to personal information stored in computers, 2) if there are significant differences in these attitudes between interactive system participants and nonparticipants, 3) if demographic variables such as age and educational level of computer owners affect their attitudes about privacy, and 4) if participation in an interactive system is determined by attitudes about privacy.

Oklahoma City members of the International 99/4 user's group were selected as a representative sample of the typical user's group population in Oklahoma City. Data was collected using a self-administered questionnaire mailed to all 407 members residing in the city. A total of 246 usable questionnaires were returned for a response rate of 60 percent. Respondents included 82 interactive system participants and 164 who did not participate in such a system.

Discussion of Major Findings

The majority of respondents, over 88 percent, believed that instances of unauthorized entry into large corporation computers were violations of personal privacy. There was no significant difference, less than two percent, in the

responses of participants and nonparticipants of interactive systems with respect to these incidents. Additionally, neither the ages of the computer users nor their educational levels significantly affected their attitudes regarding this issue. Although percentages of those in the 30-year-and-under group and those with a high school education believing intrusions were a violation of personal privacy were almost 10 points below those of the total population, the chi square analysis demonstrated no significance. It is interesting to note that percentages of those believing the unauthorized accesses were a violation of personal privacy increased as the age and educational level of respondents increased.

Computer users also favored the enactment of legislation to make intrusions into computer systems a punishable offense, although not by as great a margin. A total of 80.5 percent believed such legislation should be enacted, with only a three percent difference between responses of participants and nonparticipants of interactive systems. The ages and educational levels of respondents also did not impact responses on this issue, since only a few percentage points separated replies of the various groups from the total.

The concern for privacy and security does not appear to impact the decision on participation in an interactive system. Survey results reveal that the majority of those not concerned about privacy and security chose not to

participate in an interactive system; therefore, privacy was not an issue in their decision. Furthermore, over 70 percent of those who experienced some degree of concern still elected to join such a system. Although all those who expressed considerable concern did not select interactive system participation, these respondents numbered only 14 or 5.7 percent of the total of 246 who returned the questionnaire.

When those respondents who stated concern for privacy had no affect on their decision not to participate in an interactive were asked why, almost 42 percent confessed to a lack of knowledge about system capabilities, and an additional 38 percent said money was the primary consideration.

More than 62 percent of interactive system participants were not concerned about privacy once they joined such a group; however, over 32 percent expressed some degree of concern in their interaction with other computers and six percent experienced a great deal of concern.

The use of the interactive system as an extension of an office computer, and the amount of time spent in interaction with other computers appeared to impact the degree of concern for privacy experienced by system participants. The types of services (information, electronic banking, or electronic bulletin board, for example), the numbers of services utilized, and the method of access employed did not affect the degree of concern expressed by system users.

Implications

The results of this study clearly show that these respondents do believe unauthorized entry into large corporation databases is a violation of personal privacy. They also believe that laws should be enacted to make such intrusions a punishable offense. Governments and business policymakers in Oklahoma should consider these views during their privacy protection deliberations.

The majority of study participants, 74 percent, do not seem concerned about the privacy and security of their files when considering interactive system participation, although it is one factor that is considered. Results of the study indicate that other variables such as knowledge of system capabilities, expense of the system, time available and need for the system also impact system participation. However, the degree to which they are considered in comparison to privacy cannot be determined from this study. Also, the lack of knowledge about system capabilities cited by 42 percent of those nonparticipants who said they were unconcerned may imply that consumers of personal computers should become better informed as to what an interactive system allows a participant to do. Similarly, it may also indicate that marketers of these systems need to educate consumers on system capabilities.

The fact that a majority of the computer owners who responded to this study felt intrusions into large databases were a violation of personal privacy, and yet who were

unconcerned about the privacy and security of their own files, implies that respondents may not relate the two issues. This may have resulted from perceptions about the content of the data included in corporate computers as compared to the information kept in their own files. The failure to connect the two issues might also have occurred, as stated before, from a lack of knowledge about system capabilities. Computer users may not have known that transactions with other computers could be intercepted or monitored by those same intruders who enter corporate computers. Consumer education may be an appropriate method to insure potential interactive system participants recognize what these systems can do and the potential threat they represent to privacy and security of information.

Recommendations

The findings of this study provide the basis for the following recommendations.

1. Additional research is recommended to determine purposes for interactive system participation and to assess if concern for privacy and security of information is related to those purposes. One method for obtaining this additional data would be to survey different categories of users or systems.

2. To further aid in privacy protection deliberations, additional study is needed to determine views of consumers who do not own personal computers with respect to

information stored in computers as it relates to personal privacy.

3. Further research is recommended to determine the extent of knowledge computer owners possess about interactive system capabilities, and to determine if knowledge about system capability is related to the concern for privacy and security.

4. To obtain additional data from interactive system participants, a survey through one of the services such as an electronic bulletin board is recommended. A questionnaire posted in such a system accessed by system users should provide a more definitive picture of purposes for such interaction and related attitudes about privacy and security of these participants.

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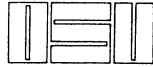
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APPENDIXES

APPENDIX A

REQUEST FOR MEMBERSHIP LIST



Oklahoma State University

COLLEGE OF HOME ECONOMICS
Department of Housing, Design and Consumer Resources

STILLWATER, OKLAHOMA 74078
HOME ECONOMICS WEST BUILDING
(405) 624-5048

TO: President, International 99/4s

SUBJECT: Membership List

I am pursuing a Master of Science degree from Oklahoma State University. My research topic is the study of attitudes of personal computer owners about privacy as it relates to their participation in an interactive system. I have attached a copy of the letter and questionnaire I would like to use in my survey of your members, as we discussed on the telephone on September 18.

I would like to mail the questionnaire to the Oklahoma City members of your user's group. It will not require identification of the respondent's name, and, as I stated in the attached letter, no one will be associated by name with any of the questions or with the study results. I will insure complete privacy of each individual. The study is being completely financed through my personal funds.

I will contact you by telephone to arrange a convenient time to pick up the labels for mailing. Thank you very much for your assistance.

Sincerely,

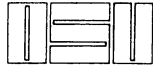

JUDITH F. KAUTZ

Research Student

1 Atch
Cover Letter and Questionnaire

APPENDIX B

QUESTIONNAIRE ON COMPUTER PRIVACY



Oklahoma State University

COLLEGE OF HOME ECONOMICS
Department of Housing, Design and Consumer Resources

STILLWATER, OKLAHOMA 74078
HOME ECONOMICS WEST BUILDING
(405) 624-5048

The use of personal computers grows more widespread. Also gaining popularity is participation in an interactive system, using a device such as a modem to communicate with other computers. The attached questionnaire is designed to look at attitudes of computer owners about privacy, and to compare concerns of owners who participate in an interactive system with those who do not. The study is in partial fulfillment of a Master of Science degree from Oklahoma State University.

Please take a few minutes from your busy schedule to fill out and return the questionnaire. Those who responded in a preliminary trial averaged only 10 minutes to complete it. Your response will help to insure the study results are accurate.

The questionnaire is completely anonymous; your name will not be associated with any part of it or with the results of the study. All your responses will be kept strictly confidential.

A stamped, self-addressed envelope has been enclosed for your use. Please complete the questionnaire at your earliest convenience and return it by October 5. Thank you very much for your assistance.

Sincerely,

JUDITH F. KAUTZ
Research Student

QUESTIONNAIRE ON COMPUTER PRIVACY

1. Do you use a personal computer at home?
☐ no [Go to question 11]
☐ yes [Continue to next question]
2. Do you have a modem or other type of device for communicating with other computers?
☐ no [Go to question 10]
☐ yes [Continue to next question]
3. Do you use your computer as an extension of an office or business computer to work at home via the modem?
☐ no
☐ yes
4. Do you participate in an electronic bulletin board, an information service such as CompuServe, The Source, or any other system in which you interact with other computers?
☐ no [Go to question 10]
☐ yes [Continue to next question]
5. Check the following groups in which you participate:
☐ information service (like The Source or CompuServe)
☐ electronic bulletin board
☐ electronic banking
☐ home security system
☐ other, please specify _____
6. Specify the method required to gain access to your interactive system:
☐ free access
☐ password
☐ other, please specify _____
7. Approximately how many hours in a 24 hour period do you interact with other computers in your system?
☐ less than 1 ☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10 or more
8. How concerned are you about the privacy of your files in your interaction with other computers?
☐ not concerned at all
☐ somewhat concerned
☐ very concerned

9. How much did you consider the privacy and security of your information when you joined an interactive system?

- ☐ not at all
- ☐ considered somewhat
- ☐ considered a great deal

10. If you do not have a modem or participate in an interactive system, how much did the privacy/security issue impact your decision not to join such a group?

- ☐ did not affect decision. Why? _____
- ☐ was one of several reasons
- ☐ was the main reason

11. There have been a number of incidents recently where a group of people gained access to large mainframe computers using their personal computers and modems connected to telephones. Do you believe this unauthorized access is a violation of personal privacy?

- ☐ no
- ☐ yes
- ☐ no opinion

12. Should laws be enacted to make this type of access a punishable offense?

- ☐ no
- ☐ yes
- ☐ no opinion

13. What is your age? _____

14. What is your educational level? _____

15. What is your occupation? _____

Thank you very much for participating in this survey. Please return your completed questionnaire in the stamped envelope provided. If you wish information on the results of this survey, place your name and return address in the left hand corner of the envelope in which you return your questionnaire. Results will be mailed to you after they are tabulated. Your name will not be used or associated with survey results. PLEASE MAIL SURVEY TO:

Judith Kautz
5205 SE 53
Oklahoma City, OK 73135

VITA 2

Judith Fern Rush Kautz

Candidate for the Degree of
Master of Science

Thesis: ATTITUDES OF SELECTED COMPUTER OWNERS ABOUT
PRIVACY, SECURITY, AND THE INTERACTIVE COMPUTER
SYSTEM

Major Field: Housing, Interior Design and Consumer Studies

Biographical:

Personal Data: Born in Tulare, California, the oldest
child of Vicie Margaret Caudle Rush and Warren
Rush. Married to Ronald Eugene Kautz.

Education: Graduated from Tulare Western High School,
Tulare, California in 1965; received the Bachelor
of Arts degree in English from Fresno State Uni-
versity in 1969; received the Secondary Teaching
Credential in 1970 from University of California;
completed requirements for the Master of Science
degree in Housing, Design and Consumer Resources
at Oklahoma State University in December, 1984.

Professional Experience: High school instructor of
English, La Mirada, California, 1970-72; High
school instructor of music, Department of Defense
Schools, Okinawa, Japan, 1973-74; United States
Air Force Officer, 1978 to present.

Professional Organizations: American Association of
University Women, Air Force Association, Mu Phi
Epsilon, National Association of Female Execu-
tives, National Council for Teachers of English.

Honors: Phi Kappa Phi, Outstanding Young Woman of
America, 1983 and 1984, Manager of the Year,
1980 and 1981.