AN ABSTRACT OF THE THESIS OF

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Title: CYBERPHOBIA: ATTITUDES TOWARDS AND KNOWLEDGE OF COMPUTERS IN COLLEGE STUDENT AND EMPLOYEE MALES AND FEMALES.

Abstract approved: A. Joy Caldwell-Colbert

This study investigated attitudes towards computers using the Computer Attitude Scale (CAS) which consisted of three subscales (Anxiety, Confidence and Liking). The study also investigated knowledge of computers using a Computer Knowledge test. Subjects were 93 college students, 42 males, 51 females; and 35 employees, 17 males, 18 females. Average age for student males was 22 years old and student females 21 years old. Average age for employee males was 44 years old and 39 years old for employee females. Results of the two-way gender (male, female) x classification (student, employee) ANOVA indicated a significant difference between the scores of the Computer Confidence Subscale on gender (F (1, 124) = 4.196, $p < .05$). A significant difference was also revealed between gender and classification (F (1, 124) = 3.838, $p < .05$). No statistical significance was found for the dependent variables Computer Anxiety Subscale, Computer Liking Subscale, and the Computer Knowledge test.

Newman-Keuls post hoc analysis for pairwise comparisons of means for the Computer Confidence Subscale revealed that female employees were significantly ($p < .05$) more confidence than male employees.

Pearson Product Moment Correlation Coefficients indicated numerous significant negative correlations and positive relationships between the three attitude subscales and knowledge test. It was concluded that high or low attitudes and high or low knowledge can be determinants in positive or negative interactions with computers for both college students and employees. The implications of this study were discussed in regards to future research and training and development programs for those with cyberphobia.

CYBERPHOBIA: ATTITUDES TOWARDS AND KNOWLEDGE OF COMPUTERS IN COLLEGE STUDENT AND EMPLOYEE MALES AND FEMALES

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CHAPTER 1

INTRODUCTION

Computers are becoming more widely used everyday in almost every field: accounting, biology, psychology, law, medicine, languages, business, and many more. "Basically, computers are tools for storage, retrieval, organization, and manipulation of large amounts of information" (Rubin, 1983, p.55). Society is living in the age of the Computer Revolution. This new technology of computers has caused people to have different reactions. It is the nature of people in general to oppose change. Some people embrace computers while others reject them. Those who fear computers experience cyberphobia. People consider women to be more fearful than men toward computers (Dambrot, Watkins-Malek, Silling, Marshall & Garver, 1985). Another assumption people make is that the younger population is less fearful about computers than the adult population (Stoler, 1984).

Berkeley (1962) states that our civilization which is growing technologically and industrially has produced a tremendous growth in the information we handle and operate. These technologies provide the push, the energy, the urgency behind the great development of the automatic handling of information, expressed in computing and data-processing systems, which is the Computer Revolution. The

Computer Revolution is apparently advancing much more rapidly than did the Industrial Revolution. Hence, it presents new problems at a far more rapid pace (Hamming, 1972).

The idea of an automatic machine which would not only add, subtract, multiply, and divide, but also perform a sequence of steps automatically, was probably first conceived in 1812 by Charles Babbage, a professor of mathematics at Cambridge University, England. He set out to build an automatic computer, which he called a difference engine because he intended to use the machine to compute mathematical tables by adding differences (Berkeley, 1962).

Although computers may simplify and speed tasks, some people reject them. A person required to use computers may develop cyberphobia. Harris (1985) defined cyberphobia as the excessive fear of new computer technology. Harris further states that cyberphobia may be accompanied by feelings of severe anxiety, hostility and resistance.

Individuals have different fears towards computers. Stoler (1984) reported fear of the unknown, fear of change, and fear of the new may be found largely in those who do not know much about computers and who therefore have unrealistic notions of what they are and what they can do. Stoler further states that millions of Americans suffer from fear of computers. In many cases, the technological

revolution is moving too fast for people to understand, they feel out of control, left out, confused and anxious. People fear that they will not be able to fit into the new world that is taking shape around them; and they fear that they are losing control of their own lives and destinies. The computer's fast introduction into the workplace is recognized as a major cause of work-related stress. As more and more computers are introduced into offices and factories more workers doubt their abilities to learn the new skills they will need to keep their jobs.

Bloom (1985) states that some fears about computers result from lack of facts about the computer's capabilities. Most of the remaining fears stem from lack of success in training and in working with computers.

In contrast to the fears identified by Stoler (1984), Bloom (1985) cites the following additional fears towards computers: breaking the computer or making costly errors. People feel that incorrect commands will "crash" the system or that valuable data will be lost forever. Some people fear looking stupid, looking awkward when using unfamiliar equipment, or looking stupid for having to ask questions. Users feel frustrated from "beeps" and error messages. In working with a computer, users will get upset about comparisons between the way computers "think" and the way human beings think. Lastly, the lack of time leads many to

fear and think that they do not have the time to learn to use the computer correctly.

In a study by Toris, (1984) 11 faculty and professional staff and 17 students who were randomly selected responded to the Perspectives on Computers Questionnaire Part II (Computer Knowledge) which is an instrument consisting of 15 items. Subjects may respond to the items as True/False or Don't Know. Both faculty and students scored quite high on the computer knowledge test (91.5% and 86.6% correct, respectively), faculty responded to considerably more questions overall than did students (4.8% versus 28.6% "don't knows") suggesting that while students at least "know what they don't know", faculty know more about computers at an introductory level.

One assumption people have is that women are more fearful of computers than men. Research by Dambrot, et al. (1985) supports this assumption. By researching 901 student volunteers (559 females, 342 males) from a midwestern university, they found that females felt more threatened and intimidated by computers and had more fear of computers. When compared with men these women believed that computers were more complicated, made mistakes, and controlled too much of our lives. Males agreed that computers would save them time, be enjoyable, and were superior to humans in processing information. More males indicated that they were in agreement with buying a home

computer.

Dambrot, et al., (1985) stated, "... there is every reason to believe that people in general and women in particnlar who have had problems with mathematics will find working with computers even more difficult and threatening" (p. 71). These researchers believe that women have been and still are severely disadvantaged in professional careers due to their lack of mathematic skills and that women hold more negative attitudes towards computers.

Loyd and Gressard (1984), administered the Computer Attitude Scale (CAS) to 354 students (137 males, 217 females) from different backgrounds and academic interests. The CAS is an instrument whicb measures attitudes toward learning about and using computers. The instrument provides for scores on three subscales: Computer Anxiety, Computer Confidence, and Computer Liking. Loyd and Gressard fouud no evidence to indicate differences between sex groups in computer attitudes. They suggested that Computer Anxiety, Computer Confidence, and Computer Liking are all quite similar for males and females. Another study by Gressard & Loyd (1985) suggested that the Computer Attitude Scale is a convenient, reliable and valid measure of computer attitudes, and that it can be confidently and effectively utilized in research and program evaluation contexts.

It is believed that adults are more fearful of computers than younger generations. Some research has focused on college and high school students. Stoler (1984) stated that "adults may be intimidated or terrified by computers aud by their impact; but young people, especially those born after 1965, seem to take to the new machines with an ease that their elders find both fascinating and frightening, and adapt quickly to the new technology" (p. 6). Stoler believes that these differences may be due to the fact that today's youngsters are growing up with the computer. Adults may see the machines as complex, often incomprehensible devices that will first take over their jobs and then their lives.

Cyberphobia may be a short lived problem or may be here to stay. If those youth involved with computers feel more comfortable than adults who have not grown up with computers, then it could be assumed that knowledge and early familiarity of computers could be a major asset in combating problems like cyberphobia. Anderson (1983), reported that "the only way to conquer fear of computers is to get to know them" (p. 118). The preceeding review of studies indicates the limited information on cyberphobia and points to the need for further examination of the problem, especially in the adult population and in regard to gender differences. By examining college students who

may, or may not have taken a computer class, and employees who either may, or may not have a computer in their employment, the present study allowed for more indepth examination of the presence of cyberphobia, or fear of computers. Results of this study also provide needed information in the area of training. Knowing the level of anxiety towards and knowledge of computers can help determine several approaches on how to deal with cyberphobia and how to effectively train people to work with computers.

The purpose of the present study was to investigate the attitudes towards and knowledge of computers in college student and employee males and females. This study examined the following three hypothesis: Attitudes towards computers are correlated with knowledge of computers. A student college population is less fearful of computers than the employee population. There are differences between employee aud college student males and females in knowledge and attitudes towards computers.

CHAPTER 2

METHODS

Subjects

The total number of subjects tested was 128. In November, 93 students (42 males, 51 females) from Introduction to Teaching, Introduction to Psychology, and Principles of Management classes from Emporia State University were tested by the author during their regular scheduled classes. Ten students were excluded from the study due to missing data. In the same month of November and early December, 35 employees (17 males, 18 females) from the Memorial Union Corporation at Emporia State University and two organizations in the Emporia area, the Optimist Club and the Credit Women International were tested by the author at their regular work setting and organizational meetings respectively. Participants were asked to voluntarily participate in the study.

Dependent Measures

Computer Attitude Scale. Anxiety was measured with the Computer Attitude Scale (CAS) (Gressard & Loyd 1985)(see Appendix A). The CAS has three subscales: The Computer Anxiety Scale consisting of 9 items, the Computer Confidence Scale consisting of 10 items, and the Computer

Liking Scale consisting of 10 items. The CAS is a Likert-type instrument. Subjects indicated which one of four ordered responses, ranging from "strongly agree" and "strongly disagree", most closely represented the extent to which they feel about computers. The item responses are coded and transformed so that a higher score corresponds to a higher degree of anxiety, confidence, and liking and a lower score corresponds to a lower degree.

Computer Knowledge Test. Computer knowledge was measured with the Computer Knowledge test of the Perspectives on Computers Questionnaire Part II (Toris, 1984). The Computer Knowledge test is an instrument consisting of 15 items. Subjects responded to the items as True/False or Don't Know (see Appendix B). While standardization norms have not been established for this test, it was constructed on the basis of the information presented in a college level introduction to computing text. An accurate assessment of computer knowledge is encouraged by permitting a subject to iudicate when (s)he does not know or would be guessing the answer.

Procedure

A packet consisting of three sections was distributed by the experimenter to volunteer subjects. Sections of the packet were: Demographic questionnaire, Computer Attitude

Scale and the Computer Knowledge test. The questionnaires were distributed to students in their regular classrooms while testing the college student population and in regular organizational meetings and work setting while testing the employee population. It took approximately 20 minutes for subjects to complete all questionnaires.

At each session, the author introduced herself to subjects. Then the experimenter explained to subjects that they would be filling out three questionnaires about computers. They were instructed to then read and sign the consent form. Subjects were told that their responses were confidential. If they had no questions the experimenter distributed packets which contained all questionnaires, instructing subjects not to turn pages until told to do so. After all materials had been distributed, the experimenter instructed subjects to complete the demographic questionnaire which contained the following items: age, sex, occupation, and computer background (see Appendix C).

Once subjects had completed the demographic questionnaire, they were instructed to complete the Computer Attitude Scale and the Computer Knowledge test. The author read the printed instructions aloud, while subjects read to themselves.

CHAPTER 3
RESULTS

Demographic Data

Demographic data from the populations indicated a mean age of 22 years old for male college students, 21 years old for female college students, 44 years old for employee males, and 39 years old for employee females. For those subjects who responded to the ethnic group question, 96 were caucasians, 3 were blacks, 9 were orientals and 2 were hispanics. All female employees, 92.16% of student females, 92.86% of student males, and 58.82% of male employees reported they had experience with computers. The majority of the students reported they have taken an Introduction to Computers class and that they knew BASIC programming, while the majority of the employees reported that they have not taken a computer class and that they did not know a computer language. Twelve of the eighteen female employees and four of the seventeen male employees indicated they were required to use a computer at work. Majors of male and female students were diversified and included the areas of: accounting, business administration, management, engineering, marketing, financing, psychology, recreation, data processing, industrial technology, business education, computer science, industrial education, elementary education, secondary education, office

administration, biology, music merchandising, criminology, pre-nursing, and also undecided students who have not declared a major interest of study. Occupations for male and female employees were also diversified. Occupations included the areas of: sales, letter carrier, auto mechanic, turnpike toll collector, operations manager, statistician, graphic designer, director-manager, coordinator-manager, supervisor, university administrator, clerk, credit manager, office manager, bank clerk, internal auditor, bookkeeping, general manager, public relations, and secretary.

Experimental Design

Results were analyzed using a two-way gender x classification completely randomized analysis of variance (ANOVA) for each dependent variable. The dependent variables were the Computer Attitude Scale (CAS) consisting of three subscales: Computer Anxiety, Computer Confidence, and Computer Liking, and the Computer Knowledge Test. Each subscale of the Computer Attitude Scale was analyzed separately using a two-way completely randomized analysis of variance. The independent variables were college student population with two levels, male and female; and employee population with two levels, male and female.

Computer Attitude Scale

Mean scores and standard deviations for subjects

responses to the Computer Attitude Scale and the Knowledge Test are contained in Appendix D.

Computer Anxiety Subscale. Results of the two-way analysis of variance (gender x classification) on the computer anxiety subscale yielded no significant differences (see Table 1). Mean scores indicated that student females had more anxiety towards computers than student males, and male employees had more anxiety towards computers than female employees. Nevertheless, these means were not found to be significantly different.

Table 1

ANOVA Summary Table for Computer Anxiety Subscale by Gender and CIassification

Source	SS	DF	MS	F	P
GENDER	29.660	1	29.660	1.240	.266
CLASSIFICATION	16.516	1	16.516	.690	
GENDER X CLASS.	50.056	1	50.056	2.092	.146
ERROR	2967.248	124	23.929		

Computer Confidence Subscale. Results of the two-way analysis of variance (gender x classification) on the computer confidence subscale, yielded a significant difference on gender (F (1, 124) = 4.196, $p < .05$). A significant gender by classification interaction was also found (F (1, 124) = 3.838, $p < .05$) (see Table 2). This interaction is shown in Figure 1 and illustrates that female employees were more confident than male employees.

Table 2

ANOVA Summary Table for Computer Confidence Subscale by Gender and Classification

SOURCE	SS	DF	MS	F	P
GENDER	124.367	1	124.367	4.196	.040*
CLASSIFICATION	11.243	1	11.243	.379	
GENDER X CLASS.	113.751	1	113.751	3.838	.049*
ERROR	3675.032	124	29.637		

* $p < .05$

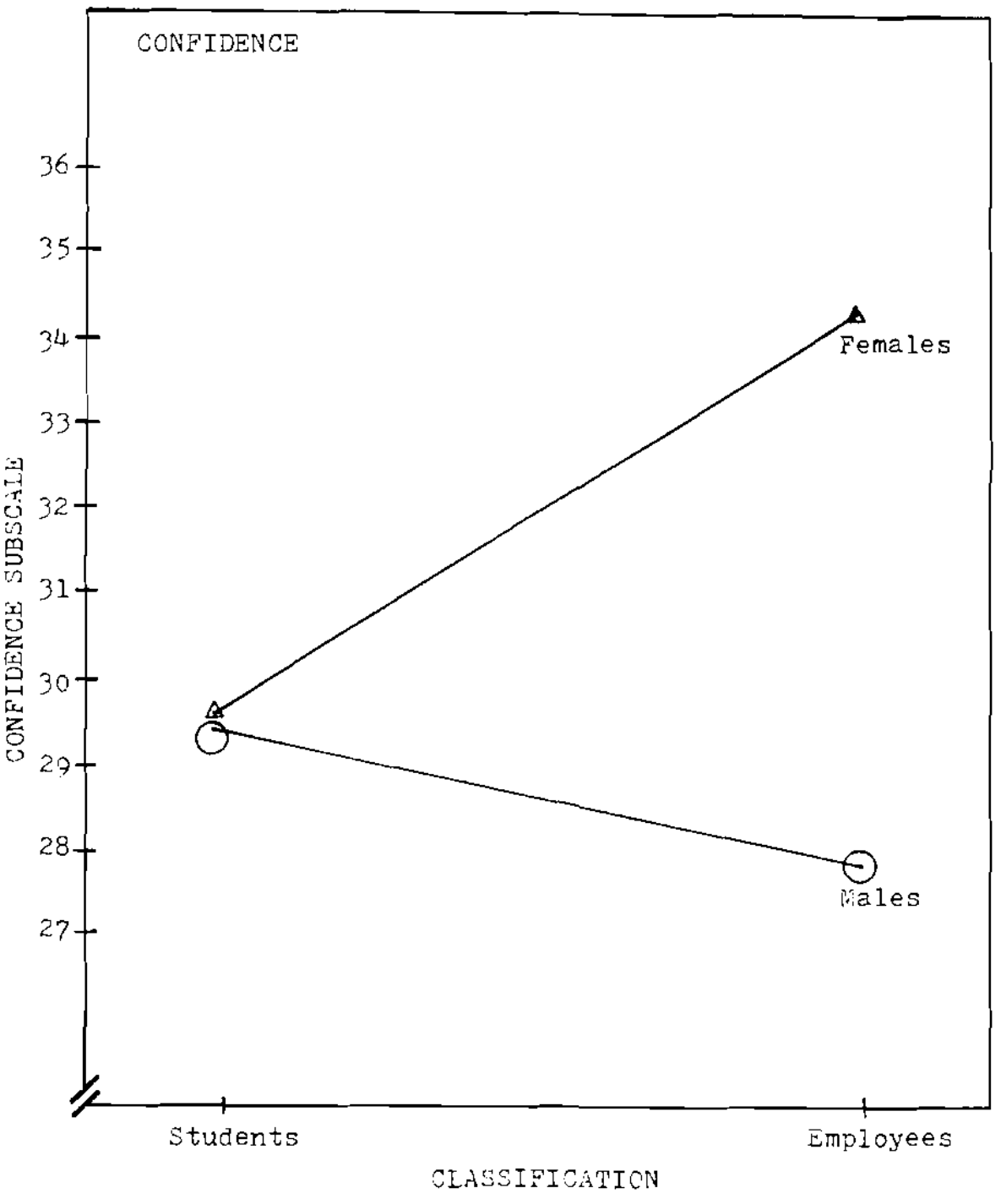

Figure 1. Mean scores for Computer Confidence Subscale

When the Newman-Keuls procedure was computed for pairwise comparisons of means for the computer confidence subscale, female employees were found to have significantly ($p < .05$) more confidence than male employees (see Table 3).

Table 3

Means and Mean Differences for

Computer Confidence Subscale

	Female Employees (32.33)	Female Student (29.55)	Male Student (29.45)	Male Employees (28.00)
Female Employees (32.33)	---	2.78	2.88	4.33*
				CV4=4.00
Female Student (29.55)		---	0.10	1.55
				CV3=3.66
Male Student (29.45)			---	1.45
				CV2=3.05
Male Employees (28.00)				---

*$p < .05$

Computer Liking Subscale. Results of the two-way analysis of variance (gender x classification) on the computer liking subscale indicated no significant differences (see Table 4). Mean scores indicated that female employees liked computers more than male employees, and student females liked computers more than student males. Nevertheless, the means were not found to be significantly different.

Table 4

ANOVA Summary Table for Computer Liking Subscale by Gender and Classification

SOURCE	SS	DF	MS	F	P
GENDER	51.009	1	51.009	1.799	.179
CLASSIFICATION	76.066	1	76.066	2.682	.100
GENDER X CLASS.	1.520	1	1.520	.054	
ERROR	3516.524	124	28.359		

Computer Knowledge Test

Results of the two-way analysis of variance (gender x classification) on the computer knowledge test indicated no significant differences (see Table 5). Mean scores indicated that student males have more knowledge of computers than student females, and female employees know more about computers than male employees. Nevertheless, the means were not found to be significantly different.

Table 5

ANOVA Summary Table for Computer Knowledge Test by Gender and Classification

SOURCE	SS	DF	MS	F	P
GENDER	12.589	1	12.589	.859	
CLASSIFICATION	51.851	1	51.851	3.537	.059
GENDER X CLASS.	21.322	1	21.322	1.455	.228
ERROR	1817.734	124	14.659		

Relationships Between Measures (Correlation Coefficient)

All correlations were significant at either the .05 or .01 levels of probability. Anxiety was negatively correlated to confidence, liking and knowledge. More specifically, Pearson Product Moment Correlation Coefficient reported in Table 6 indicated a significantly negative relationship ($p < .01$) between scores on the Computer Anxiety subscale and the Computer Confidence subscale. The negative correlation between Computer Anxiety and Computer Liking subscale scores was also found to be significant ($p < .01$). The Computer Anxiety subscale was negatively related with the Computer Knowledge test ($p < .05$). The Computer Confidence subscale was positively correlated to both the Computer Liking subscale and the Computer Knowledge test and both were significant at the $p < .01$ level. Finally, a significant positive relationship was found between the dependent variables Computer Liking subscale and the Computer Knowledge test ($p < .05$).

Table 6

Correlation Matrix for

Dependent Variables

	Anxiety	Confidence	Liking	Knowledge
Anxiety	---	-.84**	-.72**	-.20*
Confidence		---	.82**	.25**
Liking			---	.21*
Knowledge				---

*$p < .05$

**$p < .01$

CHAPTER 4

DISCUSSION

Cyberphobes are those people who have an unrealistic or abnormal anxiety toward computers. Some variables that might influence cyberphobia are computer anxiety, liking, confidence and knowledge. The intent of this study was to investigate attitudes towards and knowledge of computers in college student and employee males and females. Results of this study refute assumptions that females are more anxious toward computers than males. Results support the necessity for further study in the area of cyberphobia and the utilization of assessment devices to identify strengths and training needs in those who will be involved with computers.

While Loyd and Gressard (1984) and Toris (1984) examined attitudes and knowledge separately as they relate to computers, this study examined the relationship of these variables in determining cyberphobia in male and female students and employees. As hypothesized, results indicated that attitudes toward computers are correlated with knowledge of computers, thus supporting the first hypothesis.

Correlation coefficients revealed negative and positive relationships between measures. Negative relationships suggested that when subjects' anxiety level was high,

confidence, liking and knowledge was low, whereas subjects whose anxiety level was low tended to have high confidence, liking and knowledge. Positive relationships suggested that when computer confidence was high, liking and knowledge was also high. When subjects' computer liking and knowledge was low, confidence was also low. The more subjects liked computers, the more they knew about them. For others, the less they liked computers, the less they knew about them. It can be concluded that high or low attitudes and high or low knowledge can be as useful methods to assess an individual's predisposition to a computer at work or in a college class.

Stoler's suggestion in 1984 that adults are more fearful of computers than younger generations lead to the second hypothesis addressing fear of computers based in populations reflecting age differences. That is, a college student population should be less fearful of computers than the employee population. More directly stated, the older generation would be more afraid of computers. However, results from the two-way ANOVA on all dependent variables failed to indicate any significant differences on classification, that is college students versus employees. A closer examination of the demographic data did indicate a mean age difference between groups. However, all female employees and many students had experience with computers, and almost all of female employees were required to use

computers at work. The exact influence of these factors are unclear and future research may want to control for prior experience and knowledge. Hence, the assumption of generation differences proported by Stoler (1984) and the second hypothesis can not be advocated by this study.

Previous research by Dambrot, et al. (1985) that females more than males have negative attitudes towards computers lead to the third hypothesis, that is, there would be differences between employees and college student males and females in knowledge and attitudes toward computers. However, results from the two-way ANOVA on the dependent variables failed to indicate gender differences on the Computer Anxiety subscale, Computer Liking subscale, and the Knowledge test. On the contrary, this study found a significant interaction when focusing on the Computer Confidence subscale. Female employees had significantly more confidence towards computers than male employees, thus, partially supporting the third hypothesis.

As previously discussed, findings from demographic data may have influenced these results. For example, all female employees had experience with computers while only a little over half of the male employees had experience with computers. On the other hand, in support of results favoring gender differences, groups of females have had a casual introduction to computers with word processors that perhaps males have not had. Computer technology is

transforming traditionally female, monotonous jobs (e.g., secretarial, bookkeeping positions) into more automated, rewarding and exciting experiences. These experiences provide women with new, valuable computer skills. Twelve of the eighteen female employees, and only four of the seventeen male employees indicated they were required to use a computer at work. These results suggest that more women than men are using computers at work. While the majority of the employees reported that they have not taken a computer class aud that they did not know a computer language, they are probably learning how to interact with computers on the job. Therefore, well designed on-the-job training methods are very important.

With the increasing number of computers being introduced to the work place, it is necessary to learn about the attitudes of people who will be trained, or retrained to work with this new technology. This study suggests that both the younger and older generation sample is prepared to enter the automated work place. Even more, they don't seem to have high anxiety, or fears about computers. These research findings yielded evidence to support that females as well as males are mastering computers. Thus, males and females might be equally competent to succeed in an increasingly automated work place.

In conclusion, these results were based on a small

midwestern population. Therefore, further research is suggested in larger metropolitan areas. Future research should also address math anxiety related with computer attitudes in an effort to dispell possible myths about female's and older generations' fears of the new technology.

As suggested, cyberphobia has only been recently introduced. This study presented support for a relationship between attitudes and knowledge towards computers and contributes to a better understanding of how people feel about using computers which can be translated into needed assessment and training and development programs. It also indicates the need for further research in the area with other populations which may necessitate specialized training programs if cyberphobia exists.

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APPENDICES

APPENDIX A: COMPUTER ATTITUDE SCALE

Computer Attitude Scale

Instructions: Using the numbers from 1 to 4 on the rating scale given below, please circle the number that best describes how you feel about each statement.

1 = Strongly Disagree
2 = Disagree
3 = Agree
4 = Strongly Agree

Computer Anxiety Subscale

1 2 3 4	Computers do not scare me at all.
1 2 3 4	Working with a computer would make me very nervous.
1 2 3 4	I do not feel threatened when others talk about computers.
1 2 3 4	It wouldn't bother me at all to take computer courses.
1 2 3 4	Computers make me feel uncomfortable.
1 2 3 4	I would feel at ease in a computer class.
1 2 3 4	I get a sinking feeling when I think of trying to use a computer.
1 2 3 4	I would feel comfortable working with a computer.
1 2 3 4	Computers make me feel uneasy and confused.

Computer Confidence Subscale

1	2	3	4	I'm no good with computers.
1	2	3	4	Generally, I would feel OK about trying a new problem on the computer.
1	2	3	4	I don't think I would do advanced computer work.
1	2	3	4	I am sure I could do work with computers.
1	2	3	4	I'm not the type to do well with computers.
1	2	3	4	I am sure I could learn a computer language.
1	2	3	4	I think using a computer would be very hard for me.
1	2	3	4	I could get good grades in computer courses.
1	2	3	4	I do not think I could handle a computer course.
1	2	3	4	I have a lot of self-confidence when it comes to working with computers.

Computer Liking Subscale

1	2	3	4	I would like working with computers.
1	2	3	4	The challenge of solving problems with computers does not appeal to me.
1	2	3	4	I think working with computers would be enjoyable and stimulating.
1	2	3	4	Figuring out computer problems does not appeal to me.

1 2 3 4 When there is a problem with a computer run that I can't immediately solve, I would stick with it until I have the answer.

1 2 3 4 I don't understand how some people can spend so much time working with computers and seem to enjoy it.

1 2 3 4 Once I start to work with the computer, I would find it hard to stop.

1 2 3 4 I will do as little work with computers as possible.

1 2 3 4 If a problem is left unsolved in a computer class, I would continue to think about it afterward.

1 2 3 4 I do uot enjoy talking with others about computers.

APPENDIX B: COMPUTER KNOWLEDGE TEST

Computer Knowledge Test

Instructions: Identify each of the following statements below as "true" or "false" by circling the appropriate letter. If you find that you are guessing the answer, circle "don't know".

T	F	don't know	1.	One way to enter data into a computer is to use punched cards.
T	F	don't know	2.	In the late 1950's, solid state transistors replaced vacuum tubes in computers. Integrated circuits have since replaced transistors.
T	F	don't know	3.	A microprocessor is another name for home computer.
T	F	don't know	4.	A CRT terminal has a television-like screen. The user can provide input at a keyboard that is displayed on the CRT as well as receive output at the same terminal.
T	F	don't know	5.	The process of writing a program for a computer is called "debugging".
T	F	don't know	6.	FORTRAN, BASIC, and PASCAL are all names of computer programming languages.
T	F	don't know	7.	The central processing unit (CPU) is the heart of the computer system.
T	F	don't know	8.	Data are represented in the computer in binary digits.
T	F	don't know	9.	Data for the computer can be stored on magnetic tape.
T	F	don't know	10.	The term "online" refers to the time a computer system is not working because of equipment problems.
T	F	don't know	11.	Floppy discs are designed to be used with a mini-computer.
T	F	don't know	12.	"Software" refers to the pliable silicon components inside a computer.

T	F	don't know	13.	Word processing simply means writing with a computer.
T	F	don't know	14.	Units of work to be processed by a computer are referred to as "jobs".
T	F	don't know	15.	A remote terminal is the final output printed by a computer after it completes a program.

APPENDIX C: DEMOGRAPHIC QUESTIONNAIRE

Demographic Questionnaire

Please answer all of the following items.

1. What is your age? _____

2. What is your sex? (circle one) Male Female

3. What is your ethnic group? _____

4. What is your present occupation and/or major area of study? _____

5. How many years of formal education have you completed? (circle one)

High School				College				Post-Grad		PhD	
9	10	11	12	13	14	15	16	17	18	19	20

other (specify) _____

6. Have you ever used a computer? yes_____ no_____

7. Which computer classes have you taken?

8. Which computer language(s) do you know?

9. Do you have a computer at home? yes_____ no_____

10. Do you use a computer at home? yes_____ no_____

11. Are you required to use a computer at work? yes__ no__

12. If you had experiences with computers, how would you describe those experiences (circle one).

1	2	3	4	5
very negative				very positive

13. In general, how would you describe yourself? (circle one)

1	2	3	4	5
very shy				very outgoing

APPENDIX D: MEAN SCORES AND STANDARD DEVIATIONS FOR SUBJECTS RESPONSES TO THE COMPUTER ATTITUDE SCALE AND THE KNOWLEDGE TEST

Mean Scores and SD for Subjects Responses to the Computer Attitude Scale and the Knowledge Test

Subjects	Attitude and Knowledge (in Ms and SD)							
	Anxiety		Confidence		Liking		Knowledge	
	M	SD	M	SD	M	SD	M	SD
Students								
Males n=42	17.17	5.19	29.45	5.70	27.57	5.99	10.52	3.43
Females n=51	17.49	4.75	29.55	5.21	28.75	5.18	8.90	3.82
Employees								
Males n=17	17.76	4.74	28.00	5.15	29.06	4.37	8.18	5.36
Females n=18	15.28	4.71	32.33	5.73	30.72	4.86	8.39	2.91