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An investigation of communication technology usage, professional development experience, and anxiety among faculty in a community college setting

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AN INVESTIGATION OF COMMUNICATION TECHNOLOGY USAGE, PROFESSIONAL DEVELOPMENT EXPERIENCE, AND ANXIETY AMONG FACULTY IN A COMMUNITY COLLEGE SETTING

By

Linda Barnes-Pates

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The purpose of the study was to determine if the use of communication technologies account for reported computer anxiety in a community college setting. Specifically, this study was designed to determine whether there was a difference in usage of communication technologies and levels of computer anxiety of faculty in relationship to their job responsibilities, gender, age, computer experience, and number of professional development activities.

A descriptive research design was used in this study. Data analysis included the frequencies, means, standard deviations, t-test, crosstabs, chi-square, ANOVA, and ANCOVA.

The results indicated that there was not a significant difference among faculty in relation to job responsibility, gender, age, computer experience, and professional development and their level of anxiety toward the use of communication technologies.

The findings of this study led to the conclusions that job responsibility, gender, age, and computer experience were not a statistically significant predictor of computer anxiety. Also, professional development did not influence computer anxiety or the computer skills of the faculty.

On the basis of this study, it is recommended that: (1) administrators seek input from faculty for professional development, and (2) due to emerging technologies, establish another survey for current computer skills that may cause computer anxiety.

DEDICATION

I would like to dedicate this research to my Lord and Savior, Jesus Christ and to my biological and church family, friends, coworkers and members of the usher ministry. Thank you for encouraging me to stay the course and complete this milestone.

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I owe all of the gratitude to Jesus for uplifting me in spirit when I thought I would not make it. Without prayer and supplication, I would have given up. It is with God's mercy and grace that I made it. Glory to God! Thank you, Lord! Thank you family and friends.

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CHAPTER I

INTRODUCTION

In the academia workplace there is a large list of communication technologies that has given employees many avenues for getting their jobs done. However, many employees still wonder how productive they would be without these technological advances ((Weil & Rosen, 1997). Employees who use the technologies are overwhelmed, burdened, and stressed by its presence in the workplace.

Employees are feeling frustrated by the pace in which they are required to learn and adapt to new technologies (Weil & Rosen, 1997). Once employees learn one new thing, there is something else that they must learn (Khawaja 2002). The demands created by technological advances have caused increased stress and anxieties in the workplace. For example, some of the problems are e-mail information overload, a fear of data loss, and a steady need to remain "connected" (p. 1). Technology supplies organizations with the ability to dispense information much more rapidly than ever before. The term used to describe stress and anxiety when using technology is penned by Weil and Rosen (1997) as technostress, which is defined “as people’s reaction to technology and how they are changing due to its influence” (p. 1). Technology and its prevalent impact on the workforce has created strain on employees and others who must become proficient in its

use. Technology integrated into the workforce has led to stress and anxiety that affects not only employees' job performance and productivity, but also their lives outside of the workplace.

Incorporating technology as a part of one's everyday life is not easy. Many people accept it, while some avoid using it altogether (Wolski and Jackson, 1999; Shepherd, 2003). Before making a decision on whether to accept technology or not, people must look at the usefulness of the technology before accepting it to enhance their personal lives or their job responsibilities.

According to Allard (1999), when technology was becoming commonplace in the late 1980's, fear was on the minds and hearts of many. There was a small percentage of individuals who adopted technology, while there were a large number of persons who rejected it. Those who were eager to adopt technology believed that this innovation would make their jobs easier. Those who were uneasy believed that technology would replace their jobs. However, others concluded that they would never learn how to use technology because there would be too much to learn. Regardless of gender or age, many people feared the computer (Allard, 1999). Since people had this fear, this phenomenon was given the name computer anxiety.

In order to understand computer anxiety, the term anxiety must be defined. Anxiety is an abnormal and overwhelming sense of apprehension and fear often marked by physiological signs (such as sweating, tension, and increased pulse), by doubt concerning the reality and nature of the threat, and by self-doubt about one's capacity to cope with it (*Merriam-Webster's Online Dictionary,* 2007). The definition of computer anxiety is often linked to the term anxiety. Orr (1998) defined computer anxiety as the

fear of impending interaction with a computer that is disproportionate to the actual threat presented by the computer. According to Maurer and Simonson (1993) and Orr (1998), computer anxiety is fear and apprehension felt by an individual when considering the implications of utilizing computer technology or when actually using computer technology.

Choi, Ligon, and Ward (2002) investigated the prevalence of computer anxiety by the area of practice, hours of weekly use, access to equipment, and availability of training for social workers in South Carolina, Georgia, and North Carolina. Besides the extremely high negative correlation between elevated levels of computer anxiety and computers in the work environment, receiving computer-related training, and the frequency of computer use to do job-related tasks, the study revealed that over 60% of the workers experienced some form of computer anxiety. Levels of anxiety were found to be lowest for those who have computers in their work areas, received training, and use computers to accomplish job duties. Choi, et al (2002) acknowledged that ending this form of anxiety in social workers should be a main concern of government officials in the states examined.

Mikkelsen, Ogaard, Lindoe, and Olsen (2002) conducted a study in the production industry to investigate experiences of computer anxiety. The data analyses revealed that the job characteristics of decision authority and training were the most important determinants of computer anxiety. Job demands did not relate significantly to computer anxiety. Managers had less computer anxiety than non-managers.

Studies conducted by Martin, Stewart, and Hillison (2001) and Smith and Kotrlik (1990) found that cooperative extension staff experienced mild computer anxiety when

using computers to complete their routine daily everyday jobs. They also found that the variables of computer skill level, perceived typing skills, perceived mathematical ability, and hours of computer use per week explained a significant percentage of the variance in overall anxiety scores.

Weil and Rosen (2000) conducted five field studies on 3,129 full-time employees of a cross-section of companies in the urban Southern California area over a period of 49 months from October 1995 until November 1999. The participants in the studies were clerical/support staff and managers/executives who were surveyed separately. The findings revealed that in spite of the increased use of technology, rather than being excited and more accepting of new technology, people in the business world appeared to be more hesitant. This hesitancy reflects the increased stress brought about by use of technology in the workplace. Since technological changes in the nation have caused the occurrences of computer anxiety to exist among social workers, production industry workers, cooperative extension workers, and clerical/support staff and managers/executives, there are concerns that changes in society's expectations imply that school teachers need to be able to use computers in education with minimal anxiety (Russell & Bradley, 1997).

Computer anxiety has affected many teachers since the information age emerged almost a decade ago. This emergence changed the skills of teachers. Therefore, teachers should be willing to change their technological skills so that students will have the benefit of learning technology (Lynne, 2006). Consequently, educators have to find ways to adapt to technological change (Brand, 2000; Davis-Mills, 1998; Shepherd, 2003). Everyone involved in schools should find the role of technology for the purposes of:

(a) sharing new ideas and techniques for teaching and learning; (b) encouraging enthusiasm and innovativeness; and (c) learning about opportunities and challenges as well as, and how to deal with them (Landsberger, 2001; Shepherd, 2003).

From exploring the research on the term computer anxiety in schools, it is evident that first, there are numerous articles of research regarding students experiencing computer anxiety. Second, there is a vast amount of research on computer anxiety concerning elementary and secondary teachers. Lastly, limited research exist that explain the severity of computer anxiety on postsecondary faculty (Gilmore, 1998; Shepherd, 2003). However, there were no studies that examined the presence of computer anxiety among faculty in community college setting.

Statement of the Problem

Technological changes are very important in the educational world. Many of these changes cause computer anxiety. Even though there has been an influx of computers into schools over the past decade, there are still individuals who question whether the use of computers into K-12 settings has led to anxiety. Therefore, the lack of use of computers by faculty in the workplace may be limited due to anxiety (Alix, 2002).

Faculty in community colleges are experiencing computer anxiety as well. Thus, many faculty fear a threat to their jobs or feel the pressure and the necessity to re-educate themselves to overcome computer anxiety. Since there are limited studies in the literature that have examined computer anxiety for faculty in community colleges, the intent of the researcher was to explore the relationship between computer skills and the potential causes of computer anxiety among faculty in a community college setting.

Statement of Purpose

The purpose of the study was to determine if the use of communication technologies account for reported computer anxiety in a community college setting. Specifically, this study was designed to determine whether there was a difference in usage of communication technologies and levels of computer anxiety of faculty in relationship to their job responsibilities, gender, age, computer experience, and number of professional development activities.

Significance of Study

There has been an increase in expenditures on computers and communication technologies in the workplace to ensure that faculty become faculty more proficient and efficient in technology use. Several studies suggested that computer anxiety has an effect on faculties ability to use technology (Anderson, 2005; Broos, 2005; Collis, 1988; Gilmore, 1998). However, the literature is limited regarding computer anxiety in a community college setting. Therefore, a study is needed that addresses computer anxiety in postsecondary institutions, especially community colleges.

This study investigated how self-reported anxiety among community college faculty is related to job responsibilities, gender, age, computer experience, and professional development. The results of this study will be beneficial to faculty and students as they determine or not they will use communication technology for personal use and for classroom instruction purpose.

Research Questions

The following research questions were used for purposes of analysis and interpretation:

1. Is there a significant difference between faculty in job responsibilities and their level of anxiety toward the use of communication technologies?

2. Is there a significant difference between male and female faculty and their level of anxiety toward the use of communication technologies?

3. Is there a significant difference between faculty and their level of anxiety toward the use of communication technologies according to their age?

4. Is there a significant difference between faculty in relationship to their level of computer experience and their level of anxiety toward the use of communication technologies?

5. Is there a significant difference between faculty in relationship to their level of professional development activity and level of anxiety toward the use of communication technologies?

Limitations of the Study

The limitations for the study were as follows:

1. The sample in this study was drawn from a population of full-time faculty employed at one community college in the southeastern United States. Therefore, the findings in this study cannot be generalized beyond the population described.

2. The study was delimited to selected variables that might influence technology anxiety (e.g., job responsibilities, gender, age, computer experience, and professional development).

Definitions of Terms

The following definitions were used in this study:

Anxiety—an abnormal and overwhelming sense of apprehension and fear often marked by physiological signs (such as sweating, tension, and increased pulse), by doubt concerning the reality and nature of the threat, and by self-doubt about one's capacity to cope with it (Merriam-Webster's Online Dictionary, 2007)

Community college— two-year institution of higher education, generally public, offering levels of instruction adapted to the needs of the community. Offerings are vocational training and academic curricula (Mississippi State Board for Community and Junior Colleges, 2007).

Communication technology—information technology includes the use of computer applications such as word processing, spreadsheets, presentations, Internet searches, and electronic mail (e-mail) (Gilmore, 1998).

Computer anxiety—fear and apprehension felt by an individual when considering the implications of utilizing computer technology or when actually using computer technology (Maurer & Simonson, 1993; Orr, 1998).

Computer hassles—(also known as computer irritants or computer technology hassles)--stressors that come from interactions with computers, computer technology, the

impact of computers on society, or computer-generated information (Hudiburg, 1989a; Hudiburg, 1992).

Computer skills—knowledge or performance level when a person uses a computer (Shepherd, 2003).

Full-time faculty—employees working 35½ hours per week in a faculty position as defined in this setting.

Information and Communication Technology—word processing, spreadsheets, presentations, Internet searches, faxes, voice mail and electronic mail.

Information problems—(also known as computer information problems)--having little or no information or sometimes having too much information when trying to utilize computer technology.

Job responsibilities—program areas in which the participants work, number of years taught and years taught in current position by the participants.

Run-time problems—difficulties occurring while software applications are being used.

Severity Score—the score obtained from the Computer Hassle Survey-Revised (CHS-R) that indicated a number of ways in which the participants can feel hassled by computers and computer technology at work. This was used as a measure of computer anxiety across 39 items to yield the total severity score. The participants rated themselves as follows: 0 = not at all; 1 = rarely severe; 2 = moderately severe; and 3 = extremely severe.

Skills Score—the score obtained from the Computer Skills Survey (CSS) that rated the participants' skill level. This was used as a measure of computer anxiety across

24 items to yield the total skills score. The participants rated themselves as follows: 0 = no skill; 1 = low skill; 2 = medium skill; 3 = high skill; and 4 = expert skill.

CHAPTER II

REVIEW OF LITERATURE

The purpose of the study was to determine if the use of communication technologies account for reported computer anxiety in a community college setting. Specifically, this study was designed to determine whether there was a difference in usage of communication technologies and levels of computer anxiety of faculty in relationship to their job responsibilities, gender, age, computer experience, and number of professional development activities.

Communications Technologies and the Teaching Profession

According to Needham (2006), communications technologies have the potential to change the educational environment in the nation's schools. They also have the power to transform the roles of faculty in community colleges. Although this phenomenon is not occurring overnight the likelihood of it happening strikes fear in the heart of some faculty. As faculty approach communications technologies openly and expectantly progress in the direction of their ideals for improving education could occur more rapidly. In addition, many faculty see communications technologies as an opportunity for greater role differentiation and specialization. For example, some teachers might become actively involved in computer programming, media development, or distance learning. Since new technologies have the potential for spreading learning more pervasively throughout our

culture, there is the likely possibility of a greater need for faculty as educational specialists as technology use becomes more pervasive in the schools.

Computer Anxiety

Computer anxiety can be interpreted as resistance to change. Resistance as defined by Jorde (1985)"...is often a symptom of something else; fear of the unknown, fear of failure, or an unwillingness to alter the status quo" (p. 13). She suggested that, "Any attempt to understand the nature of resistance to a technological innovation such as microcomputers cannot ignore the power of emotions in regulating behavior (p. 7).

Faced with apprehension to use the latest technologies or innovations is not new in society. Since the dawn of the information age, people have been faced with the revolution of technology entering the scene. As early as 500 BC, mankind was trying to make the work of processing information easier with the start of the handheld abacus for counting numbers (Shepherd, 2003). Moreover, Frankel (1990) concluded technology has been in existence as long as there have been people. He reported that human development is the reason for progression of technological changes.

Brod (1984) argued that tools have always created great change within human societies." Brod further concluded that changes stems from one simple tool. Those lacking the skills to utilize the new technology are more than likely to experience anxiety about their place in the changing society.

Emmons (2003) suggested that at the college level, innovation meets with general resistance, faculty resistance, administrative resistance, and personal resistance. A description of general resistance includes the following: (a) change threatens secure

positions; (b) the patterns of interest groups are complex and difficult to assess; (c) the bureaucratic structure of the university makes power pluralistic rather than monolithic; (d) traditional academic values resist new concepts in curriculum, teaching styles, merit rewards, research priorities, and student-teacher relationships; (e) no tested methods for measuring success (or failure) of innovations; (f) little time for teachers to stay abreast of both subject matter and innovations in teaching methods; and (g) and the single most devastating resistance to change in academic programs organizational inertia. Faculty resistance therefore deserves consideration since policy has emerged in the departments of learning as a concept instilled with authority for regulating academic practices (p. 18-19).

Administrative resistance may be defined as (a) confusion about control, (b) no continued reappraisal of decision making styles, (c) no support for human resource development, (d) inadequate central structures for decision making (e) haphazard communication, (f) few management tools for change, (g) academic decisions follow simplistic models of policy execution, and (h) and unclear role definition in reorganizations have left the institution in a listing position between the dock of conservative tradition and the rough seas of innovation and economic scarcity. Most administrators have not been trained for their job responsibilities, especially in the academic affairs arena (Emmons, 2003, p. 19).

Finally Emmons (2003) described personal resistance as: (a) fear of disapproval and/or failure in front of peers or supervisors, (b) high cost-low return, (c) unclear purpose of the innovation, (d) no involvement of the affected persons in planning, (e) personal reasons formed the basis for the change, (f) habits of administrators and faculty

are ignored, (g) excessive work pressure, (h) job security anxiety, (i) threats to vested interest of faculty, (j) lack of trust and respect in the innovator;(k) satisfied with the status quo, and (l) poor or no communication. Personal resistance can be the greatest block for innovation.

The advent of the information age brought about the way people work, learn and play (Drake, 2000). As this force evolved, the people using technology also changed (Nelson, 1990). The terminology changed as well to fit the technological users. Since the world was in the information age, the concepts took on the name information technology or information and communication technology. Merriam-Webster (2007) defined the term information and communication technology (ICT) as the technology required for information processing.

Information and communication technology (ICT) became, within a very short period of time, one of the basic building blocks of modern society. Adaptation to technology was not simple. Some people accepted change while others refuse to accept change (Wolski & Jackson, 1999). Before individuals could embark using ICT, they wanted to know how this new technology would benefit them (Wolski & Jackson, 1999). Even though the information age is upon us, the biggest fear is whether or not people would accept this occurrence. Morgan (2005) suggested that the use of computer technology was quite limited because of the frequency of computer anxiety or fear of computers and negative attitudes toward computers in general.

Emmons (2003) also concluded that many instructors were afraid of computers, and their fear was only part of a larger technophobia that had been produced by the fast technological growth and development. In his study computerphobia was defined as a

negative attitude that took the form of (a) resistance to talking or even thinking about computer technology, (b) fear or anxiety, which may even create physiological consequences, and (c) hostile or aggressive thoughts and acts, indicative of some underlying frustrations (p. 20).

Emmons further argued that instructors may exhibit some of these resistances, fears, anxieties, and hostilities in (a) a fear of physically touching a computer (b) a feeling that one could break or damage the computer or somehow ruin what is inside (c) a failure to engage in reading or conversation about the computer, a type of denial that the computer really exists, (d) feeling threatened, especially by students, and others who do know something about computers, and (e) an expression of attitudes that are negative about computers and technology. For example, feeling that you can be replaced by a machine; feeling dehumanized, or feeling aggressive toward computers (let's bend, fold, and mutilate these cards!). Such feelings are indicative of an underlying feeling of insecurity and lack of control; and a type of role reversal, whereby the person assumes the role of slave to technology rather than the master of a fine tool (p. 22).

Reasons why this computerphobia is to be both individual and organizational are: (a) individual in the failure of the instructor to keep current in the advances in technology affecting their life, and (b) organizational in that the institution may not have taken all jobs into consideration when planning to use a new technology. Also, institutions may fail to provide incentives to educators to remain current in technology. These may include training, time for workshops and seminars, funds for courses, time for learning new technology, and incentives (recognition, money) to develop changes in courses to incorporate the use of the computer.

According to Cooperman (1999) faculty at colleges and universities nationwide report a love and hate relationship with computers and technology. In her UCLA study of faculty members from schools across the nation, eighty seven percent agreed that computer technology enhances student learning, but sixty seven percent said that trying to keep up with the latest technology is a source of stress (Cooperman, 1999).

Job Responsibilities

In 2003 Emmons conducted a study on all the county-based field faculty and staff of the North Carolina Cooperative Extension Service to determine whether job responsibility was related to computer anxiety. In this study one thousand one hundred twenty six (1,126) questionnaires was distributed to participants in the study. Findings revealed there was no statistically significant relationship between computer anxiety and job responsibility, as revealed by the responses from the instrument used and area of job responsibility was not statistically significant. The Pearson correlation was .041.

Adams (2002) conducted a study on 589 part-time and full-time postsecondary faculty to show if their job responsibility was related to computer anxiety. Findings revealed that there was not a significantly relationship between job responsibility and computer anxiety based on the participants responses from the distributed questionnaire.

Chapman (2003)) investigated business education teachers who taught and held other job responsibilities. Findings indicated that there was not a statistically significant high level of computer anxiety and job responsibility.

Gender

In the 1980s and 1990s studies were conducted to establish the connection between gender variations and computer anxiety (Cooperman, 1999; Loyd & Gressard, 1987; Massoud, 1991; Ray, Sormunden & Harris, 1999; Rosen, Sears, & Weil, 1987; Shashaani, 1994). Past investigations indicated that females had less interests and less confidence in their ability to use computers than males (Massoud, 1991; Shashaani, 1994). Females held more positive attitudes than males regarding the value of computers to make users more productive. Women exhibited greater comfort in using computers than men (Ray, Sormunden & Harris, 1999). Men had more positive attitudes and lower levels of anxiety than females (Alix, 2002; Rosen, Sears & Weil, 1987). Other studies suggested that females had more positive attitudes and lower levels of anxiety than males (Cooperman, 1999; Loyd and Gressard, 1987).

In 2005 Anderson conducted a study on teaching. The findings indicated that gender was not a statistically significantly predictor of computer anxiety in rural teachers. The results in this study can be misleading due to the fact that only 15.2% of the teachers were male. The gender variable yielded a small Cohen's d effect size of .031. However, a study conducted by Schottenbauer, Rodriguez, Glass & Arnkoff (2004) found that females had statistically significantly more occurrences of computer anxiety than males. These studies showed that regardless of profession, women were more anxious, when it came to computers and had higher computer anxiety levels than their male counterparts.

Broos (2005) surveyed females and males regarding gender attitudes in using Information and Communication Technology (ICT). The findings showed that females had more negative attitudes towards computers using the Internet than did men. Findings

also indicated a positive relationship between ICT experience and ICT attitudes. This experience was measured by a period of time using a computer and self-perceived computer and Internet experience. General Linear Model (GLM) analysis revealed that there was a significant effect of gender, computer use, and self-perceived computer experience on computer anxiety attitudes, as well as several significant interaction effects. Males were found to have less computer anxiety than females; respondents who have used computers for a longer period of time and respondents with a higher self-perception of experience also showed less computer anxiety. However, the GLM plot showed that the influence of computer experience worked in different ways for males and females. Computer experience had a positive impact on decreasing computer anxiety for men, but a similar effect was not found for women. The model was also tested for computer liking and Internet-liking factors.

Chou (2003) surveyed 136 teachers in Taiwan. The statistical data produced by this study identified four aspects of Internet anxiety: (a) Internet use, (b) hardware construction, (c) management of students' Internet-use, and (d) learning computer-related skills and knowledge. Among these, participants ranked anxiety over managing students' Internet-use as the highest problem. The, results indicated that female teachers had significantly higher Internet anxiety than did male teachers, and teachers' majors or subject areas appeared to contribute significantly to the level of Internet anxiety as well. Findings also showed that both computer-use hours per week and Internet-use hours per week were significantly negative factors when correlated with anxiety over Internet uses, hardware construction, and management of student' Internet-use. Also in a study of gender and computer anxiety results found by Emmons (2003) indicated by respondents

the relationship between computer anxiety was not statistically significant. The Pearson correlation was .055.

Shepherd (2003) investigated education and business education faculty as well as academic librarians in a university setting to determine if computer skills were related to the levels of technostress they experienced. The results showed that there were negative weak relationships existing between computer skills and technostress levels among the groups. Business education faculty reported the highest computer skills rating even though the findings were not statistically significant. Academic librarians reported to experience more severe levels of technostress than business faculty and education faculty. Education faculty reported the lowest computer skills level, and they seemed to experience lower levels of technostress than academic librarians, but they did not experience more technostress than business faculty. Although these were not significant results, males reported lower computer skills levels than females in all groups. Females in business education and female academic librarians reported higher levels of technostress than males in the same group. Furthermore, females in business education reported lower levels of technostress than males in their group.

Age

Anderson (2005) conducted a study on teachers. The results revealed that there was not a statistically significantly difference in anxiety on the age variable. According to the age variable, findings indicate that as age increased computer anxiety also increased. The teachers' age range was 21-30; 31-40; and 41-50. The largest percentage (28.6%) of

teachers was over 50 years of age. The smallest percentage (21.1%) of teachers was 21-30 years of age.

Along the age line findings indicated the relationship between computer anxiety and age was statistically significant ($p < 0.01$). Results revealed moderate/high computer anxiety for the 50 year plus category which was almost twice the level of the 35-49 year group and more than two and a half times the 34 year group. In the no anxiety category, there was a direct relationship with the youngest group almost 85%, the middle age group about 6.5% and the highest age group showing 17.2% fewer having no anxiety. There was a significant relationship between computer anxiety as revealed by the survey scores and respondent age (Emmons, 2003).

According to Bean and Laven (2003), many older adults seeking computer training have little, if any, prior experience with the concepts and skills necessary to use computers, yet their ability to learn those concepts and skills are often hampered by age.

For example, Butchko (2001) found that there was not a significant relationship between age and computer anxiety ($\underline{r} = 0.17$), indicating that age is not a predictor of computer anxiety. Furthermore, there was not a significant relationship between computer experience and age ($\underline{r} = -0.11$,ns).

In 2001 Martin et al investigated the relationships between the attitudes and anxiety levels of persons toward computers and computer-related technology and years of computer experience. The findings of their study revealed that the personnel in the over 40 age group expressed the highest anxiety levels. The 40 to 49 year old subjects had 22.4% total for the anxious and very anxious categories; the 50 to 59 year-old subjects

had 26.8% in the same categories; while 30 to 39 year-old subjects had only 9.9% in the lower category.

Shashaani (1994) research on age indicated that the age variable appeared to be connected with other variables such as gender, prior experience, or attitude. Older adults, college age adults, as well as high-school age or younger computer users may all experience computer anxiety in varying levels. However, their experiences may be more or less important as a predictor in the appearance of computer anxiety. The results of the study pointed out that computer anxiety and computer experience affect each other either positively or negatively depending on the type of experience involved. A positive experience joined with lower anxiety may lead to more experience and no anxiety at all. A bad prior experience may negatively affect attitude and lead to higher computer anxiety or avoidance.

Computer Experience

In research on computer anxiety, computer experience is the variable most often described as having the closest relationship to computer anxiety. Computer anxiety and computer experience affect each other either positively or negatively depending on the type of experience involved (Alix, 2002).

In an effort to address businesses increased need for finding adult workers who had computer technology experience with software or hardware, Butchko (2001) examined whether experience or age was a better predictor of computer anxiety among workers. A survey was given to older and younger employees from two temporary agencies in a small Indiana city. Temporary employment agencies were used in this study

because they placed individuals in a wide variety of occupations. The results showed experience to be a better predictor than age. Businesses wanted employees who had experience in the field of computer technology. Butchko used a multiple regression to predict computer anxiety as a function of experience and age. His findings revealed tha experience alone predicted computer anxiety (R^2= 0.16, $p < 0.01$). The combination of age and experience also predicted computer anxiety (R^2= 0.18, $p < 0.01$), but the regression coefficient of the age variable was not significant (t = 1.00, ns). These results confirm the hypothesis that experience was a better predictor than age on computer anxiety.

Broos (2005) conducted a study to find out how the experience of men and women use computers. Findings revealed that on average men had more experience with computers than women. Women are overrepresented in the category of nonusers with no computer experience and are remarkably under-represented in the category with many years of experience. Findings showed that 34.9% of men have no computer experience at all, and more than half of the men (55.6) have many years experience. Data showed that 36.6% of women have many years of computer experience and 55.4% of them have no computer experience.

Computer related experience was believed to have a negative correlation with computer anxiety. As the level of computer experience increased the level of computer anxiety decreased. This association has been shown to be factual for industrial education teachers, British managers (Bozionelos, 2001) and Australian schoolteachers (Bradley & Russell, 1997; Havelka, Beasley and Broome, 2004). However, some researchers have found a reverse finding that computer anxiety increases as individuals gain computer

experience (Goss 1996; Havelka, Beasley & Broome, 2004; King 1993; McInerney, McInerney, & Sinclair, 1994; Rosen & Weil, 1995;). The conclusion drawn from most of these studies is that a increase in the level of anxiety reported as experience increased was not due to using the computer per se, but a reflection of other characteristics associated with computer use such as access to the computer and the ease of use of games to play on the computer (Havelka, Beasley, & Broome, 2004; King & Blanford, 2002). These results led to further improvement of the instruments used to measure computer anxiety and to the existence of the relationship between experience and anxiety, i.e. that increased computer experience single-handedly will not reduce computer anxiety (McInerney, McInerney, & Sinclair, 1994; Havelka et al., 2004).

Computer experience may be assessed using a choice of proxies including the number of computer courses taken, the number of years using a computer, the number of software packages learned, or by using a self-efficacy instrument to determine the individual's perception of their computer skills (Compeau & Higgins 1995a; Compeau & Higgins, 1995b; Havelka, et al., 2004).

Professional Development Experience

According to the thesaurus of the Educational Resources Information Center (ERIC) database, *professional development* refers to activities to enhance professional career growth. Such activities may include individual development, continuing education, and inservice education, as well as curriculum writing, peer collaboration, study groups, and peer coaching or mentoring. Fullan and Steigelbauer (1991) expanded the definition

to include "the sum total of formal and informal learning experiences throughout one's career from preservice teacher education to retirement" (p. 326).

Considering the meaning of professional development in the technological age, Grant (n.d.) suggests a broader definition that includes the use of technology to foster teacher growth:

> Professional development ... goes beyond the term training with its implications of learning skills, and encompasses a definition that includes formal and informal means of helping teachers not only learn new skills but also develop new insights into techniques and their own practice, and explore new or advanced understandings of content and resources. This definition of professional development includes support for teachers as they encounter the challenges that come with putting into practice their evolving understandings about the use of technology to support inquiry-based learning. Current technologies offer resources to meet these challenges and provide teachers with a cluster of supports that help them continue to grow in their professional skills, understandings, and interests. (p. 2).

Faculty Training and Professional Development

Banks (2002) and Chapman (2003) found that the Faculty Development Institute faculty training model at Virginia Tech has been successful model to follow to enable faculty to adopt technology in their instruction. However, Banks concluded that faculty needs and expectations should be assessed prior to training in order to meet faculty training expectations—not just for introducing them to the technology.

Adams (2002) and Chapman (2003) found that survey participants who attended faculty development programs are mostly younger females with few years of teaching experience. The majority of nonparticipants in faculty development programs are older males who have more years of teaching experience. Chapman's study survey data showed that 25% of the respondents self-reported they were non-users of computers in their teaching.

Dusick and Yildirim (2000) and Chapman (2003) revealed that faculty at a California urban community college found that an effective way to encourage faculty to use computers in the classroom was to increase their level of competency. This competency could be achieved by providing training that is designed for each individual's level of anxiety, liking, and confidence when using computers.

Obstacles to Professional Development

Traditional classroom training sessions or one-time-only workshops have not been effective in making teachers comfortable with using technology or their being proficient at integrating it into their lesson plans. Therefore, lack of professional development for technology use is one of the most serious obstacles to fully integrating technology into the curriculum (Office of Technology Assessment, 1995; Fatemi, 1999; North Central Regional Educational Laboratory (NCREL), 2000; Panel on Educational Technology, 2007).

What is needed is a well-planned, ongoing professional development program that is tied to the school's curriculum goals, designed with built-in evaluation, and sustained

by adequate financial and staff support is essential if teachers are to use technology appropriately to promote learning for all students in the classroom.

In many educational settings, technology is not easily available for teachers. Computers may be located in labs instead of in each teacher's classroom, and Internet connections may be limited to certain selected computers. To promote teachers' use of technology, school administrators should ensure that adequate numbers of computers with Internet connections are available to teachers and that access times are not limited. Teachers need sufficient opportunities to practice with the technology and gain confidence in its use (NCREL, 2000).

There are not an adequate number of personnel to conduct professional development training. Normally, one person or a few people are assigned to plan and conduct all the workshops. All the stakeholders must be involved in the planning success. For example, teachers and administrators must be involved if they are to be successful at implementing new technological practices in the curriculum. By not allowing the key players to be a part of the planning process, they may react with resistance when technology innovations are implemented or when teachers are given time for professional development activities in technology (NCREL, 2000).

School administrators may not provide ample time and resources for high-quality technology implementation and the related professional development. They may see professional development as a one-time training session to teach skills in using specific equipment. As an alternative, professional development should be considered an ongoing process that helps teachers develop new methods of promoting busy learning in the classroom using technology (NCREL, 2000). Oliver (1997) concluded the significance of

school leaders having a vision and creativity to provide time for thorough and continuous professional development is crucial to the success of professional development program for teachers in their schools.

View Points

Many educators believe that technology is only for teachers who teach in certain fields, i.e., math and science. The Office of Technology Assessment (1995) and NCREL (2000) recommended that a primary issue for technology integration is determining what kinds of teachers should have priority for technology-related professional development.

A number of teachers may not be fascinated with professional development for technology use because they resist technology as a way to improve student learning. They may argue that technology shifts the focal point of schools from the content of the information transmitted to the means of delivery (hardware, software, and networks) (NCREL, 2000).

Professional development should provide hands-on learning, peer collaboration, exploration and reflection, practice, and peer support (whether face-to-face or online) in order to promote the positive attitudes that increase the likelihood of implementing technology integration (Mitra, Stefensmeier, Lenzmeier & Massoni, 1999: Thomas, 2005)

Technostress and Technophobia

In order to understand the term computer anxiety, Brod (1984) penned the term technostress to explain anxiety when using computer technology. Technostress is defined as a modern disease of adaptation caused by an incapacity to cope with new computer

technology in a healthy manner. Technostress manifests itself in two distinct and related ways: in the effort to accept computer technology, and in the more particular form of over identification with computer technology.

As technology became widespread in society, the fear produced by new technologies developed among Americans. Over half of all Americans are technophobes. Technophobia is the term used to explain any feelings of fear, discomfort, or anxiety towards technology. The name technophobia is a medical condition because it affects people mentally and physically. A technophobic person tries to avoid all technology if possible. When faced with technology use, those who suffer with technophobia experience mild to severe anxiety (Johnson, n.d.).

There are three levels of technophobia: (a) cognitive, (b) anxious, and (c) uncomfortable. The cognitive technophobe is the most common. They seem to be calmed and relaxed on the outside, but within they are frustrated and scared when they use technology or even think about using it. They fear that they will mess up the machine if they push the wrong button. The anxious technophobe is the most prevalent and is difficult to diagnose. These users display the typical signs of an anxiety reaction when using technology. The symptoms are sweaty palms, heart palpitations and headaches. The uncomfortable user may be somewhat anxious but is able to work independently. This user normally will use some depressing statements (Johnson, n.d.).

Rosen and Weil (1990a) examined that the proliferation of computers on the university campus is commonly viewed as a positive sign that American education is keeping pace with the emerging technological revolution. However, they recognized that there is a segment of the population who are being left out of the revolution. They

describe several labels for these people, including, but not limited to, cyberphobes, technophobes, or more commonly, computerphobics.

Causes, Symptoms, and Coping Techniques

According to Bland (1998) and Harper (2000) causes of technostress are inadequate staff (a) training/skills, (b) inadequate software/hardware, (c) inadequate or lack of computer support, (d) user perceptions, (e) attitudes, (f) expectations, (g) computer support staff attitudes, and (h) incorrect software/hardware configurations. Other causes (a) include: information overload, (b) under-worked and routine jobs, (c) job insecurity and demotivation, (d) and uncertainty about job role. Symptoms of a technostressed person are irritability, headaches, nightmares, resistance to learning about the computer or outright rejection of technology (Brod, 1984). Examples of other reactions are feeling over-stimulated, panicky or stressed-out about being forever plugged in (Rizzo, 1999). If left unattended, technostress can lead to memory loss, diminished concentration, impatience, irritability, difficulty relaxing or falling asleep, headaches, stomach discomfort, backaches, and more serious health problems such as irritable bowel syndrome (Young, 2004).

Coping strategies for technostress can be viewed in two ways, by concentrating on emotional adjustment or situational problem-solving. While it is important to improve people's emotional well-being in the workplace, it can have an even greater impact on reducing technostress by identifying and then remedying factors that are contributing to that stress within the particular organization itself (Dunbar, 2001).

Young (2004) concluded that combating technostress means finding ways to achieve a healthy balance of using technology without becoming consumed by it: Therefore, awareness is the first step; taking a technology time-out; limiting the need to multitask; slowing down; exercising; rekindling old interests; and taking e-vacations**.** In order to control technostress in an organization, administrators must keep the users informed of changes, problems, procedures, and accessibility of resources. They must provide staff training and presentation sessions to train staff, as well as introduce upcoming system changes. Administrators should supply each person with a support manual that will inform the employees of services, policies, and troubleshooting tips. Furthermore, scheduling a meeting to listen to the users to find out what makes them feel technostressed is a good method to receive feedback from the employees. Also, administrators can recognize the employees who need more support and ask others who will further assistance in learning the technology (Bland, 1998). Furthermore, regular performance evaluations can promote positive attitudes towards technology and the use of related skills, as well as provide a discussion for staff concerns (Dunbar, 2001).

Communication Technology in Higher Education

Needham (2006) acknowledged that faculty may feel less threatened by technologies once they see their potential for furthering professional development. If colleges are going to expect productivity gains as a result of the incorporation of communications technologies into the learning process, administrators and policy makers must help faculty develop new skills. It is important for administrators and faculty to remember that the biggest expense involved in incorporating new technologies into any

process is the expense for staff training. It is not uncommon for 75 percent of the cost of such a conversion, if it is successful, to be related to staff development. People who are trained merely to support a new technology to their specific jobs do not learn enough about it to go beyond the current application.

Therefore, if faculty and communications technologies are to be an integral part in community college learning accomplishments, administrators and policy makers must be totally committed to staff development. This means planning and allocating sufficient resources for development of courses plus the development of the new skills required to integrate the technologies into the course and to change the learning environment into one in which technology improves learning. Leadership is required to change faculty from conveyors of information to directors of learning environments or to any of the specialized functions mentioned earlier (Needham, 2006).

Technologies offer major opportunities for higher education to enhance the quality, accessibility and cost effectiveness of higher education teaching. Electronic mail, computer conferencing, and the World Wide Web are strengthening contact for educators. Technologies provide increased opportunities for interaction which can usefully provide for joint problem solving, shared learning and enhanced face-to-face contact (Chickering & Ehrmann, 1977; McCann, Christmass, Nicholson, & Stuparich, 1998).

Summary

Information and Communication Technology (ICT) has required teachers to change the way they teach their curricula in colleges. These technologies have had a

positive and negative effect upon college faculty. Some has accepted the change while others have rejected it. Studies have indicated that predictors, for example job responsibilities, gender, age, computer experience, and professional development are interrelated whether faculty choose to embark upon the technological advances in the workplace or not.

After an extensive review of the literature on studies relating to computer anxiety and faculty in postsecondary institutions, the search revealed limited studies. In general, several researchers found a relationship between computer anxiety and age while other researchers concluded that there was no relationship (Mikkelsen et al, 2002; Weil & Rosen, 2000). Emmons (2003) thought computer anxiety was one type of stressor and that training was important. Cooperman (1999) argued that college faculty who tried to keep up with the latest technology was less stressed. Several researchers revealed that experience was important for faculty to successfully integrate technology into their curricula ((Mitra, Stefensmeier, Lenzmeier and Massoni, 1999; Adams, 2002; Thomas, 2005).

Several studies in the literature that addressed gender and computer anxiety provided an unclear pattern when using technology. Martin et al (2001) indicated that age is related to accepting or using technology. However, other researchers suggested that experience is a better predictor of computer anxiety than age (Butchko, 2001; Bozionelos, 2001). Various studies showed that computer experience alone does not reduce computer anxiety. Other factors such as taking computer courses, using software, and teaching one self to use technology helped to alleviate the apprehension Compeau & Higgins, 1995a; 1995b; Havelka, Beasley, & Broome, 2004; King & Blanford, 2002; McInerney,

McInerney, & Sinclair, 1994;). Bland (1998) in describing professional development indicated several causes of computer anxiety are inadequate training. College faculty may feel less threatened by technologies when they realize that professional development can help alleviate some of the anxiety (Needham, 2006).

Taken together, these studies provide evidence on how selected variables help predict whether or not faculty will experience computer anxiety when using technologies whether it is at home or the workplace.

CHAPTER III

METHODOLOGY

The purpose of the study was to determine if the use of communication technologies account for reported computer anxiety in a community college setting. Specifically, this study was designed to determine whether there was a difference in usage of communication technologies and levels of computer anxiety of faculty in relationship to their job responsibilities, gender, age, computer experience, and number of professional development activities. This chapter includes sections on population, research design, survey instrumentation, data collection, and data analysis.

Population

The population for this study was 391 faculty who taught full-time in a community college in the southeastern United States. The population in this study was composed of individuals who were employed in fields covering academic, career, and technical programs of study. There were 134 females and 57 males participating in the study. Their ages ranged from 20 to 60 years of age. The average ages of the participants were 50-59 years. The average years of experience for the group were those who had taught 25-40 years of experience.

Research Design

The research design for this study was causal-comparative. According to Borg and Gall (1989), the causal comparative method is designed to determine the possible causes and effects of a behavior pattern in which the pattern is present with similar subjects in whom it is absent or present to a lesser degree. This is sometimes referred to as ex post facto research; because causes are studied after they presumably have exerted their effect on another variable. Therefore, demonstrating a relationship between two variables. However, even a very strong relationship does not "prove" that one variable actually causes the other to change (Borg & Gall, 1989).

Instrumentation

The survey instrument used in this study consisted of three-parts: (1) Demographics, (2) Computer Hassle Scale-Revised Survey (CHS-R) developed and revised by Hudiburg (1986b; 1999) and Shepherd (2003), and the Computer Skills Survey—A Faculty Self-Assessment (CSS) developed by May, Langan, and Tyler (1998) and revised by Shepherd (2003) (see Appendix A). Written permission was given to the researcher to use the CHS-R and the Computer Skills survey instruments in the study (see Appendix B).

Demographics

Part I of the survey instrument used in this study consisted of a demographics section created by the researcher to obtain demographic characteristics and the computer experiences of participants. The survey instrument included questions that related to those topics of teaching affiliation, teaching experience, gender, age, professional

development activities, computer courses taken, and computer applications used on the job.

Computer Hassle Scale-Revised Survey (CHS-R)

Originally called the Computer Technology Hassles Scale (CTHS), the CTHS was a 63-item Likert scale created in 1989 by Dr. Richard Hudiburg (1999), Psychology Professor at the University of North Alabama (Shepherd, 2003). The survey instrument was revised and renamed the Computer Hassles Scale – Revised (CHS-R). The CHS-R showed moderate test-retest reliability (r=.60) and high internal consistency reliability (coefficient alpha=.95). The CHS-R was also a predictor of computer course grades (r=.32), measured general stress (r=.54) and stress responses (r=.57) (Hudiburg, 1997; Hudiburg & Necessary, 1996b; Shepherd, 2003). The CHS-R correlated (r = .40) with the somatization/anxiety rating while internal consistency reliability (coefficient alpha = .912) was demonstrated with the CHS-R (Hudiburg, 1999; Shepherd, 2003).

Factor analysis was performed by Hudiburg (1992) on the CHS-R to determine the items or factors which made up the survey. The items with the highest loadings determined what the CHS-R measured. Determined by the factor analysis, the CHS-R measured eight items: (a) computer runtime problems, (b) computer information problems, (c) everyday computer technology, (d) computers' impact on society, (e) impact on society, (f) computer as a person, (g) computer processing speed, (h) computer costs, and (i) computerized correspondence (Internet/e-mail). Computer runtime (coefficient alpha=.96) and computer information (coefficient alpha=.89) problems were considered to be the major factors making up the CHS-R. Furthermore, items within each

factor received a high factor loading after the factor analysis. This factor loading helped to clearly define or explain each factor (Fraenkel, Wallen & Sawin, 1999; Shepherd, 2003). As a result, statements with the highest weights from the major factors (computer runtime problems, computer information problems, and Internet/e-mail problems) were selected to create a shortened CHS-R to measure technostress.

Due to the length of the CHS-R (63 items), Shepherd (2003) studied the factorial analysis conducted on those items (Hudiburg, 1992) and reduced the scale to 39 items by selecting the items with the highest loadings.

Hudiburg (1995) suggested that the survey be used for assessing other possible relationships with categories of users not previously studied (Shepherd, 2003). The CHS-R was primarily used to find relationships with similar surveys but had not been used to assess the stress levels of computer users (Hudiburg, 1995; Shepherd, 2003). As a result, the researcher replicated the study conducted by Shepherd in order to measure computer anxiety of faculty computer users.

In order to establish content and face validity, Shepherd (2003) asked a panel of reviewers who consisted of faculty to respond to the survey and provide feedback to questions regarding the survey.

The Computer Hassles Scale was scored by summing across the 39 items that reflected the rated severity of computer hassles for the participants. The factors of computer runtime problems, computer information problems, and Internet e-mail problems were used to obtain the severity score of the 39 potential hassles. The score was obtained from the ratings of the faculty. The ratings were: 0 = not at all; 1 = rarely

severe; 2 = moderately severe; and 3 = extremely severe. The researcher was unable to determine from the literature what Shepherd's range was for the severity scores.

However, Shepherd (2003) tested for internal consistency of reliability. It was found that the internal consistency of the CHS-R, which was used in the study had Cronbach Alpha of .95.

Computer Skills Survey (CSS)

Part III of the survey was the CSS. This survey was developed by May, Langan and Tyler (1998) and revised by Shepherd (2003) to rate the participants' level of computer skills. For this study, the survey consisted of twenty-four items. One item was removed because the question was not relevant to the content of this study.

The CSS was used because it was designed and tested to address computer skills learned, taught, and/or experienced by faculty as perceived by the researcher. While there are many surveys available to address computer experience, this survey was chosen because it directly identified the study's participants' computer experience. The questions are clear and concise statements which identified the skills that the researcher was trying to determine.

Content validity was determined when May (1998) gave a committee of critics copies of literature reviews, which contained standards of competencies. The critics used the competencies to establish whether the self-rated survey measured the same competencies. Comments were given to the originator of the survey. Face validity was also conducted by instructors at Fox Valley Technical College who taught workforce development courses. These instructors were asked to complete the survey and provide

any explanations regarding the survey to the originator. Based on the feedback obtained from the critics, the survey was revised in order be mailed to the participants in the study.

Shepherd performed a reliability analysis. The results indicated that the Computer Skills Survey, which was used in the study, was highly reliable with a coefficient alpha of 0.95.

The Computer Skills Scale was the score obtained from the Computer Skills Survey (CSS) that rated the participants' skill level. This was used as a level of measurement for computer anxiety across the 24 items listed on the survey to yield the total skills score. The participants rated themselves as follows: 0 = no skill; 1 = low skill; 2 = medium skill; 3 = high skill; and 4 = expert skill.

Pilot Study

This section contains information specific to the pilot study conducted by the researcher. Included in this section is information about validity and reliability, survey method, follow-up, data collection, and data analysis.

The researcher conducted a pilot study to aid in establishing validity and reliability. Upon approval from Mississippi State University Institutional Board (IRB) (see Appendix C), the pilot study was conducted for a four-week period. The survey instruments were mailed using the United States Postal Service as the means of contact and distribute the instrument to participants in the study. Twenty faculty members who taught academic, career, and technical programs in a Mississippi community college not participating in the study were randomly selected to complete the survey. The addresses of participants were obtained from the Mississippi State Board for Community and Junior

colleges website. The faculty were selected to take part in the pilot study because they were employed in a community college.

The participants of the pilot study were requested to evaluate the survey to ensure the relevance and structure of the questions. They were asked to give suggestions for restating or rephrasing the questions and the adequacy of the questions to obtain the data required for the study. The participants received a letter and survey (see Appendix D) informing them of the nature of the study and asking them to participate in the study. The participants were asked to complete the survey and to return it in an enclosed, self-addressed, postage-paid envelope.

After the researcher received the suggestions and recommendations from the participants, revisions were made to the survey instrument. The following revisions were made: Section II, Question 20 was reworded to state, "Computer instructions are not clear", Section 3, Question 4, was revised to state, "Handling and use of floppy disks and CD-ROMS, Flash/Jump Drive." After the revisions, the researcher proceeded to conduct the reliability test. The major purpose of the pilot testing was to assist in the researcher yielding data concerning the survey's deficiencies and to provide suggestions for improvements. Data tabulation and analysis procedures were applied to the pilot study data. The final result of the pilot study was a revised survey instrument that was ready to be mailed to the selected participants who would participate in the study.

Validity and Reliability

According to Borg and Gall (1989), content validity is the degree to which the sample of test items represents the content that the test is designed to measure. Content validity is of importance to descriptive research (Pollard, 1990; Porterfield, 1999). In order to establish a satisfactory level of content validity, the survey insrument was submitted to a three-panel of experts who were full-time secondary and university faculty who taught technology classes. These persons were asked to evaluate the survey and to make comments, suggestions, and recommendations concerning the development of the survey instrument. Further, the experts were asked to identify any unclear or confusing statements and to make suggestions about the content, clarity, and format of the survey instrument. The recommendations of the panel of experts led to changes or suggestions in the revisions in the survey. Upon the administration of the pilot study, a reliability test was conducted. Reliability is defined as the level of internal consistency of the measuring device over time (Borg & Gall, 1989). Cronbach's Coefficient Alpha was used by the researcher to determine the reliability of the survey which was .95.

Web Version of Survey

Participants were given a choice of completing the survey instrument electronically by completing the web-based form posted on the Internet. Each faculty member wanting to complete the survey instrument electronically used the numeric code found on their paper version of the survey by entering that code on the web survey. Similar to the paper survey, a code was used to track those who had not responded to the survey in order for the researcher to follow-up after the initial two week period. Each

participant completed the demographics section by clicking the radio button corresponding to the appropriate choice. Similarly, the participants completed the CHS-R section by clicking the radio button that matched their appropriate severity level of each computer hassle experienced. The answers were the same as those on the paper survey. Also, the Computer Skills section had clickable radio buttons corresponding to the number relating to the level of each computer skill for participants to identify their particular skill level. Again, the answer choices were the same as those on the Computer Skills section of the paper copy.

Paper Version of Survey

The survey instrument used for this study had three sections: (1) Demographics, (2) Computer hassle Scale-Revised (CHS-R), and (3) Computer skills. First, participants completed the demographics section which included: (1) program area in which they taught, (2) the number of years of teaching experiences,(3) years taught in current position, (4) gender, (5) age, (6) participation in professional development institutes, (7) participation in computer courses, and (8) software used at work. When completing the CHS-R section, participants marked the number matching the severity level of each potential computer hassle they experience. The answer choices for severity level were 0=not at all, 1=rarely severe, 2=moderately severe, and 3=extremely severe. Next, participants completed the Computer Skills section. Each participant rated his computer skills level by marking the number that most accurately reflected his or her current level for each skill listed. The choice of answers were 0=no skill, 1=low, skill, 2=medium skill, 3=high skill, and 4=expert skill.

Follow-Up

After a two week period, the researcher identified all non-respondents by their three digital numerical code. Those individuals received an e-mail explaining the study, requesting their participation, reminding them where to find their numerical code, and providing the address of the web based survey. Again, non-respondents were given the chance to complete the survey online or on paper. They could complete the paper copy if they wanted to and if they still had their copy; otherwise, another copy was not sent to them. Participants were told to complete the survey online and the researcher provided them with their numerical code.

The initial survey instrument response rate was 38%.Therefore, the researcher e-mailed the participants with another cover letter and survey attached requesting completion of the survey within seven days. The second follow-up yielded a response rate of 50.38%.

Data Collection

Upon approval from the Mississippi State University Institutional Board (IRB) (see Appendix C) and the President of the participating institution (see Appendix E), the study was conducted. The list of names of faculty was obtained from the Human Resource Office for the college. A packet containing a cover letter explaining the purpose of the study requesting voluntary cooperation, and assuring confidentiality was mailed to the participants by campus mail (see Appendix F).

A numeric code for each participant printed was in the center of the survey page. The researcher maintained a log with faculty names and the corresponding numeric code.

As the participants returned the surveys, their names and numeric codes were checked off the log. The log was maintained in a locked file cabinet at the investigator's residence.

The participants were mailed the survey instrument asked to complete and return it within a seven-day period. After one week following the distribution of the surveys, the researcher e-mailed the participants who had not returned the survey. The e-mail included another survey and a request to complete and return the survey in seven days. All data collection were considered complete one month after the initial dissemination of survey.

Data Analysis

The researcher answered the research questions using descriptive statistics to describe data in a clear and succinct way Shepherd (2003). The Statistical Package for the Social Sciences (SPSS) was used to analyze data for the research questions.

1. Is there a significant difference between faculty job responsibilities and their levels of anxiety toward the use of communication technologies? Question one was answered using an analysis of variance (ANOVA) to determine if statistically significant differences exist between the means of two or more groups (Shepherd, 2003). The data from the Computer Hassle Scale-Revised (CHS-R) section and demographics section were used to determine if any differences existed between computer hassle scores and program area, years taught, and years in current position.

2. Is there a significant difference between male and female faculty and their level of anxiety toward the use of communication technologies? Question 2 was answered using an independent t-test to find the differences between the means of gender. Again, the CHS-R demographics sections provided the data.

3. Is there a significant difference between faculty and their level of anxiety toward the use of communication technologies according to their age? Question 3 was answered using ANOVA to determine if statistically significant differences exist between the means of the groups' age. The CHS-R and demographics sections provided the data to answer this question.

4. Is there a significant difference between faculty in relation to their level of computer experience and their level of anxiety toward the use of communication technologies? Question 4 was answered using ANCOVA to determine whether two or more groups differ significantly from each other. The demographics, CHS-R, and Computer Skills Survey (CSS) sections provided the data.

5. Is there a significant difference between faculty in relation to their level of professional development activity and level of anxiety toward the use of communication technologies? Question 5 was answered using the t-test to determine if there were any significant differences.

CHAPTER IV

FINDINGS AND RESULTS

The purpose of the study was to determine if the use of communication technologies account for reported computer anxiety in a community college setting. Specifically, this study was designed to determine whether there was a difference in usage of communication technologies and levels of computer anxiety of faculty in relationship to their job responsibilities, gender, age, computer experience, and number of professional development activities.

A descriptive research design was used in this study. Data analysis included the frequencies, means, standard deviations, t-test, crosstabs, chi-square, ANOVA, and ANCOVA.

This chapter presents a description of the results. The purpose of the study was to determine if the use of communication technologies account for the intensity of anxiety among faculty in academia. The analysis of data is presented in two sections: (a) description of the participants and (b) results of the data analysis related to the research questions.

This chapter revealed survey responses from faculty in a community college setting. Participants in this study were employed as full-time faculty who teach in the program areas of academic, career and technical.

Participants were asked to complete a questionnaire that included demographic information (program area, years taught, years taught in current position, gender, age, professional development experience, computer courses taken, and software applications used) to describe the population. Also, the participants were asked to rate their severity level of computer hassles (39 questions) by identifying their severity level (not at all, rarely severe, moderately severe, and extremely severe. They also were asked to rate their level of computer experience (24 questions) by rating their skills (no skill, low skill, medium skill, high skill, and expert skill).

Descriptive Statistics

Of 391 surveys distributed, 197 were received and considered for analysis for a response rate of 50.38%. Tables 4.1 and 4.2 provide descriptive statistics on the participants. Of this group, 50.8% were employed within the academic category meaning that they teach general studies courses to students seeking to earn an Associate in Arts Degree (AA) and/or to transfer course work to a senior college in pursuit of a Baccalaureate Degree, while 17.6% were career faculty who teach courses in career programs to students seeking to earn a Career Certificate. Thirty-one percent were listed as technical indicating that the faculty teaches specialized fields of studies to students seeking to earn a certificate or an Associates and Applied Science Degrees (AAS). A small percentage of participants did not provide their work classification (i.e., 2%).

Table 4.1 Frequency and Percentage by Faculty Program Area

	Frequency	Percent
Academic	98	50.8
Career	34	17.6
Technical	61	31.6
Total	197	100.0

*4 Missing

Table 4.2 Frequency and Percentage by Number Years Taught by Faculty

	Frequency	Percent
1-4 years	31	15.7
5-9 years	33	16.8
10-14 years	26	13.2
15-19 years	28	14.2
20-24 years	16	8.1
25-30 years	32	16.2
31-34 years	19	9.6
35-40 years	6	3.0
Over 40 years	3	1.5
Total	194*	100.0

*3 Missing

Table 4.3 provides data on the number years of years taught in current position. Of this group, most of the participants had taught 0-4 years (27.1%) followed by 5-9 years (22.6%). As indicated in Table 4.4 majority of the participants were female (70.6%). The departments of the program area are listed in Table A.1 (see Appendix G).

Table 4.3 Frequency and Percentage by Years Taught in Current Position

	Frequency	Percent
0-4 years	53	27.1
5-9 years	44	22.6
10-14 years	39	20.0
15-19 years	23	11.8
Over 20 years	36	18.5
Total	195*	100.0

*2 Missing

Table 4.4 Frequency and Percentage by Gender

	Frequency	Percent
Female	137	70.6
Male	57	29.4
Total	194*	100.0

*3 Missing

Table 4.5 Frequency and Percentage by Age Group

Age Group	Frequency	Percent
20-29 years	9	4.7
30-39 years	31	16.0
40-49 years	51	26.4
50-59 years	93	48.2
60+ years	9	4.7
Total	193*	100.0

*4 Missing

Majority of the faculty have taught in the academic area (51%) followed by the career (18%) and technical (31%). More females are employed in the academic program

(50.7%). Most of the male faculty teaches in the academic area. Majority of the faculty have taught in the age group of 50-59 years (48.2%) (see Table 4.5). Additionally, faculty identified the software applications they used the most with e-mail ranking first (see Table 4.6). A list of other software used by the participants is listed in Table A.2 (see Appendix H). Faculty indicated participation in professional development activity (see Table 4.7). The high percentage of participation (92%) is due to the mandatory requirements for faculty to attend professional development institutes. Professional Development Institute (PDI) goal is to improve the professional skills of employees at the participating community college. Each faculty member is required to have a minimum of ten PDI approved hours during the PDI year which is January to December.

On a scale from zero (not at all) to three (extremely severe), the faculty from the selected institution indicated how severe 39 different computer hassles had been for them when they used communication technologies. This score had a potential range of 0 to 117. The mean Computer Hassles Severity Score for the respondents was 35.85 (SD=12.89) (see Table 4.8). They were also asked to rate their skill level relating to 24 computer skills on a scale from one (low skill) to five (high skill). Each person's computer skill level was determined by finding the mean score where the ranges were zero to 96. The mean Computer Skills Score was 66.01 (SD=13.79) (see Table 4.9). These results indicate that the participants' high computer skills score led to the mean severity score being low.

Table 4.6 Frequency and Percentage of Software used by Faculty

	Program Area			
	Frequency	Academic	Career	Technical
E-mail	193	50.8%	17.1%	30.1%
Internet	192	50.5%	17.2%	30.2%
Presentations	147	49.0%	15.6%	32.7%
Spreadsheets	136	47.8%	16.2%	33.1%
Word Processing	186	51.1%	16.7%	30.6%
Colleague/Datatel	107	48.6%	15.9%	33.6%
Course Management	115	53.0%	14.8%	30.4%

Table 4.7 Frequency and Percentage of Faculty participating in Professional Development Institute (PDI's)

	Percent	No. of Hours	Frequency
Did not participate in PDI	10	5.1	5.1
Participated in PDI	182	92.4	92.4
Total	192*	100.0	100.0

*5 Missing

Table 4.8 Descriptive Statistics for Severity Score

		Severity Score	Skills Score
N	Valid	197	197
Mean		35.85	66.01
Std. Deviation		12.89	13.79
Percentiles	25	29.00	59.00
	50	35.00	67.00
	75	41.00	74.00

Analysis of the Research Questions

This section presents the results of the data analysis and provides findings related to each research questions. There were five research questions.

Research Question 1

Is there a significant difference between faculty in relation to the program area in which they teach, years of teaching experiences and their level of anxiety toward the use of communication technologies? Items in Section I, Questions 1, 2, and 3 were used to answer the demographics part of this research question. Question 1, Section 1 referred to the program area. Question 2 pertained to the years taught, and Question 3 referred to number of years taught in current position. Questions 1-39 were used to answer the level of anxiety regarding usage of communication technology.

Program Area

On a scale from zero (not at all) to three (extremely severe, the academic, career and technical faculty from the chosen college indicated how severe 39 different computer hassles had been for them when they used computer technology (See Table 4.9). An examination of the mean of severity score for the faculty program area (Technical, M = 36.29, SD = 11.27, n=61) was slightly higher than academic faculty (M = 35.49, SD = 14.19, n=98) and career faculty (M =34.91, SD = 10.09, n=34) which indicated that the perceived level toward the use of communication technologies is not influenced by program area. There was not a statistically significant difference between the mean scores of the three represented program areas.

Table 4.9 Descriptive Summary of Severity Score Means by Program Area

	N	Mean	Std. Deviation
Academic	98	35.49	14.19
Career	34	34.91	10.09
Technical	61	36.30	11.27
Total	193	35.64	12.61

The results of the Analysis of Variance (ANOVA) indicated that there was not a statistically significant difference for computer anxiety along the program area. The findings indicate that the faculty was not anxious when using communication technologies, F (2,190) = .145, p=.865.

Years Taught

Faculty that had taught 25-30 years (M = 41.13, SD = 13.44, n=32) had the highest severity score while faculty that had taught 1-4 years (M = 31.81, SD = 11.40 reported the lowest severity score. The results of the analysis indicated that there was not a significant statistical difference between in the severity scores of the number of years taught by the faculty as indicated in Table 4.10.

Table 4.10 Mean Scores for Years Taught

Years Taught	N	Mean	Std. Deviation
1-4 years	31	31.81	11.40
5-9 years	33	37.64	14.50
10-14 years	26	33.85	11.91
15-19 years	28	33.86	8.06
20-24 years	16	36.31	10.92
25-30 years	32	41.13	13.44
31-34 years	19	37.11	18.83
35-40 years	6	35.83	12.83
Over 40 years	3	32.33	8.50
Total	194*	35.93	12.97

* 3 did not respond

The Analysis of Variance (ANOVA) was used to assess the data related to the years taught indicate that there is not a significant difference between faculty years taught in relation to their level of anxiety $F(8, 185) = 1.35$, $p = .222$.

Years Taught in Current Position

The results of the analysis indicate faculty who had taught in their current positions over 20 years (M = 38, SD = 12.30, n = 53) experienced computer anxiety among the group (see Table 4.11).

Table 4.11 Severity Scores for Years Taught in Current Position

Years Taught	Mean	N	Std. Deviation
0-4 years	33.54	39	9.26
5-9 years	34.58	38	13.75
10-14 years	35.87	23	13.24
15-19 years	36.32	44	15.17
Over 20 years	38.00	53	12.30
Total	35.85	197	12.89

The Analysis of Variance (ANOVA) was used to assess the data related to the years taught in current position. The ANOVA indicated that there is not a significant difference between faculty years taught in current position in relation to their level of anxiety F (5, 191) = 1.54, p = .023.

A crosstab analysis was performed to find if there was a relationship for program area and years taught in current position. The Pearson Chi-Square tests indicate that there is not a statistically significant difference in relation to their level of anxiety, r = -.68.

Research Question 2

Research question two asked is there a significant difference between male and female faculty and their level of anxiety toward the use of information communication technologies? Section I, Question 4 referred to the differences regarding gender for this question. Section II, Questions 1-39 pertained to the level of anxiety regarding usage of communication technology.

To obtain the anxiety score the college faculty were asked on a scale from zero (not at all) to three (extremely severe) to specify how severe 39 different computer hassles had been for them when they used computer technology. Findings indicate that the mean severity score of males (M = 36.25; SD = 10.29, n=57) is slightly higher than that of females (M = 35.71, SD = 13.97, n=137). The findings indicate that there is not a statistically significant difference regarding gender (see Table 4.12).

An independent t-test was conducted to find the differences in the level of anxiety for male and female faculty. Findings revealed that there was not a significant difference between the genders in relation to their level of anxiety, (t = .297, df = 140.68, p= .767).

Table 4.12 Gender Severity Score of Faculty

	Gender	N	Mean	Std. Deviation
Severity Score	Male	57	36.25	10.29
	Female	137	35.71	13.97

*3 Missing

Results indicate that the age category of 60 and above (M = 72.33, SD = 8.28, n = 9) significantly differs in skills score from all other age categories. In addition, those 50 to 59 years (M = 68, SD = 14.43, n = 93) are significantly differ in skills score from those in the age category of 20 to 49 years (M = 63, SD = 14.42, n = 82) See Table 4.13 for a list of skills score descriptives by age.

Table 4.13 Descriptives for Skills Score by Age

Age Group	Mean	N	Std. Deviation
20-29 years	60.33	9	17.34
30-39 years	63.51	51	12.93
40-49 years	64.05	31	12.98
50-59 years	67.89	93	14.43
60+	72.33	9	8.28
Total	66.01	193*	13.79

*4 Missing

Findings indicate that the age category of 60 and above (M = 36.49, SD = 13.47, n = 9) significantly differs in severity score from all other age categories. In addition, those 50 to 59 years (M = 36.22, SD = 8.41, n = 93) are significantly differ in severity score from those in the age category of 20 to 49 years (M = 35.74, SD = 12.59, n = 82) See Table 4.14 for a list of skills score descriptives by age.

Table 4.14 Descriptives for Severity Score by Age

Age Group	Mean	N	Std. Deviation
20-29 years	35.61	9	13.22
30-39 years	35.78	51	11.51
40-49 years	35.83	31	13.03
50-59 years	36.22	93	8.41
60+ years	36.49	9	13.47
Total	35.85	193*	12.89

*4 Missing

Research Question 3

Research question three asked: "Is there a significant difference between faculty and their level of anxiety toward the use of communication technologies according to their age?" Section I, Question 5 was used to answer the differences regarding age; Section 2, Questions 1-39 referred to the level of anxiety regarding usage of communication technology.

The anxiety score was derived from a scale from zero (not at all) to three (extremely severe). The postsecondary faculty identified how severe 39 different computer hassles had been for them when they used computer technology. It was observed that the mean severity score increases with age, but there was not an observed statistically significant difference in severity score among the age groups. The participants were divided into five age groups. Group 1 consisted of faculty between the ages of 20-29. Group 2 consisted of faculty who were between the ages of 30-39. Group 3 consisted of faculty who were between the ages of 40-49. Group 4 consisted of

faculty who were between the ages of 40-49. Group 5 consisted of faculty who were 60 and above (see Table 4.15).

Analysis of Variance (ANOVA) indicate that there was not a significant difference between the mean scores of participants, $F(4, 188) = 1.045$, $p = .385$) who participated in computer courses and of those who did not

Table 4.15 Age Severity Score

	Mean	N	Std. Deviation
20-29 years	36.22	9	8.41
30-39 years	35.61	31	13.22
40-49 years	36.49	51	13.47
50-59 years	35.83	93	13.03
60 and above	35.78	9	11.51
Total	35.85	193*	12.89

A Chi-Square procedure was performed using crosstabs to find if there is a difference in the level of anxiety based on program area, years taught in current position and gender. The Chi-Square tests indicate that there is not a statistically significant difference in their level of anxiety based on program area and years of teaching in current position, r = -.63. Also, the data indicates that there is not a statistically significant difference in level of anxiety based on gender, r = -.50.

Female faculty's level of computer anxiety was slightly higher when using communication technology (M = 36, SD = 12.84, n = 137) than that of male faculty (M =

57, SD = 12.36, n = 57) (See Table 4.16). The mean severity score increases with age, but there was not an observed statistically difference in severity scores among the groups.

Table 4.16 Descriptives of Severity Score by Gender

Gender	Mean	N	Std. Deviation
F	36.02	137	12.84
M	34.88	57	12.36
Total	35.85	194*	12.89

*3 Missing

Male faculty's communication technology skills (M = 67.70, SD = 13.62, n = 57) was slightly higher than that of female faculty (M = 65.34, SD = 13.90, n = 137) (See Table 4.17)

Table 4.17 Descriptives of Skills Score by Gender

Gender	Mean	N	Std. Deviation
F	65.34	137	13.90
M	67.70	57	13.62
Total	66.01	194*	13.79

* 3 Missing

Research Question Four

Research question 4 asked: "Is there a significant difference in the effect of computer experience on the level of anxiety toward the use of communication technologies, as measured by the severity scores, when controlling for gender of faculty and the age of the

faculty ” Section I, Questions 7-8 Section III, Questions 1-24 assisted in answering the level of anxiety regarding experience when using communication technology. Section II, Questions 1-39 answered the level of anxiety regarding usage of communication technology.

Computer Experience

Two ANCOVAS were computed to examine the impact of computer experience on faculty skills. The first analysis of covariance (ANCOVA) was completed for the purpose of determining whether computer experience impacted the skills scores, when controlling for gender of faculty and the age of the faculty. The second ANCOVA was completed for the purpose of determining whether computer experience impacted the level of anxiety toward the use of communication technologies as measured by the severity scores, when controlling for gender of faculty and the age of the faculty.

The findings of the first ANCOVA, with the skills score as the dependent variable, indicated that there was no statistically significant difference between computer experience and faculty's level of anxiety toward the use of communication technologies, $F(1, 195) = ..045$, $p = .832$ (see Table 4.18).

Table 4.18 Analysis of Covariance – Skills Score

Tests of Between-Subjects Effects

Dependent Variable: SKILLS SCORE

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8.570[a]	1	8.570	.045	.832
Intercept	99647.860	1	99647.860	521.655	.000
Gender	.000	0			
Age	.000	0			
Experience	8.570	1	8.570	.045	.832
Error	37249.409	195	191.023		
Total	895654.00	197			
Corrected Total	37257.980	196			

a. R Squared = .000 (Adjusted R Squared = -.005)

The results of the second ANCOVA, with severity scores as the dependent variable, also indicated that there was not a significant difference between computer experience and faculty's level of anxiety toward the use of communication technologies, $F(1, 195) = 1.09$, $p = .102$ (see Table 4.19).

Table 4.19 Analysis of Covariance – Severity Score

Tests of Between-Subjects Effects

Dependent Variable: SEVERITY SCORE

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	445.073[a]	1	445.073	2.702	.102
Intercept	37155.774	1	37155.774	225.575	.000
Gender	.000	0			
Age	.000	0			
Experience	445.073	1	445.073	2.702	.102
Error	32119.658	195	164.716		
Total	285793.00	197			
Corrected Total	32564.731	196			

a. R Squared = .014 (Adjusted R Squared = .009)

Research Question 5

Research question five asked "Is there a significant difference between faculty in relation to their level of professional development activity and anxiety?" Section I, Questions 6 asked the participants to respond whether they had participated in any Professional Development Institutes (PDI).

The Professional Development Institute goal is to improve the professional skills of employees at the participating community college. Each faculty is required to have a minimum of ten PDI approved hours during the PDI year which is January to December. A t-test analysis indicate there was not a significant difference among professional development institutes and skills score and severity score ($t = -.403$, $df = 9.41$, $p = .696$).

Based on this data, faculty participation in professional development institutes had no influence on both the skills score and severity score.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter consists of three sections. The first section is a summary of the study under investigation. The next section contains a discussion of the findings and conclusions of the study. The last section contains recommendations developed based on the findings of the study.

Summary

The purpose of the study was to determine if the use of communication technologies account for reported computer anxiety in a community college setting. Specifically, this study was designed to determine whether there was a difference in usage of communication technologies and levels of computer anxiety of faculty in relationship to their job responsibilities, gender, age, computer experience, and number of professional development activities.

The research design for this study was causal-comparative. A survey was used to gather data. Data were collected from 197 faculty in a community college. Data included responses from the survey questions. The severity scores and skill scores were used in the analysis as the dependent variables. The independent variables were program area, gender, age, computer experience, and professional development. The results indicated that there was no significant difference between faculty level of anxiety toward the use

communication technologies in relation to job responsibilities, gender, age, computer experience, and professional development activities. Participants in this study were faculty selected from a community college in the southeastern United States. A cover letter explaining the purpose of the study and a survey were mailed to the participants by campus mail, and participants were also informed that the survey could be completed online. Data collection lasted one month with a follow-up after a two-week period.

Non-respondents received e-mails reminding them to complete the survey and providing the address of the web-based survey. Data analysis included the frequencies, means, standard deviations, t-test, crosstabs, chi-square, ANOVA and ANCOVA.

A pilot study was conducted prior to the actual study, and twenty faculty who teach in the academic, career, and technical programs of study in a Mississippi community college not taking part in the actual study were randomly selected to complete the survey. The faculty was chosen to take part in the pilot study because they are employed in a community college that is not a part of the actual study. The participants of the pilot study were requested to evaluate the survey to ensure the relevance and structure of the questions were asked to give suggestions for restating or rephrasing the questions and the improving the adequacy of the questions to obtain the data required for the study. After the researcher received the suggestions and recommendations from the participants, revisions were made to the survey instrument. The following revisions were made: Section II, Question 20 was reworded to state, "Computer instructions are not clear", Section 3, Question 4, was revised to state, "Handling and use of floppy disks and CD-ROMS, Flash/Jump Drive. After the

revisions, the end result of the pilot study was a revised survey instrument ready for the actual study.

Almost a majority of the faculty taught in the academic area (51%) followed by technical (32%) and career (17%). The most frequently reported years taught were 5 to 9 years and 25 to 30 years. The largest percentage of faculty (27.1%) had taught 0-4 years followed by 5-9 years (22.9%) in their current position. More females were employed in the program areas (70.6%). A majority of the females were employed in the academic program (50.7%). Most of the male faculty had taught in the academic area (49.1%). The largest percentage (48.2%) of faculty was in the age group 50-59. Faculty identified the software applications they used the most with e-mail ranking first (98%) while the Internet ranked second (97.5%). The academic program used software more than the technical and career programs. The participants (83.2%) indicated that they use other software. For example some of the other software used by the participants are: Accounting, Keyboarding Pro, Mathematics, Microsoft Office, and computer programming. Also, ninety-two percent indicated participation in professional development workshops.

Research question one asked, "Is there a significant difference between faculty in relation to the program area in which they teach, years of teaching experiences and their level of anxiety toward the use of communication technologies?"

The findings regarding program area indicated that while the computer anxiety score for technical professors was higher than the academic and career faculty, there was not a statistically significant difference between the mean severity scores of the three represented program areas: academic, technical, and career. The results of the Analysis of

Variance (ANOVA) indicated that there was not a statistical difference for computer anxiety along the academic, technical, and career program areas. The findings regarding years taught in current position indicated that faculty who had taught in their positions over 20 years had higher mean severity scores. To support the results that there is not a significant difference for computer anxiety related to job responsibility, Emmons (2003) indicated that the relationship between computer anxiety of job responsibility was not statistically significant.

The findings regarding years taught indicated there was not a significant difference between the mean severity scores of faculty and the number of years taught by faculty. Faculty that taught 25-30 years had the highest severity score while those that taught 1-4 years reported the lowest severity score. The ANOVA indicated that there was not a statistical significant difference between years taught and faculty's computer anxiety.

A report issued by the National Center for Education Statistics (U. S. Department of Education) indicated that teachers who had taught nine or less years were most likely to use technology than those teachers who had over twenty years of teaching experience. Chapman (2003) revealed that faculty who had taught for a long period of time was hesitant to adopt technology than those who had worked only for a short time.

Research question 2 asked, "Is there a significant difference between male and female faculty and their level of anxiety toward the use of information communication technologies?" Findings indicated that the mean severity score of males was slightly higher than that of females which indicated that there is not a statistically significant difference regarding gender. To compare the mean severity score by gender, a t-test

analysis was conducted. The dependent variable used was gender and independent variable was the severity score. The findings indicated that there was not a statistical significant difference between gender and computer anxiety. The chi-square analysis indicated that there is not a statistically significant difference in relation to their level of computer anxiety for program area and years taught in current position and gender. To support that there is not a significant difference between gender and computer anxiety. Anderson (2005) illustrated in a study that gender was not a statistically significant predictor of computer anxiety in teachers. Emmons (2003) indicated in a study on all the county-based field faculty and staff of the North Carolina Cooperative Extension that gender was not a statistically significant factor of computer anxiety. Shepherd (2003) investigated education and business education faculty as well as academic librarians in a university setting to determine if computer skills related to the levels of technostress which they experienced. Although these were not significant results, males reported lower computer skills levels than females in all groups. Females in business education and female academic librarians reported higher levels of technostress than males in the same group. Furthermore, females in business education reported lower levels of technostress than males in their group.

Research question three: "Is there a significant difference between faculty and their level of anxiety toward the use of communication technologies according to their age?" Findings indicated that the mean severity score increases with age, but there was not an observed statistical difference in severity score among the age groups. ANOVA indicated that there was not a significant difference between the mean scores of participants. Findings related to age supported by Anderson, (2005) indicated in a study

that there was not a statistically significantly difference in anxiety on the age variable. Butchko (2001) revealed that there was not a statistical difference in anxiety on the age variable.

Research question four asked, "Is there a significant difference between faculty in relation to their level of computer experience and their level of anxiety toward the use of communication technologies?" Findings revealed that there was no statistically significant difference between computer experience and faculty's level of anxiety toward the use of communication technologies. Two ANCOVAS were completed using severity score as the dependent variable in one and skills score as the dependent variable in the other.

Butchko (2001) study supported that computer experience is a better predictor than age. A survey was given to employees from two temporary agencies in a small Midwestern city. The results verified experience to be a better predictor than age. Businesses want employees who have experience in the field of computer technology. Age does not predict computer experience.

Broos' (2005) study indicated that on average men have more experiences with technology than women. Women are overrepresented in the category of nonusers with no computer experience and are under-represented in the category with many years of experience.

Research question five asked, "Is there a significant difference between faculty in relation to their level of professional development activity and anxiety?" Findings indicated that there was not a statistically significant difference between participation in professional development institutes and skills score and severity score. Based on these

data, participation in professional development institutes had no influence on either scale score.

Conclusions

The results of this study led to several conclusions regarding computer anxiety among community college faculty in the southeastern United States. First, anxiety was low among the faculty participating in this study with a mean score of 35.85 on a scale of zero to 117. Additionally, the self-reported skill level was high, and it seems that the high skill level may account for the low computer anxiety severity score.

Job responsibility was not a statistically significant predictor of computer anxiety. The findings support the results of a number of studies that found that job responsibility does not predict computer anxiety (Chapman, 2003; Emmons, 2003; U. S. Department of Education). Findings led the researcher to conclude that job responsibility does not make a difference in the levels of computer anxiety.

Gender was not a statistically significant predictor of computer anxiety. These findings are supported by several studies that specify gender was not a predictor of computer anxiety (Anderson, 2005; Emmons, 2003; Shepherd, 2003). The results of this study guided the researcher to conclude that gender was not a factor of computer anxiety.

Age of the faculty was not a statistically significant predictor of computer anxiety. The results are supported by studies that denote that gender was not a predictor of computer anxiety (Anderson, 2005). Findings of this study support that age is not a factor of computer anxiety.

Computer experience was not a statistically significant predictor of computer anxiety. Several studies supported the findings that computer experience was not a predictor of computer anxiety (Butcho, 2001; Broos, 2005). The study points out that computer experience does not make a difference in the existence of computer anxiety.

Finally, the results revealed that there was not a statistically significant difference between participation in professional development among the scale scores. It appears that professional development did not influence computer anxiety or the computer skills of the faculty.

Recommendations

Based on the findings and conclusions in this study, the following recommendations are made:

1. The findings indicated that faculty were not anxious to offer opportunities for faculty to enhance computer skills as technology changes, administrators may seek input from faculty for professional development.

2. Due to the emerging technologies establish another survey instrument for current computer skills that may cause computer anxiety.

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APPENDIX A

COMPUTER HASSLE SCALE-REVISED SURVEY (CHS-R)

AND COMPUTER SKILLS SURVEY (CSS)

Investigation of Communication Technology Usage,
Professional Development Experience, And Anxiety
Among Faculty In A Community College Setting

Thank you very much for taking the time to assist with this research. Please take a few minutes to answer the following questions concerning communication technology. The information obtained in this survey is for research purposes only. All information gathered will remain confidential, and personal information will not be disclosed. Please complete the survey as honestly and as accurately as possible and return to the researcher promptly.

Section I. Demographics

Directions: Check the answer that best describes you for the following categories.

1. Which program area do you teach?
   □Academic □Career □Technical
   (List the department or subject area in which you teach) _____

2. How many years have you taught? □1-4 □5-9 □10-14 □15-19
   □20-24 □25-30 □31-34 □35-40 □over 40

3. How many years have your taught in your current position?
   □0-4 years □5-9 years □10-14 years □15-19 years □over 20 years

4. What is your gender? □Male □Female

5. What is your approximate age: □20-29 □30-39 □40-49 □50-59
   □60+

6. Have you been involved in any professional development institutes (PDI) during this past year? □Yes □No

   If yes, for a total of how many hours _____

7. Have you participated in any computer courses? □Yes □No
   □Credit □Non-credit
   List _____

8. Which software do you use at work? Check all that apply.
   □Electronic Mail (E-mail) □Internet □Presentations (PowerPoint)
   □Spreadsheets (Excel) □Word Processing □Colleague/Datatel
   □Course Management Software (Blackboard/WebCT)
   □Other (List) _____

Numeric Code: ☐

Section II. Computer Hassled Scale-Revised (CHS-R)

Directions: Listed below are a number of ways in which a person can feel hassled by computers and computer technology at work. Please respond to each of the 39 potential hassles by **circling** the number indicating how severe the hassle has been for you.

Type of Hassle: Computer Run-Time	**not at all**	**rarely severe**	**moderately severe**	**extremely severe**
1. crashed program	0	1	2	3
2. lost documents or file folders	0	1	2	3
3. crashed system/lockup	0	1	2	3
4. electrical surges-data are lost	0	1	2	3
5. computer keyboard lockup	0	1	2	3
6. damaged storage media-disks, tapes	0	1	2	3
7. lost data	0	1	2	3
8. poorly documented software	0	1	2	3
9. poorly written computer documentation	0	1	2	3
10. incompatible software program	0	1	2	3
11. poor user/computer interface	0	1	2	3
12. slow program speed	0	1	2	3
13. slow computer speed	0	1	2	3
Type of Hassle: Computer Information Problems				
14. lack of computer expertise	0	1	2	3
15. lack of help with a computer problem	0	1	2	3
16. need to update skills	0	1	2	3
17. need to learn new software	0	1	2	3
18. keyboarding typing errors	0	1	2	3
19. software confusion	0	1	2	3
20. Computer instructions are not clear	0	1	2	3

Type of Hassle: Computer Information Problems	not at all	rarely severe	moderately severe	Extremely severe
21. increased computer use expectations	0	1	2	3
22. increased time demand	0	1	2	3
23. too little computer information	0	1	2	3
24. too much computer information	0	1	2	3
25. slow web browser speed	0	1	2	3
Type of Hassle: Internet/E-mail Problems				
26. busy website	0	1	2	3
27. slow download or web page loading time	0	1	2	3
28. unsolicited e-mail spamming	0	1	2	3
29. too many e-mail messages	0	1	2	3
30. dead web link (error 401 message)	0	1	2	3
31. www domain name not recognized	0	1	2	3
32. web site with frames	0	1	2	3
33. web sites with java script	0	1	2	3
34. web sites with too many graphics	0	1	2	3
35. web search engine query language	0	1	2	3
36. web sites with too many pop ups	0	1	2	3
37. too much Internet information	0	1	2	3
38. security of personal information on the Internet	0	1	2	3
39. inadequate Internet skills	0	1	2	3

Section III. Computer Skills Survey (CS)

Directions: As a form of self-examination, please rate your skill level with the following tasks by **circling** the number for each item that most precisely reflects your present level of experience (0=no skill; 1=low skill; 2=medium skill; 3=high skill; 4=Expert skill).

Type of Experience	no skill	1ow skill	medium skill	high skill	Expert skill
1. Use proper computer start-up and shutdown procedures.	0	1	2	3	4
2. Handle and use floppy disks and CD-ROMS.	0	1	2	3	4
3. Use various keyboard functions and shortcuts.	0	1	2	3	4
4. Handle and use floppy disks and CD-ROMS, Flash/Jump Drive	0	1	2	3	4
5. Navigate through Windows XP.	0	1	2	3	4
6. Select printer properties, preview and print documents.	0	1	2	3	4
7. Modify the desktop and display settings.	0	1	2	3	4
8. Manage & organize files using drives, directories, and sub-directories.	0	1	2	3	4
9. Install or uninstall software.	0	1	2	3	4
10. Use e-mail to send messages to and receive messages from individuals and groups.	0	1	2	3	4
11. Send, receive, and save e-mail attachments to include documents, pictures, etc.	0	1	2	3	4
12. Use calendar function in Outlook and other software	0	1	2	3	4
13. Use word processing to create, store, retrieve, and revise instructional materials.	0	1	2	3	4
14. Use presentation software such as PowerPoint to create technology based presentations.	0	1	2	3	4
15. Set-up, operate, and troubleshoot computer and projection equipment for presentations.	0	1	2	3	4
16. Use e-mail as interaction tool.	0	1	2	3	4

Type of Experience	no skill	1ow skill	medium skill	High skill	Expert skill
17. Use tools such as Blackboard to design and deliver Internet course(s).	0	1	2	3	4
18. Record, track, and report grades, attendance or other data electronically.	0	1	2	3	4
19. Use spreadsheets such as Excel for keeping records and analyzing data.	0	1	2	3	4
20. Use a web browser, search engines, and directories to search for, find, and bookmark pertinent information on the Internet and World Wide Web for class, work projects, personal development	0	1	2	3	4
21. Access on-line professional groups and organizations related to your job or field.	0	1	2	3	4
22. Locate professional growth opportunities in your field or job. For example, on-line conferences, workshops, staff development.	0	1	2	3	4
23. Navigate the various websites that the college offers such as program of study, sports, etc.	0	1	2	3	4
24. Use technology such as fax machines and voice mail.	0	1	2	3	4

APPENDIX B

PERMISSION LETTERS TO USE SURVEY INSTRUMENTS

GEORGIA SOUTHERN UNIVERSITY
ZACH S. HENDERSON LIBRARY
POST OFFICE BOX 8074
STATESBORO, GEORGIA 30460-8074
TELEPHONE (912) 681-5645
FAX (912) 681-0093

INFORMATION SERVICES DEPARTMENT

Linda B. Pates
1012 Coleman Lane
Utica, MS 39175

Dear Ms. Pate

Please accept this letter as permission to use any material in my dissertation entitled The Relationship Between Computer Skills and the Levels of Technostress Among Faculty and Academic Librarians from Selected Institutions Within the University System of Georgia (2003) as long as proper reference has been given in-text and/or in the reference list of your research. I am glad to know that my research is being used and that you found material useful for your study. If you should have any questions please feel free to contact me at anytime.

Sincerely,

Sonya S. Shepherd

Sonya S. Shepherd, MSLS, EdD
Instructional Technology Librarian
Associate Department Head, Information Services Department
(912) 486-7820
sgaither@georgiasouthern.edu

UNIVERSITY of NORTH ALABAMA
SINCE 1830
Florence, Alabama 35632-0001

College of Arts and Sciences
Department of Psychology
UNA Box 5039
(256) 765-4390
Fax (256) 765-4911

May 17, 2006

Linda B. Pates
1012 Coleman Lane
Utica, MS 39175

Dear Ms. Pates:

This letter gives Linda B. Pates permission to use the Computer Hassles Scale – Revised (CHS-R) in her dissertation research at Mississippi State University. This scale was developed by Richard A. Hudiburg for research purposes, with proper referencing provided.

If there are any questions concerning the granting of this permission, please contact me.

Sincerely,

Richard A. Hudiburg

Richard A. Hudiburg, Ph.D.
Professor of Psychology
University of North Alabama
Florence, AL 35632

Fox Valley Technical College

1825 N. Bluemound Drive
P.O. Box 2277
Appleton, WI 54912-2277

Phone (920) 735-5600
TTY (920) 735-5679
FAX No. (920) 735-2582
www.fvtc.edu

David L. Buettner, Ph.D.
President

May 22, 2006

Ms. Linda B. Pates
1012 Coleman Lane
Utica, MS 39175

Dear Ms. Pates:

Please consider this letter as officially documenting the permission that I had granted in the fall of 2005 for your use of a survey that I had developed for use at Fox Valley Technical College called "Computer Skills for Faculty."

I hope that the instrument proved to be of value to you and to the research that you were conducting. All the best.

Sincerely,

Dr. Susan A. May
Executive Vice President
and Chief Academic Officer

APPENDIX C

INSTITUTIONAL REVIEW BOARD APPROVAL

Mississippi State University

February 24, 2006

Linda Pates
1012 Coleman Lane
Utica, MS 39175

RE: IRB Study #06-017: An Investigation of Communication Technology Usage, Professional Development Experience, and Anxiety among faculty in a Community College Setting

Dear Ms. Pates:

The above referenced project was reviewed and approved via administrative review on 2/24/2006 in accordance with 45 CFR 46.101(b)(2). Continuing review is not necessary for this project. However, any modification to the project must be reviewed and approved by the IRB prior to implementation. Any failure to adhere to the approved protocol could result in suspension or termination of your project. The IRB reserves the right, at anytime during the project period, to observe you and the additional researchers on this project.

Please refer to your IRB number (#06-017) when contacting our office regarding this application.

Thank you for your cooperation and good luck to you in conducting this research project. If you have questions or concerns, please contact me at jmiller@research.msstate.edu or 325-5220.

Sincerely,

Jonathan E. Miller
IRB Administrator

cc: Connie Forde

Office of Regulatory Compliance
P.O. Box 6223 • 88 Morgan Street • Mailstop 9563 • Mississippi State, MS 39762 • (662) 325-3294 • FAX (662) 325-8776

APPENDIX D

PILOT STUDY COVER LETTER AND SURVEY

Hinds Community College
Jackson Campus/ATC
3925 Sunset Drive
Jackson, MS 39213

Dear Colleague:

You are being asked to voluntarily participate in a pilot study to determine if the use of communication technology account for the intensity of anxiety among faculty in academia. Specifically, this study is designed to determine whether there is a difference in usage of communication technology and level of anxiety of faculty in relation to their job responsibilities, gender, age, computer experience, and professional development. It is also the intent of this study to assist educational institutions in establishing training programs and workshops to assist faculty in reducing computer anxiety. Participation in this study should take no more than 15 minutes.

You may choose whether to participate in this study or not. If you volunteer to participate, you may withdraw at any time. You may also refuse to answer any questions you do not want to answer and still remain in the study. Your input will be used to validate the questions as they relate to the reliability of this survey as a data collection instrument. Please take the time to read the items on this survey to ensure the relevance and structure of the questions. This survey will be sent to academic, career and technical education faculty in a community college setting.

Will you assist me in this effort by taking a few moments to evaluate the survey according to the cover sheet? I am aware of your demanding schedule and would be most appreciative if you would forward your suggestions and recommendations along with this survey to me when you finish. Enclosed is the survey along with a self-addressed stamped envelope to return the survey with comments.

This project has been reviewed by the Human Subjects Protection Review Committee at Mississippi State University, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about the rights of a research subject should be directed to the Regulatory Compliance Office, Mississippi State University, 300 Bowen Hall, P. O. Box 6223, MS State, MS 39762, (662) 325-3294.

Thank you for taking the time to participate in this study.

Sincerely,

Linda B. Pates
Doctoral Candidate, Mississippi State University
Enclosure

INVESTIGATION OF INFORMATION COMMUNICATION TECHNOLOGY USAGE, PROFESSIONAL DEVELOPMENT EXPERIENCE, AND ANXIETY AMONG FACULTY IN A COMMUNITY COLLEGE SETTING

Survey Instrument
Pilot Study

Please use the criteria below to evaluate the survey to ensure the relevance and structure of the questions. Write your comments in the space provided or you may write your suggestions and recommendations on the survey. Please return this sheet and the survey with your comments.

1. **Is the survey format easy to read and understand?**
2. **Do you think that faculty will be able to understand the directions and complete the survey?**
3. **Is the level of language and readability suitable for academic, career and technical faculty?**
4. **Are there any questions that you think should be eliminated?**
5. **Are there any questions that you think should be added?**
6. **Do you have any specific recommendations for rewording or rephrasing any questions? Please indicate the question number with your recommendation.**
7. **Do you think that the number of questions is adequate to capture the data necessary for this study?**

Comments:

An Investigation of Communication Technology Usage,
Professional Development Experience, And Anxiety
Among Faculty In A Community College Setting

Thank you very much for taking the time to assist with this research. Please take a few minutes to answer the following questions concerning communication technology. The information obtained in this survey is for research purposes only. All information gathered will remain confidential, and personal information will not be disclosed. Please complete the survey as honestly and as accurately as possible and return to the researcher promptly.

Section I. Demographics

Directions: Check the answer that best describes you for the following categories.

2. Which program area do you teach?
□Academic □Career □Technical
(List the department or subject area in which you teach) _____

2. How many years have you taught? □1-4 □5-9 □10-14 □15-19
□20-24 □25-30 □31-34 □35-40 □over 40

3. How many years have your taught in your current position?
□0-4 years □5-9 years □10-14 years □15-19 years □over 20 years

4. What is your gender? □Male □Female

5. What is your approximate age: □20-29 □30-39 □40-49 □50-59
□60+

6. Have you been involved in any professional development institutes (PDI) during this past year? □Yes □No

If yes, for a total of how many hours _____

7. Have you participated in any computer courses? □Yes □No
□Credit □Non-credit
List _____

8. Which software do you use at work? Check all that apply.
□Electronic Mail (E-mail) □Internet □Presentations (PowerPoint)
□Spreadsheets (Excel) □Word Processing □Colleague/Datatel
□Course Management Software (Blackboard/WebCT)
□Other (List) _____

Numeric Code: [ ]

Section II. Computer Hassle Scale-Revised (CHS-R)

Directions: Listed below are a number of ways in which a person can feel hassled by computers and computer technology at work. Please respond to each of the 39 potential hassles by circling the number indicating how severe the hassle has been for you.

Computer Run- Time Hassle	not at all	rarely severe	moderately severe	extremely severe
1. crashed program	0	1	2	3
2. lost program	0	1	2	3
3. crashed system/lockup	0	1	2	3
4. electrical surges-data are lost	0	1	2	3
5. computer keyboard lockup	0	1	2	3
6. damaged storage media-disks, tapes	0	1	2	3
7. lost data	0	1	2	3
8. poorly documented software	0	1	2	3
9. poorly written computer documentation	0	1	2	3
10. incompatible software program	0	1	2	3
11. poor user/computer interface	0	1	2	3
12. slow program speed	0	1	2	3
13. slow computer speed	0	1	2	3
Computer Information Problems Hassle				
14. lack of computer expertise	0	1	2	3
15. lack of help with a computer problem	0	1	2	3
16. need to update skills	0	1	2	3
17. need to learn new software	0	1	2	3
18. keyboarding typing errors	0	1	2	3
19. software confusion	0	1	2	3
20. incompre-hensible computer instructions	0	1	2	3

Computer Information Problems Hassle	not at all	rarely severe	moderately severe	extremely severe
21. increased computer use expectations	0	1	2	3
22. increased time demand	0	1	2	3
23. too little computer information	0	1	2	3
24. too much computer information	0	1	2	3
25. slow web browser speed	0	1	2	3
Internet/E-mail Problems Hassle				
26. busy website	0	1	2	3
27. slow download or web page loading time	0	1	2	3
28. unsolicited e-mail spamming	0	1	2	3
29. too many e-mail messages	0	1	2	3
30. dead web link (error 401 message)	0	1	2	3
31. www domain name not recognized	0	1	2	3
32. web site with frames	0	1	2	3
33. web sites with java script	0	1	2	3
34. web sites with too many graphics	0	1	2	3
35. web search engine query language	0	1	2	3
36. web sites with too many pop ups	0	1	2	3
37. too much Internet information	0	1	2	3
38. security of personal information on the Internet	0	1	2	3
39. inadequate Internet skills	0	1	2	3

Section III. Computer Skills Survey

Directions: As a form of self-examination, please rate your skill level with the following tasks by circling the number for each item that most precisely reflects your present level of experience (0=no skill; 1=low skill; 2=medium skill; 3=high skill; 4=Expert skill).

Type of Experience	no skill	1ow skill	medium skill	high skill	Expert skill
1. Use proper computer start-up and shutdown procedures.	0	1	2	3	4
2. Handle and use floppy disks and CD-ROMS.	0	1	2	3	4
3. Use various keyboard functions and shortcuts.	0	1	2	3	4
4. Use the full functionality of a mouse (left and right click	0	1	2	3	4
5. Navigate through Windows XP.	0	1	2	3	4
6. Select printer properties, preview and print documents.	0	1	2	3	4
7. Modify the desktop and display settings.	0	1	2	3	4
8. Manage & organize files using drives, directories, and sub-directories.	0	1	2	3	4
9. Install or uninstall software.	0	1	2	3	4
10. Use e-mail to send messages to and receive messages from individuals and groups.	0	1	2	3	4
11. Send, receive, and save e-mail attachments to include documents, pictures, etc.	0	1	2	3	4
12. Use calendar function in Outlook and other software	0	1	2	3	4
13. Use word processing to create, store, retrieve, and revise instructional materials.	0	1	2	3	4
14. Use presentation software such as PowerPoint to create technology based presentations.	0	1	2	3	4
15. Set-up, operate, and troubleshoot computer and projection equipment for presentations.	0	1	2	3	4
16. Use e-mail as interaction tool.	0	1	2	3	3

Type of Experience	no skill	1ow skill	medium skill	High skill	Expert skill
17. Use tools such as Blackboard to design and deliver Internet course(s).	0	1	2	3	4
18. Record, track, and report grades, attendance or other data electronically.	0	1	2	3	4
19. Use spreadsheets such as Excel for keeping records and analyzing data.	0	1	2	3	4
20. Use a web browser, search engines, and directories to search for, find, and bookmark pertinent information on the Internet and World Wide Web for class, work projects, personal development	0	1	2	3	4
21. Access on-line professional groups and organizations related to your job or field.	0	1	2	3	4
22. Locate professional growth opportunities in your field or job. For example, on-line conferences, workshops, staff development.	0	1	2	3	4
23. Navigate the various websites that the college offers such as program of study, sports, etc.	0	1	2	3	4
24. Use technology such as fax machines and voice mail.	0	1	2	3	4
25. Use personal data assistants (PDA)	0	1	2	3	4

APPENDIX E

PARTICIPATING INSTITUTION PERMISSION LETTER

HINDS COMMUNITY COLLEGE

Office of the President • P.O. Box 1100 • Raymond, Mississippi 39154-1100
(601) 857-3240 • Fax: (601) 857-3518 • e-mail: vcmuse@hindscc.edu

December 11, 2005

Ms. Linda Pates
1012 Coleman Lane
Utica, MS 39175

Dear Ms. Pates:

As requested in your letter of December 1, 2005, I am honoring your request to collect data from our Career and Technical Education faculty. However, I am requiring that the following criteria be met before the data collection takes place:

1. The faculty must agree in writing to participate in your study.
2. Your dates and times of data collection must be acceptable to the faculty, thus fitting their schedule.

Your may also use campus mail for sending the surveys, but only to Hinds Community College faculty.

I commend your scholarly pursuits, and wish you the best with your research. Also, I would appreciate your sending a copy of your report to Dr. Sue Powell, Vice President, Rankin Campus, 3805 Highway 80 East, Pearl, Mississippi 39208.

Sincerely,

Clyde Muse
President

CM/rw

Copy: Dr. Sue Powell

APPENDIX F

COVER LETTER

April 24, 2006

Dear Colleague:

You are being asked to voluntarily participate in a study to determine if the use of communication technology account for the intensity of anxiety among faculty in academia. Specifically, this study is designed to determine whether there is a difference in usage of communication technology and level of anxiety of faculty in relation to their job responsibilities, gender, age, computer experience, and professional development. It is also the intent of this study to assist educational institutions in establishing training programs and workshops to assist faculty in reducing computer anxiety. Participation in this study should take no more than 15 minutes.

You may choose whether to participate in this study or not. If you volunteer to participate, you may withdraw at any time. You may also refuse to answer any questions you do not want to answer and still remain in the study.

Completion of the enclosed survey constitutes permission to use your responses in this study. Also, the survey can be completed by entering the following web address: http://www.surveymonkey.com/s.asp?u=186562030288. If you choose to submit a paper survey, please submit to Linda Pates, Jackson/Academic-Technical Center. Results will be summarized and illustrated in tabular form within the dissertation. If you have questions or concerns about this research, please feel free to contact Linda Pates at 601-987-8136 or lhpates@hindscc.edu, Dr. Connie Forde at 662-325-7258 or Tracy Arwood, Director and Research Ethics Review Officer Regulatory Compliance at tarwood@research.msstate.edu or (662)325-3294.

Thank you for taking the time to participate in this study.

Sincerely,

Linda B. Pates
Doctoral Candidate

Enclosure

APPENDIX G

PARTICIPANTS' DEPARTMENT

Table A.1

Frequency and Percentage by Faculty Department

Faculty Department	N	Faculty Department	n
A D Nursing	9	EDU	3
Accounting	2	Electronics	4
Agriculture	2	English	11
Allied Health	3	Environmental Quality	1
Art	3	Food Production	1
Automotive Technology	2	Graphics Design	1
Aviation Maintenance	2	Heating and Air	1
Barbering	1	History	4
Biology	6	Hospitality & Tourism	2
Brick Masonry	2	HPR	2
Business & Marketing	1	IDT	1
Business Administration	5	Landscape Management	2
Carpentry	3	Management & Marketing	3
Chemistry	3	Mathematics	15
Child Development	5	Medical Assisting	1
Clothing & Textiles	2	Music	2
Collision Repair	1	Paralegal	1
Computer Information	1	Physical Education	1
Computer Networking	5	Plumbing	1
Computer Programming	1	Practical Nursing	11
Computer Science	2	Professional Development	1
Computer Servicing	1	Psychology	5
Cosmetology	2	Reading	4
Counseling Education	2	Sociology	5
Court Reporting	1	Special Populations	2
Culinary Arts	1	Speech	1
Dance	1	Student Services	2
Diesel Equipment	1	Welding	1
Drafting and Design	4	Grand Total	197

APPENDIX H

OTHER SOFTWARE USED BY PARTICIPANTS

Table A.2

Other Software Used by Participants

Software Applications	
Accounting	Keyboarding Pro
Adobe Acrobat	Mathematics
ArcView	Management Information Systems
Auto Computer-Aid Drafting	Medical Applications
Basic Programming	Microsoft Access
Camtasia	Micrograde Book
Chief Architect	Microsoft Outlook
CISCO Programming	Microsoft Publisher
Development CDs	PaintShop Pro
Digital Imaging	Adobe Pagemaker
DragonSpeaking	Photo Shop
Dreamweaver	Plato Educational Software
EC3 Certification	Point Silver Software
FrontPage	SNAP
Graphics	Visual Basic
Interactive Child	Point Silver Software
JGrasp	Visual Basic
Labsim	