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Faculty Perceptions about Instructional Technology in Eight Community Colleges in the Tennessee Board of Regents Higher Education System.

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Faculty Perceptions About Instructional Technology in Eight Community Colleges in the Tennessee Board of Regents Higher Education System

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by

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ABSTRACT

Faculty Perceptions About Instructional Technology in Eight Community Colleges in the Tennessee Board of Regents Higher Education System

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The purpose of this study was to examine faculty members' perception of the status of technology support and services, their attitudes towards the incorporation of technology in general and with specific applications, and the barriers they perceive to technology use. Additionally, the study focused on the association among the predictor variables of faculty members' gender, age, professional status, years of higher education teaching experience, and tenure versus nontenure status with their degree of technology use.

An online survey was designed to collect data to address the research questions in the study. The survey consisted of 44 questions, including areas for comments. Two-hundred ninety faculty members out of a possible 867 responded to the survey.

Based on the results, conclusions have been drawn. According to the literature, the results of this study both contradict and support previous studies. Dimension 1, perceived technology support and services, and Dimension 2, perceived barriers to technology use, provided no significant difference when considering the demographic variables of age, gender, years of experience, faculty rank, and tenure versus nontenure status. Though, Dimension 3, attitudes towards the use of technology and specific applications, provided no significant difference when considering the demographic variable of age, faculty rank, and tenure versus nontenure status but there was a slight indication of significance based on years of experience. In addition, gender differences appeared among attitudes toward the use of technology and specific applications.

Based on the results, females have been shown to have better attitudes toward the use of technology and specific applications, an area historically dominated by men. Also, faculty

members with 1-9 to 10-19 years of experience have better attitudes toward the use of technology. While faculty members with 20 or more years of experience attitude is not significantly affected by years of experience.

Additional research needs to be established to include: 1) research faculty members in other southeast states to determine whether or not findings from this study could be generalized, 2) research to include all community colleges within the Tennessee Board of Regents higher education system, and 3) research faculty members responses regarding community colleges role in providing technology training.

DEDICATION

This study is dedicated to my husband. To my husband, who provided endless love, support, and encouragement during my years in graduate school, and for the times he was left alone to fend for himself. He is truly my heart and soul, for if it was not for his love and understanding, I could not have accomplished this.

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CHAPTER 1

INTRODUCTION

According to Sifferlen (2003), "Technology has had a significant impact in the classroom not seen or felt since the introduction of the textbook" (p. 1). Community college faculty members are facing considerable pressure to alter their instruction to respond to students who expect to use technology in the pursuing their education.

According to Wallin and Smith (2005), "Faculty life in community and technical colleges is remarkably similar across the country and is characterized by heavy teaching loads, close relationships with business and industry, involvement in community service, and a lack of clerical and teaching support" (p. 89).

According to Daugherty and Funke (1998), faculty members have encountered significant barriers to technology use. Such barriers have included a perceived lack of technical support, inadequate software or lack thereof, and lack of institutional policies to provide released time for creating course materials.

Gilbert (1996) reported that many institutions did not provide obtainable information for "good practices" (p. 11). In addition, research, such as a study by Wolcott and Betts (1999) has identified limited institutional reward practices and incentives for faculty members who did not encourage participating in technology supported activities. Faculty members identified little or no financial support and stated a need to devote extended working hours to the use of technology.

Statement of the Problem

The literature indicates community college faculty members have had access to technological hardware and software for instructional purposes but have lacked technical service and support to use technology efficiently (Peluchette & Rust, 2005). In addition, many barriers have been identified among faculty members, ranging from "poor seating, lighting, and podia-

cabinetry" (Brill & Galloway, 2007, p. 102) to lack of available information for best practices with the incorporation of technology.

The most frequently identified barriers cited in the literature were lack of technical support, equipment, administrative support, time, and student acceptance (Hall & Elliot, 2003; Massey & Zembrey, 1995; Richard, 1999; Spodark, 2003; Wolcott, 2003). The literature also recognizes a relationship between gender, age, professional experience, rank, and tenured with nontenured faculty status with the perceived status of technology at higher education institutions (Peluchette & Rust, 2005; Spotts & Bowman, 1995).

The purpose of this study was to ascertain faculty members' perceptions about instructional technology at the eight community colleges in the Tennessee Board of Regents System.

In addition, this study was conducted to determine faculty members' perceptions about instructional technology use within the ranks of the full-time faculty in the Tennessee Board of Regents System community colleges.

The data for this study were obtained from my online survey of faculty members in each of 8 participating community colleges (from a total of 13 community colleges) in the Tennessee Board of Regents System. I developed the online survey, which is entitled *Faculty Perceptions about Instructional Technology*, but which hereinafter will be labeled "the survey instrument".

Research Questions

The study was conducted along three dimensions: (a) "technology services and support," (b) "perceived barriers that inhibit the use of technology", and (c) "attitudes toward the use of technology in general and specific applications."

The following research questions are based on dimension 1, "technology services and support":

1. Are there differences in the mean scores for full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system

on the technology support and services dimension of the survey instrument based on age?

2. Are there differences in the mean scores for full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the technology support and services dimension of the survey instrument between male and female faculty members?
3. Are there differences in the mean scores for full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the technology support and services dimension of the survey instrument among the faculty members in each of four faculty ranks (instructor, assistant professor, associate professor, and professor)?
4. Are there differences in the mean scores for full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the technology support and services dimension of the survey instrument based on years of higher education experience?
5. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the technology support and services dimension of the survey instrument based on the three tenure status groups (nontenured-tenure track, nontenure track, tenured)?

The following research questions are based on dimension 2, "perceived barriers that inhibit the use of technology":

6. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the perceived barriers that inhibit the use of technology dimension of the survey instrument based on age?
7. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education

system on the perceived barriers that inhibit the use of technology dimension of the survey instrument between male and female faculty members?

8. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the perceived barriers that inhibit the use of technology dimension of the survey instrument among the faculty members in each of four faculty ranks (instructor, assistant professor, associate professor, and professor)?
9. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the perceived barriers that inhibit the use of technology dimension of the survey instrument based on years of higher education experience?
10. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the perceived barriers to significant use of technology dimension of the survey instrument among the three tenure status groups (nontenured-tenure track, nontenure track, tenured)?

The following research questions are based on dimension 3, "attitudes toward the use of technology in general and specific applications":

11. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the attitudes toward the use of technology in general and specific applications dimension of the survey instrument based on age?
12. Are there differences in the mean scores for the full-time faculty members at the 8 community colleges within the Tennessee Board of Regents higher education system on the attitudes toward the use of technology in general and specific applications dimension of the survey instrument between male and female faculty members?

13. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the attitudes toward the use of technology in general and specific applications dimension of the survey instrument among the faculty members in each of four faculty ranks (instructor, assistant professor, associate professor, and professor)?
14. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the attitudes toward the use of technology in general and specific applications dimension of the survey instrument based on years of higher education?
15. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the attitudes toward the use of technology in general and specific applications dimension of the survey instrument among the three tenure status groups (nontenured-tenure track, nontenure track, tenured)?

The following hypotheses are based on the research questions concerning dimension 1, "technology services and support":

Ho1: There is no difference in mean scores of full-time faculty members' perceived status of technology support and services based on faculty age.

Ho2: There is no difference in mean scores of full-time faculty members' perceived status of technology support and services between males and females.

Ho3: There is no difference in mean scores of full-time faculty members' perceived status of technology support and services among faculty members in each of the four faculty ranks (instructor, assistant professor, associate professor, and professor).

Ho4: There is no difference in mean scores of full-time faculty members' perceived status of technology support and services based on years of higher education teaching experience.

Ho5: There is no difference in mean scores of full-time faculty members' perceived status of technology support and services among faculty grouped by tenure status (nontenure-tenure track, nontenure track, and tenured).

The following hypotheses are based on the research questions concerning dimension 2, "perceived barriers that inhibit the use of technology":

Ho6: There is no difference in mean scores of full-time faculty members' perceived barriers that inhibit the use of technology based on age.

Ho7: There is no difference between mean scores of full-time faculty members' perceived barriers that inhibit the use of technology between males and females.

Ho8: There is no difference between mean scores of full-time faculty members' perceived barriers that inhibit the use of technology among faculty members in each of the four faculty ranks (instructor, assistant professor, associate professor, and professor).

Ho9: There is no difference between mean scores of full-time faculty members' perceived barriers that inhibit the use of technology based on years of higher education teaching experience.

Ho10: There is no difference between mean scores of full-time faculty members' perceived barriers that inhibit the use of technology among faculty grouped by tenure status (nontenure-tenure track, nontenure track, and tenured).

The following hypotheses are based on the research questions concerning dimension 3, "attitudes toward the use of technology in general and specific applications":

Ho11: There is no difference in mean scores of full-time faculty attitudes toward the use of technology in general and specific applications based on age.

Ho12: There is no difference between mean scores of full-time faculty attitudes toward the use of technology in general and specific applications between males and females.

Ho13: There is no difference between mean scores of full-time faculty attitudes toward the use of technology in general and specific applications among faculty members in each of the four faculty ranks (instructor, assistant professor, associate professor, and professor).

Ho14: There is no difference between mean scores of full-time faculty attitudes toward the use of technology in general and specific applications based on years of higher education teaching experience.

Ho15: There is no difference between mean scores of full-time faculty attitudes toward the use of technology in general and specific applications among faculty grouped by tenure status (nontenured-tenure track, non- tenured track, and tenured).

Significance of the Study

The use of technology has been a factor in higher education. A search of online data sources of the status of technology at the eight community colleges in the Tennessee Board of Regents higher education system yielded minimal results regarding the status of technology.

This study addressed the status of technology concerning the Tennessee Board of Regents system, how full-time faculty members perceive status of technology support and services, their attitudes towards the incorporation of technology in general and with specific applications, and the barriers they perceive to technology use.

Additionally, the study focused on the association among the predictor variables of faculty members' gender, age, professional status, years of higher education teaching experience, and tenure versus nontenure status with their degree of technology use.

This study should provide Tennessee Board of Regents System community colleges the necessary statistical information to support adequate changes to technology initiatives involving full-time faculty members within their respective institutions.

Definitions of Terms

To facilitate reading of the literature review, several definitions are clarified:

1. *Tennessee Board of Regents system (TBR):* This system supervises all public institutions of higher education in Tennessee not governed by the University of Tennessee system including 6 four-year institutions, 13 community colleges, and 26 Tennessee Technology Centers (Tennessee Board of Regents (2008d).
2. *Community College*: "Any institution regionally accredited to award the associate in arts or the associate in science as its highest degree" (Cohen & Brawer, 2003, p. 5).
3. *Distance Education:* "The acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance" (United States Distance Learning Association, 2008, p. 1).
4. *TBR's definition of distance education:* [This] occurs when there is a physical separation of the teacher and learner and when communication and instruction take place through, or are supported by, any technological means such as telephone, radio, televisions, computers, satellite delivery, interactive video, or any combination of present and future telecommunication technologies (Tennessee Board of Regents, 2008c).
5. *TBR's definition of faculty:* The term "faculty" shall be limited to regular, full-time personnel at institutions and area vocational-technical schools whose regular assignments include instruction, research, or public service as a principal activity and who hold academic rank as professor, associate professor, assistant professor, or instructor at the institutions (Tennessee Board of Regents, 2008c).

6. *TBR's definition of academic tenure:* [This] is a personnel status in an academic department or academic program unit pursuant to which the academic or fiscal year appointments of full-time faculty who have been awarded tenure are continued at a community college until the expiration or relinquishment of that status, subject to termination for adequate cause, for financial exigency, or for curricular reasons (Tennessee Board of Regents, 2008c).
7. *TBR's definition of information technology:* [This] includes computers and computer time, data processing or storage functions, computer systems and services, servers, networks, printers and other input-output and connecting devices, and related computer records, programs, software, and documentation (Tennessee Board of Regents, 2008b).

Limitations

This study was limited to full-time community college faculty members in the Tennessee Board of Regents higher education system. The results of this study may not be generalized to any other states with comprehensive 2-year community college systems.

Overview

Chapter 1 provides an introduction to the study, a statement of the problem, research questions and hypotheses, the significance of the study, definitions of terms used in the study, and limitations.

Chapter 2 provides a review of the literature on faculty members' perceptions about instructional technology. Furthermore, the chapter presents pertinent information concerning the background of the Tennessee Board of Regents system, information technology, technology services and support; attitudes about technology and demographic characteristics; barriers to technology; and faculty members' knowledge of technology.

Chapter 3 presents the statistical methods and techniques used to evaluate the status of technology in the 13 community colleges within the Tennessee Board of Regents System.

Chapter 4 includes the statistical outcomes of the quantitative analysis of the data collected with the survey instrument.

Chapter 5 includes a discussion of the findings related to the examination of the data on technology in the 13 community colleges. This chapter also provides conclusions of research with recommendations for future research.

CHAPTER 2

REVIEW OF RELATED LITERATURE

Introduction

This chapter provides a review of the literature regarding the status of technology among higher education faculty members and particularly community college faculty members. In addition, the chapter presents pertinent information concerning the background of the Tennessee Board of Regents System, information technology, technology services and support, technology and demographic characteristics, barriers to technology, and faculty members' knowledge of technology.

Background of Tennessee Board of Regents System

The Tennessee Board of Regents (TBR) was established in 1972 by the Tennessee General Assembly (Tennessee Board of Regents, 2008a). The governing board of the 8 community colleges from which this study retrieved data is known as the Tennessee Board of Regents system. This system is also responsible for governing 6 state universities and 26 technology centers (Tennessee Board of Regents, 2008d).

The Tennessee Board of Regents (1999) higher education system previously identified a necessary movement that needed to occur to maintain competitiveness. According to the TBR Distance Education Position Paper written in 1999, it was estimated that distance education was a "$180 billion a year enterprise" (p. 3). Along with distance education, the use of other types of technology must be considered.

To support or fund technology, the Tennessee Board of Regents charges students a fee known as the Technology Access Fee. According to the Tennessee Board of Regents (2008e) Office of Business and Finance each community college charges a mandatory fee of $225.00 technology access fee with 12 or more credit hours. This fee is used for "direct student benefit, for items such as new and improved high technology laboratories and classrooms, appropriate

network and software, computer and other equipment, and technological improvements that enhance instruction" (Tennessee Board of Regents, 2008b, n. p.). According to the Tennessee Board of Regents (2008f), the technology access fee also may be used for:

> faculty and staff development directly related to the introduction or application of new technology which impacts students. These guidelines should have the flexibility to place instructional technology in a faculty lab where course materials are being prepared. For example, TAF funds can be used to create faculty labs to include the purchase of computers and to conduct faculty training and course development. (n. p.)

Technology access fees are also used to provide laboratory computers with necessary software and maintenance. In addition, technology access fees provide staffing for computer labs, computers for faculty using distance education methods, and faculty and staff development to introduce new technologies that will improve or impact teaching (Tennessee Board of Regents, 2008e).

Identified within the Tennessee Board of Regents (1999) Distance Education Position Paper were two items that are specific to this research; "technology institutional and faculty issues" (p. 2). This early document identified major issues affecting technology and its effect on faculty. Within the instructional issues, the addition of "technical and instructional technology support staff" was suggested (Tennessee Board of Regents, 1999, p. 12). Within faculty issues, access and training for technology use, incentives and rewards for participating in the use of technology, and how the use of technology would affect faculty tenure and promotion were all mentioned. All of these topics, according to the literature review, are associated with affecting the status of technology amongst full-time faculty members.

The Tennessee Board of Regents (1999) Distance Education Position Paper stated that Tennessee must educate the state and the nation thereby providing faculty with the necessary support and services to include the use of technology.

Information Technology

Technology is ever-changing and along with this has been faculty teaching and student learning in higher education institutions (Baldwin, 1998; Batson & Bass, 1996; Bork, 2000;

Morales & Roig, 2002). The percentage of higher education institutions using technology to deliver education was found to have increased from 44% in the years 1997-1998 to 96% as of 2006 (Harman, Dziuban, & Moskal, 2007, p. 158). The term "information technology" encompasses many different activities and can be defined in diverse ways depending on use. For example, Daughtery and Funke (1998) defined information technology as the use of various techniques for teaching such as the use of multimedia presentations, video teleconferencing, and online course delivery.

Information technology, according to Summers and Vlosky (2001), included items that affect instruction such as ". . . electronic libraries, governmental databases, and literature search engines" (p. 79) accessible through the internet. An advantage of online instruction has been the availability of faculty members anytime and with anyone who maintains an e-mail address or course websites.

According to Peluchette and Rust (2005), faculty have a vast array of technologies available for instructional purposes. These technologies have the potential to replace "traditional teaching methods"(p. 1). For example, faculty members could incorporate or replace traditional styles of teaching with presentations by PowerPoint or provide guest lectures through the use of video-conferencing.

Instructors might use technologies such as e-mail, course management systems (WebCt, Blackboard, Desire2Learn), or chat rooms; all of these technologies have the potential of providing communication between faculty, students, and administrators. Gilbert (1996) found that many faculty members' first use of technology included computer-driven projection devices, the use of electronic mail for faculty-to-student communication, video telecommunications, and "use of specific applications of information technology" (p. 2).

Brill and Galloway's (2007) survey indicated a low-level of technology use among college level faculty. University faculty members indicated they used "overhead projectors, the VCR, a slide projector, the Internet, a large screen video data display, and an Instructor computer workstation" (p. 98). Along with this information, the survey indicated that instructors had an

interest in learning new technologies such as how to use "the Internet, a CD-ROM, an instructor computer workstation, video disc player, a large screen video data display, DVD video, and students' computer workstations" (p. 98).

According to Cheney (2002), although faculty members receive new and innovative distance technologies, they expressed concerns about:

1. the larger workload occasioned by increased preparation time;
2. intellectual property--that is, who owns a course and instructional material; and
3. the need for specialized training for faculty. (p. 5)

In addition, many faculty members have inadequate technology services and support within their institutions. The following topic addresses the availability, or lack thereof, of technology services and support.

Technology Services and Support

According to Irani and Teig (2002) services and support for technology has been a "key issue facing many institutions of higher learning" (p. 2). Gilbert (1996) predicted a "support-service crisis" (p. 13) with the introduction of technology into higher education institutions. Gilbert found only a small percentage (10% to 15%) of faculty members using technology. Those so-called "innovative" (p. 13) faculty members were provided with minimal support services required at that early stage and said they were satisfied with their institution's services. The problems now are with the current faculty members. These faculty members require a higher quality and greater range of support services.

The rate of technology adoption has been described as "the rate of acceptance for a given technology product" (Stimson, 2007, p. 20). The technology adoption levels have been categorized as innovators, early adaptors, early majority, late majority, and laggards. These categories were first recognized by Rogers (1995), when he categorized the rate of technology incorporation. Kasworm's (1997) study of faculty members noted, "[E]arly adopters often were the ones who sought out selected instructional activities through the college or the university

resources" (p. 8). Furthermore, Kasworm's study ideGntified early and late majority as "unpredictable in efforts to offer instructional support" (p. 10) and laggards were faculty members who were uninvolved and, ". . . occasionally encouraged to attempt certain basic activities" (p. 11). According to (Wallace, 2004) "the majority of the institutions in the Tennessee board of Regents higher education system can be considered to be in either the Early or Late stages of technology adoption with regard to web-enhancement of traditional courses" (p. 90). Specifically, the community colleges within the Tennessee Board of Regents higher education system all fall within Early and Late Majority according to Roger's categories of adoption. From previous research provided by Wallace the following institutions were considered "lead institutions" (p. 99) for web-enhancement: Chattanooga State Technical Community College, Northeast State Technical Community College, and Walters State Community College. In addition, Southwest Tennessee Community College, Nashville State Technical Community College, and Cleveland State Community College were labeled as "Early Majority" (p. 99) category.

Support service mainly has fallen in the hands of instructional technology (IT) staff members. These staff members not only provide support for the faculty members but also for the institution. According to Dwight (2007), instructional technology support staff has been strained from providing support for the institution and thereby were restrained from providing the necessary support for academic technology to faculty members. Insufficient numbers of IT support staff have been unable to provide adequate and timely support to maintain technical support for faculty members.

According to Howell, Williams, and Lindsay (2003), there is a continued need for "faculty development, support and training" (p. 4). Green (2002) maintained:

> The role of computing and information technology in U.S. higher education, chief academic and information technology officials rated helping faculty integrate technology into their instruction the single most important IT issue confronting their campuses over the next 2 or 3 years. (p. 4)

According to Wallin and Smith (2005), faculty members are comfortable with their own instructional and curricular areas, their main responsibilities, but have not been comfortable with the area of technology (Beggs, 2000). Hinson and LaPrairie (2005) indicated that faculty members recognized the importance of using technology to organize and manipulate student information, but they also indicated a low degree of confidence in their ability to do so. As noted by Wallin and Smith, "This may reflect a lack of services, opportunity, or training in software programs appropriate for their instructional and records-management needs" (p. 98).

Dooley and Murphrey (2000) stated that although faculty members said they knew reliable services were available, they did not know exactly which services were available. In addition, faculty members said communication was lacking between critical personnel and faculty. This lack of communication can cause the resolution of instructional technological issues to slow, thereby discouraging the use of instructional technology.

Masi and Winer (2005) indicated that institutions must provide multilevel services for faculty; these levels would include information technology pertaining to "connectivity, integration, informational services (libraries), pedagogy, and instructional communications" (p. 152). Even with all of these levels, many faculty members did not know where to begin to even start asking questions to facilitate problem-solving. According to Wallace (2004), "[O]ne-site support is needed to assist in the implementation of change. This includes helping faculty to set up new technology and troubleshoot problems, discuss future projects, provide answers to technical problems, and provide encouragement" (p. 48). According to Wallace, "Technical support needs to be housed in the discipline area in order to provide support when it is needed and that is tailored to the faculty unique needs" (p. 48).

Hinson and LaPrairie (2005), in a study of community colleges in Louisiana, identified technical support as the main influence upon the development of online courses. Louisiana community colleges employed only one administrator who provided technical support for all community colleges in the state. Because of this lack of technical support and services, faculty

members had to deal manually with technical and course management issues. Such issues were time-consuming and discouraging to the faculty members.

A study by Summers and Vlosky (2001) indicated faculty members' perception of hardware and software maintenance by technology support staff was "less than positive" (p. 82). These researchers indicated, ". . . 25% felt their departmental maintenance was very adequate, almost twice as many (46%) said maintenance was only somewhat adequate, 27% described maintenance as inadequate, and 2% said no computer resources existed" (p. 82).

Quick and Davies (1999) identified faculty members who said they wanted support for their technology needs. In addition, the faculty members mentioned a need to access informational technology personnel who were knowledgeable about or experts in the applications of technology in use. Faculty members expected administrators to recognize that it is not only sufficient to provide technology but to provide staff with the assistance needed to help with the use of technology.

Quick and Davies (1999) pointed out that faculty members recommended one person within a department or division to become an expert in technology and then that trained person could be the contact for assistance on a permanent basis. Many faculty members considered technology training their utmost need but said workload prohibited much training. Harman et al. (2007) followed this recommendation of training but added that faculty should also be advisers and role models for technology initiatives.

According to Peluchette and Rust (2005), faculty members needed the use of specific technology but the level of institutional support was insufficient to address their needs. Schifter (2000) echoed similar concerns as Peulechette and Rust in that that faculty perceived a lack of institutional support for their technology needs. It was pointed out by Piotrowski and Vandanovich (2000) that the speed of software systems and servers were important factors in deciding whether to use certain technology. Baldwin (1998) stated, "Assuming the technological infrastructure (hardware and software) is in place in an institution, attention to the social and psychological aspects of adopting technology should be a high priority" (p. 314). Baldwin added

that an institution should provide "… innovative and realistic applications of technology" (p. 314) that would encourage technology use.

According to previous studies (Hall & Elliot, 2003; Massey & Zemsky, 1995; Richard, 1999; Spodark, 2003; Wolcott, 2003) faculty members provided a number of reasons for not using technology. These included lack of support and service in general, no identifiable institutional polices, equipment availability or lack thereof, minimal or no incentives and rewards, no technical or faculty support, and no regard for technology use in promotion and tenure process.

According to Harman et al. (2007), faculty members needed to be involved in policy formation. Faculty must have the opportunity to participate in decisions such as "intellectual property, distribution rights, the evaluation of online teaching by students as well as tenure and promotion committees, faculty workloads, and compensation" (p. 163). In addition to this involvement comes the administrators' need to understand faculty members' needs as well as "incentives, rewards and recognition" (p. 163).

Technology and Demographic Characteristics

Demographics associated with technology use among faculty members included age, rank, tenured or nontenured status, and gender according to Peluchette and Rust (2005). Although Wallace (2004) found "no association between age and a reluctance to develop web-enhanced courses" (p. 69), "females were more likely to use a web-enhance than were males" (p. 72). Results from Wallace's study indicated there was no difference between tenured or not tenured faculty members and whether they used web-enhanced course material. Furthermore, the study indicated, "There is clear indication that faculty with fewer than 16 years of service were more likely to web enhance their courses than were faculty with 16 years or more years of service" (p. 72).

In a study completed by Rosseau and Rogers in 1998, a negative association was found between age and technology use. Along with age or years of experience usually comes the status

of tenure. Tenured faculty members, like other more experienced faculty members, were less interested and less motivated and had a feeling of inferiority regarding their use of technology. There have been questions raised in the literature about whether tenured faculty members used technology less than did nontenured faculty members.

According to Westney (2000), technology is new and, because of this, "Promotion and review committees are perplexed by the challenges of evaluating and assigning meaningful credit for the enormous amount of time spent by faculty on integrating technology into the teaching components of their positions" (p 113). According to the National Center for Education Statistics (2002), "The security of tenure might encourage experienced faculty to try more controversial forms of instructional design" (p. 1). Gerlich and Wilson (2005) disagreed and stated that tenured faculty members with many years of experience were not as likely to incorporate technology. In the same study, Gerlich and Wilson stated:

> Given the pressures of attaining tenure, one might conclude that previously tenured faculty might be less favorably disposed toward a paradigm that would require them to learn new pedagogy and computing skills, at point in their career when it might not be critical to do so. (p. 12)

According to Howell et al. (2003), "Faculty tenure is being challenged, allowing for more nontraditional faculty roles in distance education" (p. 4). Howell et al. maintained, "Contributions to distance education rarely move faculty members toward tenure; therefore, dissolving tenure might make them more likely to participate in distance education efforts" (p. 4).

In a previous study, Wolcott (1997) indicated administrators' lack of consideration for time spent on technology incorporation in tenure and performance reviews for full-time faculty members was a barrier to the use of technology. Wolcott said academic officers stated that faculty members were placing their careers in peril if they engaged in technology use to support improved teaching efforts.

According to Wolcott (1997):

> Higher education institutions convey their values through a reward system that can range from royalty payments to formal awards. While it may consist of a number of extrinsic

> incentives and rewards, the institutional reward system is dominated by the promotion and tenure processes. (p. 2)

Wolcott (1997) explained that regarding the use of technology for distance education, the rewards for faculty must be well established and added, "Receiving credit for distance teaching and its related activities is a paramount concern for faculty" (p. 3). Faculty members must be confident that their work will be acknowledged and credited by department heads and deans. "The tone set by administration influences the degree of faculty participation in distance programs" (Wolcott, p. 3) or the use of technology. The support by deans and departments needs to be recognized by the institution as well with the revision of policies and procedures (Dooley & Murphrey, 2000). Dooley and Murphrey stated that faculty were "threatened by the slow revision of current policies and procedure which in turn affect career and job security" (p. 7). The authors pointed out that if institution "aim to effectively use technologies" (pg.8) then the institutions need to revise institutional policies.

Wolcott (1997) stated:

> Success of distance education programs and other innovations requires that faculty find something in it for themselves - - something more than intrinsic satisfaction. Faculty need to know that their investment of time and effort pays off in terms of what the university values and rewards. While intrinsic rewards may be satisfying enough to encourage faculty participation, more tangible and equitable rewards are needed to sustain motivation. (p 5)

Spotts, Bowman, and Mertz (1997) and Spotts and Bowman (1995) associated gender with the use of technology. The study completed by Spotts et al. showed gender differences in knowledge and expertise of technology. In addition, Spotts' (1999) study of 367 faculty members indicated men rated themselves higher in the knowledge and expertise of technology as compared to women.

Spotts et al. (1997) identified:

> Factors influencing technology use by females included; time to learn a technology, increased student learning, and ease of use training available information as more important than did males. Such incentives as release time, merit pay, contribution to promotion and tenure, monetary rewards, and recognition by the university were rated more important by women, as were barriers of lack of time and lack of contribution to professional advancement. (p. 421)

Spotts et al. (1997) noted differences along gender lines with technologies such as Internet, e-mail, and computer conferencing. In addition, there was no difference along gender lines with the use of word processing, computer spreadsheets, and audio and presentation software. Only one item showed a significance; this was computer-assisted instruction. "Males did rate themselves as significantly higher in knowledge/experience than did females" (Spotts et al., p. 428).

Additionally, Noble (2000) reported in a study of radiologic technology instructors at community colleges that such characteristics as rank, age, and gender were significantly associated with the use of technology. According to Spotts et al. (1997), gender differences existed along the lines of access to and performance with technology. In addition, there were differences found in anxiety levels and attitudes towards the use of technology. Gerlich and Wilson (2005) indicated, when studying the relationship of age to technology use, that there was no relationship; however, Gerlich and Wilson pointed out there would be an assumed relationship because "Younger faculty have been exposed to computer technologies for a greater percentage of their lives than have their more senior colleagues" (p. 11). This statement was supported by the findings of Adams (2003) whose data revealed, "Those in the 18-34 age range display a recognizably higher level of computer integration" (p. 295) while faculty age computer integration mean scores decreased.

Teaching experience, according to Adams (2002), indicated:

> higher level integration by those with 0-3 years of teaching experience. The overall trend shows those in their middle years of teaching tenure, 10-19 years experience, as having the least demonstration of integration of technology into teaching practices. Respondents with less than 10 years of experience of those with 20 years of more of teaching experience demonstrate a greater degree of technology integration into teaching practices. (p. 295)

Community College Faculty Characteristics

According to the U. S. Department of Education's (2008a) National Center for Educational Statistics, the ages of public 2-year instructional full-time faculty members were as

follows: 29 or younger (2.6%), 30 to 34 (5.8%), 35-39 (11.2%), 40-44 (13.1%), 45-49 (15.4%), 50-54 (19.3%), 55-59 (19.8%), 50-64 (8.7%), and 65 or older (8.7%). As far as degree attainment is concerned, full-time faculty possesses the following: less than bachelor' (5.1%), bachelor's (9.7%), master's (54.5%), and doctoral (23.4%)(U. S. Department of Education, 2008a).

Lastly, according to the same report, faculty members have acquired the following academic ranks: professor (21.7%), associate professor (15.1%), assistant professor (14.4%), and instructor (32.6%). These numbers represent data collected in the fall of 2003 (U. S. Department of Education, 2008a).

Furthermore, according to U. S. Department of Education, National Center for Education Statistics (2008a) in 2003-04, the proportion of full-time faculty members who had tenure in each area were as follows: professor (92.2%), associate professor (81.3%), assistant professor (45.9%), and instructor (38.6%). Within the years of 2005-06, the following faculty members had the designation of tenure with the following ranks: professor (70.0%), associate professor (69.7%), assistant professor (15.4%), and instructor (34.5%). The above percentages includes both male and female tenured faculty members.

Barriers To Technology

A barrier is considered, "Any condition that makes it difficult to make progress or to achieve an objective" (Free Dictionary, 2008). Schoepp (2005) stated

> The understood and yet unspoken connotation of a barrier is that its removal acts as an aid toward the achievement of the objective. The study of barriers as they pertain to technology (integration) is essential because this knowledge could provide guidance for ways to enhance technology. (p. 2.

Roberts, Kelley, and Medlin (2007) investigated "factors influential to the instructors decision to use technology in the learning environment: (p. 426). This study included "eighty faculty members teaching Principles of Accounting at accredited colleges of business within the State of North Carolina" (p. 426). The survey investigated various "social, organizational and personal

factors influencing accounting faculties' decision to adopt electronic technologies in the delivery of instruction" (p. 426). Social factors in this study included, "peer support, peer pressure, mentors, shared values in my department, friends and students" (p. 429). Organizational factors included in this study were "mandate from the university; institutional reward system; formal recognition on a department, college, university level; and physical resources (equipment, hardware, software)" (p. 429). Personal factors included in this study were "personal interest in instructional technology; personal interest in improvement in my teaching; and personal interest in enhancing student learning" (p. 429). The results of this study identified the following "as statistically significant to the adoption of technology; those social factors statistically significant were "peer support, shared departmental values, friends, and students" (p. 428). In addition, organizational factors statistically significant were "physical resources" (p. 429) including that "technology must be available, easy to use, and reliable" (p. 429). "All three personal factors significantly influence the faculty member's decision to adopt technology" (Roberts et al., p. 429).

According to Butler and Sellbom (2002), faculty members at Ball State University identified three main barriers for the use of technology for teaching and learning. These barriers were reliability, ease or difficulty of use of technology, and institutional support. Reliability or "unreliability was the most commonly cited" (Butler & Sellbom, p. 23). The term unreliability dealt with problems associated with software incompatibility and malfunction, mistakes by technology experts, and internet access downtimes.

A study completed by Morse, Glover, and Travis (1997) compared use of technology among three departments: information systems, management information systems, and computer information systems. The researchers identified lack of funding, equipment, and administrative and faculty support as reasons or barriers by the identified departments for not using technology. Of the faculty members surveyed, 83.3% said lack of funding, 72.2% reported lack of equipment 55.6% said lack of administrative support, and 66.7% noted lack of faculty support. This was echoed by Daughtery and Funke (1998) in a study where faculty members mentioned the same

barriers as stated by Morse et al. but also included lack of technical support and an increase in time and resistance of students' acceptance of technology.

A survey completed by Waldman, Alexander, Zhao, and Perreault (2002) of 81 business professors focused on technology and instructional delivery issues. The following are findings of the survey. The participants in the survey identified technology itself as a "major issue" (p. 2). Participants in the survey identified the following as problematic barriers, "51% reliability of technology, 19% technology support provided by institution, 13% student technology competence, and 4% teacher technology competence" (p. 3). Participants identified "no problems" (p. 3) associated with technology and instructional delivery issues; "20% reliability of technology; 41% technology support provided by institution; 37% student technology competence; and 59% teacher technology competence" (p. 3). The participants of this study were relatively new to distance education, with the majority having taught distance-learning courses for no more than 3 years. However, 23% indicated that they had been teaching "some type of distance-learning courses for 5 or more years" (Perseault et al., p. 3).

In a study by Muilenberg and Berge (2001), the researchers asked, "Do educators perceive different barriers depending upon the maturity of their organization's capabilities in distance education" (p. 40)? Based on this question, Berge and Muilenbery identified five stages of organizational maturity: (a) no attempt to use distance learning, (b) separate or sporadic distance learning, (c) organization's technological capability can support distance education, (d) organization has established a distance learning policy and planning, and (e) distance learning has been institutionalized at my organization (p. 41). Although, this study does not review organizational capabilities, it must be stated that organizational capabilities does have an effect on the perceived barriers. According to Berge and Muilenberg (2001), faculty compensation and time "are the most consistently reported of all the barrier factors" (p. 42); "cultural change within organization is the second-highest ranked barrier in all stages except the stage in which distance education integrated in the mission of the organization" (p. 42); "lack of technical expertise and support is ranked third in all stages except stage 5; it moved up to second highest ranking" (p.

43); “the issues of involving evaluation and effectiveness rise in the list of barriers, from sixth (in those organizations in which distance educators has not been used) to third place (in the organizations with the most capabilities)” (p. 43). Futhermore, [A]ccess moved down from its fairly low ranking in Stage 1 organizations and remained next to the bottom in Stages 2-4, perhaps one level higher than Stages 2-4, perhaps barriers have been solved. The factor, threatened by technology “ranked 8th or 9th throughout all five stages of capability” (p. 43). This study concluded by stating “[T]he evidence from the responses to this survey indicates that there is a relationship between an organization’s level of capability in distance education and the barriers to distance education reported by respondents for some but not all barriers” (p. 44).

A survey of California community colleges faculty members conducted in 2000 with emphasis on technology findings found that half of faculty members reported a lack of computers for student access in labs, no adequate funding provided to departments to acquire new technologies, limited if any compensation for time required to incorporate technology into the classroom, no sufficient technical support, and few if any incentives for technology initiatives (California Community College).

Additional studies completed by Daugherty and Funke (1998) referred to lack of technical and administrative support as barriers to development of online course work. Schoepp (2005) identified the common barriers to technology integration amongst faculty members at a U.A.E. University. The faculty members surveyed identified “knowledge as to how to effectively integrate technology and the shortcomings of the current reward structure” as barriers (Schoepp, p. 9).

Brill and Galloway (2007) indicated “poor seating, lighting and podia/cabinetry” (p. 102) as barriers to technology use. It appears this was contributed to classrooms with configurations that encourage traditional style of teaching rather than the use of technology.

A main barrier to technology use by faculty member has been time. According to Morales and Roig (2002), faculty members’ main responsibilities of teaching and research were priorities and took up all of their time. Faculty members have “limited time to dedicate to

learning new technologies" (Morales & Roig, p. 70). This issue of time was further discussed in a study by Bocchi, Eastman, and Swift (2004) in which faculty members identified that the development and management of a course by the instructor requires a significant amount of time. This course development using technology was beyond the faculty members' other duties of teaching, research, and administrative responsibilities. Along the lines of management, Gerlich and Wilson (2005) indicated full-time faculty members who used technology "held slightly more office hours per week than their peers" (p. 3). According to Beggs (2000), faculty spend approximately "15-20 hours" (p. 3) per week extra to develop lectures using various technologies and approximately "150-200 hours" (p. 3) converting one course to technology use only. With the additional worked required by faculty, institutions did not prepare for the "sustained investment in time, support and financial resources needed to address the preparation of good, quality technology adapted instructional courses" (Beggs, p. 3).

According to Adams (2002), faculty identified the following as barriers to technology integration: "quality of educational software, availability of educational software, availability of computers for myself, availability of computers for my students, limited computer training for myself and limited computer training for my students" (p. 297). Along with these, faculty indicated what previous literature has recognized, "lack of time was faculty members' most common" (p. 297) with, as previously stated, "insensitivity of administration to educational needs, unaware of technology resources, fear of computers, and dislike of computers (p. 297).

Researchers are beginning to investigate the question of time and the relationship with technology use (Hillsop & Ellis, 2004). It appears there is evidence indicating overtime is a major downside to faculty using technology (Hulbert & McBride, 2004). According to Morales and Roig (2002), only 50% of faculty members at the University of Puerto Rico participated in technology training. This low percentage was because of time constraints. As cited by Baldwin (1998), "Many faculty do not incorporate technology into key aspects of their work because for them digital technology requires to much time and effort, supplies too many distractions, and yields too little value for the investment" (p. 47)

Along with additional workload comes the existence or nonexistence of rewards for the use of technology. According to McNeil (1990), a review of faculty issues identified rewards and incentives as key issues relating to faculty participation with technology. In a study by Wolcott and Betts (1999), institutional rewards were listed among faculty members' barriers. According to Wolcott and Betts, the faculty members were not attracted to use technology on the benefit of rewards including financial gains or promotion benefits. In addition, Beggs (2000) conducted a study of faculty members' responses to three barriers: lack of interest in technology (70.4%, not important to somewhat important), lack of relevance to the discipline (65% not important to somewhat important), and surprisingly, lack of contribution to professional development (61.4% not important to somewhat important) (p. 11). The researcher indicated that the faculty "seem to be saying that the student is the focus and not the teacher" (Beggs, p. 11). According to (Wallace, 2004), "One major factor that cannot be ignored is failure to identify and deal with social and psychological dimension" of technology (p. 45). As cited by (Wallace), "Academic and professional goals, interests, and needs, work patterns, social networks, etc. must be taken into account when attempting to diffuse technology into the work place" (p. 46).

According to Butler and Sellbom (2002), a barrier not previously mentioned is the thought that faculty perceive technology as worthless.

> Many faculty wonder whether it is worth their effort to learn many of the available technologies, given the skepticism that those technologies facilitate learning in higher education. Faculty cannot easily find convincing data that technology matters, nor can they easily determine if this is because technology doesn't matter or because the right studies aren't widely available. (p. 26)

According to (Wallace, 2004), technology use by faculty members will occur faster if it is perceived as having:

> (a) a relative advantage over the methods it supersedes in terms of economics, convenience, social prestige, satisfaction; (b) a high degree of compatibility with existing values, past experiences, and needs of potential adopters; (c) a low degree of complexity; (d) a high degree of "trial ability" before commitment is required, and (e) a high degree of visibility to other potential adopters. (p. 29)

In a study of web-enhancement use by community college faculty member within the Tennessee Board Regents system by Wallace (2004), the researcher asked the following question, "For faculty already using web-enhancement, are there any factors that are still viewed as barriers to web-enhancement"(p. 83). Faculty members surveyed identified the following:

1. increased time commitment,
2. concern about faculty work load,
3. difficulty keeping current with technological changes,
4. lack of adequate technology-enhanced classrooms and labs or infrastructure,
5. lack of money to implement web-enhanced courses,
6. lack of knowledge about enhancements,
7. lack of person-to person contact (i.e. lack of face to face interaction),
8. concern about faculty incentives,
9. information overload,
10. concern about faculty compensation,
11. lack of technical support,
12. lack of your own personal technological expertise,
13. lack of adequate student-participant access,
14. inability to adequately monitor the identity of the web-enhanced participants or students, and
15. lack of training provided by the organization (p. 96).

Faculty members used technology, according to Betts (1998), for the ability to teach others who are unable to attend a traditional course, for the development of new or improved ideas of teaching, the challenge of learning new technologies, and overall satisfaction of a job well done. According to Betts, "If faculty are to integrate technology into their classes, they must feel comfortable using technology" In addition, Roberts and Ferris (1994) mentioned this comfort level takes approximately "1,000 hours of training" (p. 335). Also Roberts and Ferris

explained that training, support, and time and leadership were necessary for the successful integration of technology into the classroom" (p. 335).

Faculty Knowledge of Technology

The previous sections of this document addressed the perceptions and barriers to technology use among full-time faculty members. This section will focus on faculty members' knowledge and experience with technology.

Spotts and Bowman (1995) found that faculty members generally possessed a foundational knowledge of audio, film, video, and word processing but fewer had a foundational knowledge of technologies that incorporate spreadsheets, statistics, e-mail, and course management systems for computer-assisted instruction. Furthermore, faculty members had limited knowledge of technologies that use instructional methods such as presentation software, multimedia, and distance learning.

Researchers Summers and Vlosky (2001) found that 50% of faculty members indicated word processing as the only technology they used. However, many faculty members had "high levels of proficiency with multiple technologies including word processing, e-mail, and the Internet" (Summers & Viosky, p. 84).

According to Butler and Selldom (2002):

> Faculty varied widely in technology proficiency, but most believed that they have many proficiencies with regard to technologies for teaching and learning. The majority rated themselves themselves as either proficient or very proficient in older technologies (chalkboards, overhead projectors, and VCRs) and new technologies (whiteboards, computers, word processing, e-mail, and internet browsing). The best discriminators of those most proficient from those least proficient are the levels of proficiency with presentation software, graphic, software, Internet browsing, and spreadsheets. (p. 23)

In conclusion, according to Sahin and Thompson (2007), there are many levels of technology that could be used by faculty members. Sahin and Thompson identified "instructional courseware, online sources, up-to-date technology, nontraditional operating systems, self-directed informational sources, data analysis tools, management tools, and collegial

interaction" (p. 167) as contributing to the level of technology used by faculty members. Chizmar and Williams (2001), whose study identified six recommendations for the successful insertion of technology, listed four that were relevant:

> Instructional technology units should invest less of their efforts in solving the technical problems of individual faculty members and more in serving the faculty in general; respect the value of faculty time, campuses need to create venues for faculty to come together to share and trade experiences, development efforts, templates, products, and the like; administration need to insure technology works flawlessly, when technology administrators decide to adopt a new technology they should over – not under-, estimate its capacity; more than ever, faculty need rewards for their instructional development efforts through the release time, monetary awards, software and hardware support, and credit in the salary, promotion, and tenure process. (p. 24)

Along with Chizmar and Williams' (2001) recommendations, Brzycki and Dudt (2005) recommended the following for overcoming barriers, "There must be flexibility among technology administrators to be more able to adapt to faculty needs and barriers, faculty need support that address diverse barriers, needs, concerns, schedules, skill levels and learning styles" (p. 18). Also, Brzycki and Dudt recommended that administrators must provide reward and incentive for the "desired outcomes and products" (p. 19). The rewards and incentives need to be well publicized or well documented, including "support staff that can both use and teach technology and technology needs to be incorporated into faculty evaluation" (Brzycki & Dudt, p. 19).

Sahin and Thompson (2007) questioned the relationship among faculty characteristics, technology experience, instructional technology used in teaching, and technology training. They determined that when these factors were analyzed, then and only then could leaders of higher education institution have a full understanding of the hesitation of faculty members in using technology.

In addition, Gayton (2007) recommended the following that will "contribute to the advancement of the scholarship of teaching and learning only if several critical issues are properly addressed" (pg. 4).

1. Top-notch faculty must become heavily involved in the planning, design and implementation of online instruction and must continue to engage in formal, scientific research that will lead to the advancement of the scholarship of online teaching and learning.
2. Pedagogical decisions must not be transferred form outstanding scholars and instructors to the individuals involved in the technical aspects of online education. That is, school administrators must provide incentives to faculty teaching online courses to assume ownership of their own courses.
3. Educational stakeholders must cease to measure the quality of online instruction against standards established for the face-to-face instruction.
4. Educational stakeholders must understand that self-teaching is not the essence of online education.

An earlier document expressed similar issues, Gilbert (1996) stated,

> In order for institutions to make difficult choices among strategies for change in the absence of conclusive data, each college and university must get the best advice it can from those within its own community who have relevant experience knowledge, skills, and insights about teaching, learning, and technology. Implementing the best strategies requires institution wide collaboration involving all key stakeholders. The cumulative impact will be "revolutionary," changing how people teach and learn, and what it taught and learned. (pg. 4)

CHAPTER 3

RESEARCH METHODOLOGY

Introduction

As evidenced in the literature review, faculty members recognize the importance of the use of technology but indicated there were several factors that impeded its use. Therefore, the focus of this study was to determine the status of technology among eight community colleges in the Tennessee Board of Regents System (Appendix A).

The purpose of this chapter is to explain the statistical methods and techniques used to evaluate the status of technology in eight community colleges within the Tennessee Board of Regents System. This chapter presents a description of the research design to include population, survey instrument, data collection procedures, research hypotheses, research methods, and data analysis.

Research Design

This study was based on a quantitative methodology using an Internet-based survey to obtain data. The Internet-based survey was designed based on previous technology-based faculty surveys. Permission was obtained from the East Tennessee State University Institutional Review Board and each community college within the Tennessee Board of Regents. The name of each institution and data pertaining to each college remained confidential. If desired, the Vice President of Research, Planning, and Assessment of each community college could submit a written request to receive college statistical data for his or her specific institution.

The data were used to perform descriptive and inferential analysis of full-time faculty members along the three dimensions: (1) attitudes and opinions of technology support and services, (2) perceived barriers that inhibit technology use, and (3) attitudes towards the use of technology and specific applications. Each dimension of the technology survey was evaluated

using five demographic variables: age, gender, professional rank, years of higher education experience, and tenure status.

To obtain the data needed to address the research questions posed in this study, permission was requested with a letter of explanation (Appendix B) of the study from each institution's Vice President of Research, Planning, and Assessment. Once permission was obtained, I distributed the Internet-based survey (Appendix C) by e-mail to all full time faculty members in each of the eight participating institutions. E-mail addresses were obtained from each Vice Presidents of Research, Planning, and Assessment of each community college represented in this study by Dr. Debbie Scott, Vice President of Research, Planning, and Assessment at Walters State Community College. The e-mail sent to faculty members contained an abbreviated version of the letter of explanation (Appendix I) of the study and instructions along with a link to the survey.

Among the 13 community colleges within the Tennessee Board of Regents only 8 chose to participate in this study. Of the 5 that chose not to participate, 1 institution expressed its faculty members were currently overwhelmed by other surveys. The remaining 4 did not reply to an invitation to participate.

Research Questions

The survey addressed the following research questions separated into three dimensions:

The following research questions are based on dimension 1, "technology services and support":

1. Are there differences in the mean scores for full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the technology support and services dimension of the survey instrument based on age?
2. Are there differences in the mean scores for full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system

on the technology support and services dimension of the survey instrument between male and female faculty members?

3. Are there differences in the mean scores for full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the technology support and services dimension of the survey instrument among the faculty members in each of four faculty ranks (instructor, assistant professor, associate professor, and professor)?
4. Are there differences in the mean scores for full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the technology support and services dimension of the survey instrument based on years of higher education experience?
5. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the technology support and services dimension of the survey instrument among the three tenure status groups (nontenured-tenure track, nontenure track, tenured)?

The following research questions are based on dimension 2, "perceived barriers that inhibit the use of technology":

6. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the perceived barriers that inhibit the use of technology dimension of the survey instrument based on age?
7. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the perceived barriers that inhibit the use of technology dimension of the survey instrument between male and female faculty members?
8. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system

on the perceived barriers that inhibit the use of technology dimension of the survey instrument among the faculty members in each of four faculty ranks (instructor, assistant professor, associate professor and professor)?

9. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the perceived barriers that inhibit the use of technology dimension of the survey instrument based on years of higher education experience?
10. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the perceived barriers to significant use of technology dimension of the instrument among the three tenure status groups (nontenured-tenure track, nontenure track, tenured)?

The following research questions are based on dimension 3, "attitudes toward the use of technology in general and specific applications":

11. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the attitudes toward the use of technology in general and specific applications dimension of the survey instrument based on age?
12. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the attitudes toward the use of technology in general and specific applications dimension of the survey instrument between male and female faculty members?
13. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the attitudes toward the use of technology in general and specific applications dimension of the survey instrument among the faculty members in each of four faculty ranks (instructor, assistant professor, associate professor, and professor)?

14. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the attitudes toward the use of technology in general and specific applications dimension of the survey instrument based on years of higher education?
15. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the attitudes toward the use of technology in general and specific applications dimension of the survey instrument among the three tenure status groups (nontenured-tenure track, nontenure track, tenured)?

Variables

The purpose of this study was to examine the status of technology of Tennessee Board of Regents full-time faculty members. Research questions for dimensions 1-3 used data from the survey as well as demographic data pertaining to the faculty member. For dimensions 1-3, five hypotheses statements were developed and tested.

There are three criterion variables: (a) perceived attitudes and opinions of technology support and services, (b) perceived barriers that inhibit technology use, and (c) attitudes towards the use of technology and specific applications. Five independent variables were used to address research questions among dimensions 1-3. These included: (a) gender, (b) age group, (c) professional status, (d) years of higher education teaching experience, and (e) tenure status.

Hypotheses

The following hypotheses are based on research questions concerning dimension 1, technology services and support:

Ho1: There is no difference in mean scores of full-time faculty members' perceived status of technology support and services based on faculty age.

Ho2: There is no difference in mean scores of full-time faculty members' perceived status of technology support and services between males and females.

Ho3: There is no difference in mean scores of full-time faculty members' perceived status of technology support and services among faculty members in each of the four faculty ranks (instructor, assistant professor, associate professor, and professor).

Ho4: There is no difference in mean scores of full-time faculty members' perceived status of technology support and services based on years of higher education teaching experience.

Ho5: There is no difference in mean scores of full-time faculty members' perceived status of technology support and services among faculty grouped by tenure status (nontenure-tenure track, nontenure track, and tenured).

The following hypotheses are based on the research questions concerning dimension 2, perceived barriers that inhibit the use of technology:

Ho6: There is no difference in mean scores of full-time faculty members' perceived barriers that inhibit the use of technology based on age.

Ho7: There is no difference between mean scores of full-time faculty members' perceived barriers that inhibit the use of technology between males and females.

Ho8: There is no difference between mean scores of full-time faculty members' perceived barriers that inhibit the use of technology among faculty members in each of the four faculty ranks (instructor, assistant professor, associate professor, and professor).

Ho9: There is no difference between mean scores of full-time faculty members' perceived barriers that inhibit the use of technology based on years of higher education teaching experience.

Ho10: There is no difference between mean scores of full-time faculty members' perceived barriers that inhibit the use of technology among faculty grouped by tenure status (nontenure-tenure track, nontenure track, and tenured).

The following hypotheses are based on the research questions concerning dimension 3, attitudes toward the use of technology in general and specific applications:

Ho11: There is no difference in mean scores of full-time faculty attitudes toward the use of technology in general and specific applications based on age.

Ho12: There is no difference between mean scores of full-time faculty attitudes toward the use of technology in general and specific applications between males and females.

Ho13: There is no difference between mean scores of full-time faculty attitudes toward the use of technology in general and specific applications among faculty members in each of the four faculty ranks (instructor, assistant professor, associate professor, and professor).

Ho14: There is no difference between mean scores of full-time faculty attitudes toward the use of technology in general and specific applications based on years of higher education teaching experience.

Ho15: There is no difference between mean scores of full-time faculty attitudes toward the use of technology in general and specific applications among faculty grouped by tenure status (nontenured-tenure track, nontenure track, and tenured).

Population

All of the 13 Tennessee Board of Regents community colleges were requested to participate in this study, but only 8 agreed to do so. The request to participate was requested through the institutions Office of Planning, Research, and Assessment. The population of this study included all full-time faculty members employed in the eight Tennessee Board of Regents community colleges.

The entire population of full-time faculty members based in 8 community colleges within the Tennessee Board of Regents were contacted and invited to take part in the survey via e-mail. The Tennessee Board of Regent's website reports 2-year Faculty-Academic filled positions are 847 (April 13, 2008).

Using the above figure of 847 full-time faculty members, the sample size calculator located at http://www.surveysystem.com/sscalc.htm was used to calculate the numbers of responses needed to make valid assumptions with the data collected. Using a confidence interval of 95%, and a margin an error of 5%, the total number were 250. There were 290 participants which accounted for 34% of the population of 847 full-time faculty members.

Data Collection

I developed an electronic survey using online survey software of SurveyMonkey. The results of the survey was automatically collected by the online survey software and password protected by the researcher. I contacted the participants with a cover letter explaining the purpose of the study and instructions on how to access the survey. In addition, information was included as to how participants' rights and privacy will be maintained and by clicking the submit button this would imply consent with submission. After completing the survey, the participants clicked a button located at the bottom to send the information.

Research Instrument

This researcher employed the survey method of data collection. The survey implemented for this research was developed by the researcher based upon the literature review. The survey, *Faculty Perceptions About Instructional Technology Survey*, (Appendix C) consisted of Likert-type questions to address the following dimensions: (a) faculty demographic information; (b) faculty perceptions of the current state of technology services and support (1=strongly agree to 5=strongly disagree, with 3=no opinion); (c) faculty members' attitudes toward the use of instructional technology (1=strongly agree to 5=strongly diagree, with 3=no opinion); and (d)

faculty members' perceptions of barriers that inhibit their use of technology (1=strongly agree to 5=strongly diagree, with 3=no opinion). The survey gave participants an opportunity to opt out of answering specific questions.

The survey consisted of the following: questions 1-6, were developed to collect demographic characteristics about the participating full-time faculty members; questions 7-8, were used to collect data pertaining to perceived barriers that inhibit technology use. In addition, these questions also designed to collect data on the attitudes toward the use of technology. Questions 9 was created to collect data pertaining to attitudes and opinions of technology support and services; questions 10 and 11 was created to collect data pertaining to specific applications used by faculty members.

The survey instrument was reviewed by full-time faculty members and staff of the Technical Education Division at Walters State Community College. Faculty and staff were asked to volunteer to participate in a review of the survey and provide feedback. Based upon the survey instrument review, I modified the instrument.

Data Analysis

Descriptive and inferential statistics were used to analyze the data collected from the survey. The Statistical Package for the Social Sciences (SPSS), version 15, was used for data analysis. Descriptive statistics consisting of mean scores were collected to determine participating faculty members' perceived attitudes toward technology support and services, their perceived barriers that inhibit technology use, and their attitudes toward the use of technology. Inferential statistics were used to determine statistical significant differences, including independent-samples *t* tests and ANOVA.

The following research questions of dimension 1, "technology services and support", were addressed using the indicated statistical methods:

1. Are there differences in the mean scores for full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system

on the technology support and services dimension of the survey instrument based on age? This question was addressed using one-way ANOVA.

2. Are there differences in the mean scores for full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the technology support and services dimension of the survey instrument between male and female faculty members? This question was addressed using an independent samples t-test.
3. Are there differences in the mean scores for full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the technology support and services dimension of the survey instrument among the faculty members in each of four faculty ranks (instructor, assistant professor, associate professor, and professor)? This question was addressed using an one-way ANOVA.
4. Are there differences in the mean scores for full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the technology support and services dimension of the survey instrument based on years of higher education experience? This question was addressed using an one-way ANOVA.
5. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the technology support and services dimension of the survey instrument among the three tenure status groups (nontenured-tenure track, nontenure track, tenured)? This question was addressed using an one-way ANOVA.

The following research questions of dimension 2, perceived "barriers that inhibit the use of technology", were addressed using the indicated statistical methods:

6. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system

on the perceived barriers that inhibit the use of technology dimension of the survey instrument based on age? This question was addressed using an one-way ANOVA.

7. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the perceived barriers that inhibit the use of technology dimension of the survey instrument between male and female faculty members? This question was addressed using an independent samples t-test.
8. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the perceived barriers that inhibit the use of technology dimension of the survey instrument among the faculty members in each of four faculty ranks (instructor, assistant professor, associate professor, and professor)? This question was addressed using an one-way ANOVA.
9. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the perceived barriers that inhibit the use of technology dimension of the survey instrument based on years of higher education experience? This question was addressed using an one-way ANOVA.
10. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the perceived barriers to significant use of technology dimension of the survey instrument among the three tenure status groups (nontenured-tenure track, nontenure track, tenured)? This question was addressed using an one-way ANOVA.

The following research questions of dimension 3, "attitudes toward the use of technology in general and specific applications", were addressed using the indicated statistical methods:

11. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system

on the attitudes toward the use of technology in general and specific applications dimension of the survey instrument based on age? This question was addressed using an one-way ANOVA.

12. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the attitudes toward the use of technology in general and specific applications dimension of the survey instrument between male and female faculty members? This question was addressed using an independent samples t-test.
13. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the attitudes toward the use of technology in general and specific applications dimension of the survey instrument among the faculty members in each of four faculty ranks (instructor, assistant professor, associate professor, and professor)? This question was addressed using an one-way ANOVA.
14. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the attitudes toward the use of technology in general and specific applications dimension of the survey instrument based on years of higher education experience? This question was addressed using an one-way ANOVA.
15. Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the attitudes toward the use of technology in general and specific applications dimension of the survey instrument among the three tenure status groups (nontenured-tenure track, nontenure track, tenured)? This question was addressed using an one-way ANOVA.

CHAPTER 4

RESULTS OF THE STUDY

Introduction

This chapter provides an analysis of Tennessee Board of Regents higher education system community college full-time faculty members' perception of the status of technology support and services, perceived barriers to technology use, and attitudes towards the incorporation of technology in general and with specific applications.

All full-time faculty members of eight community colleges of the Tennessee Board of Regents were contacted using the methods described in chapter three and invited to participate in the survey. Of the 867 faculty invited, 24 were undeliverable, 290 (34%) responded and participated in the survey. Using online survey software, each participant's responses were collected and tabulated as they were submitted. The results were imported into Microsoft Excel, were all identifying information was eliminated or transposed to number representation. Microsoft Excel and the statistical package SPSS 15.0 were used to conduct the analysis on the data.

Demographic Characteristics

The results of full-time faculty members demographic characteristics are as follows: gender: male (38.6%), female (61.4%). Male and female distribution is reported in Figure 1.

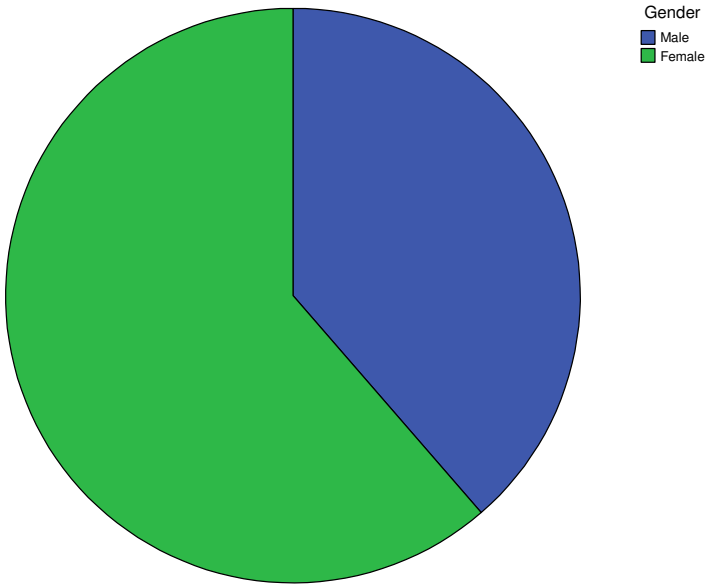

Figure 1. Male and Female Distribution

Age: 20-29 (4.8%), 30-39 (12.4%), 40-49 (25.9%), 50-59 (38.6%) and ≥60 (18.3%). Age distribution is reported in Figure 2.

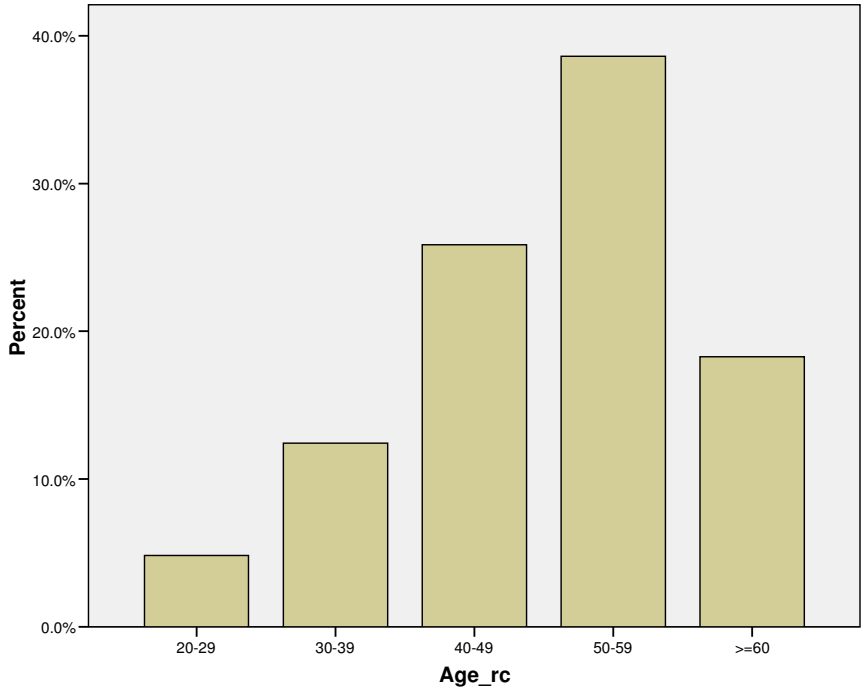

Figure 2. Age Distribution

Academic Rank: Professor (16.2%), Associate Professor (42.4%), Assistant Professor (26.6%) and Instructor (14.8%). Academic rank distribution is reported in Figure 3.

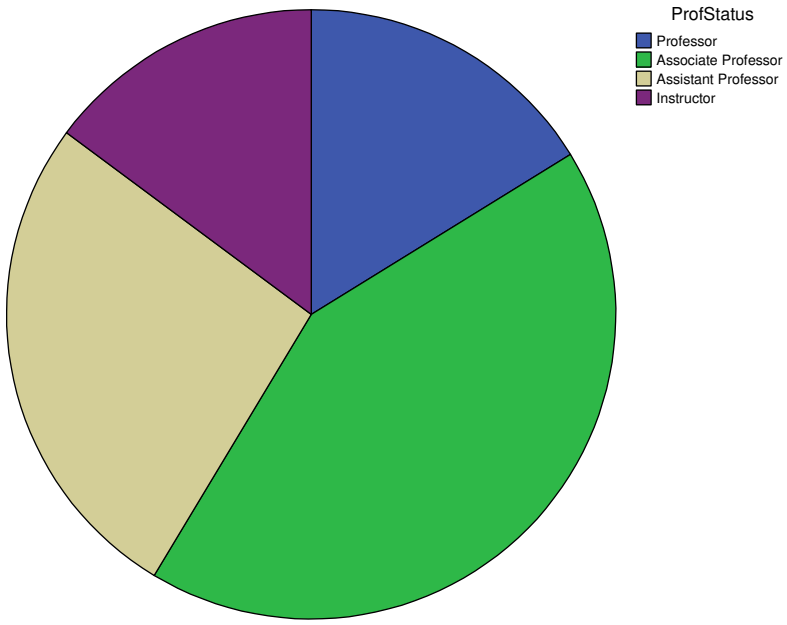

Figure 3. Academic Rank Distribution

Tenure Status: Nontenured-Tenure Track (27.2%), Nontenure track (20.7%), and Tenured (52.1%). Tenure status distribution is reported in Figure 4.

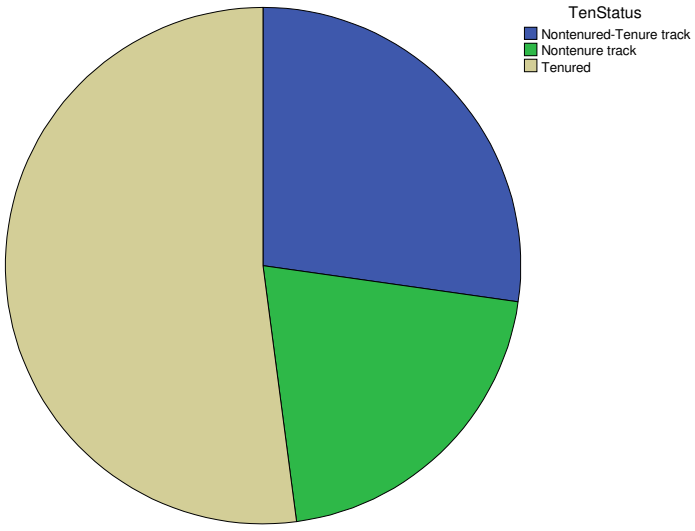

Figure 4. Tenure Versus Nontenure Status Distribution

Years of Experience: 1-9 (34.8%), 10-19 (33.4%), 20-29 (21%) and ≥30 (10.7%). Years of experience distribution is reported in Figure 5.

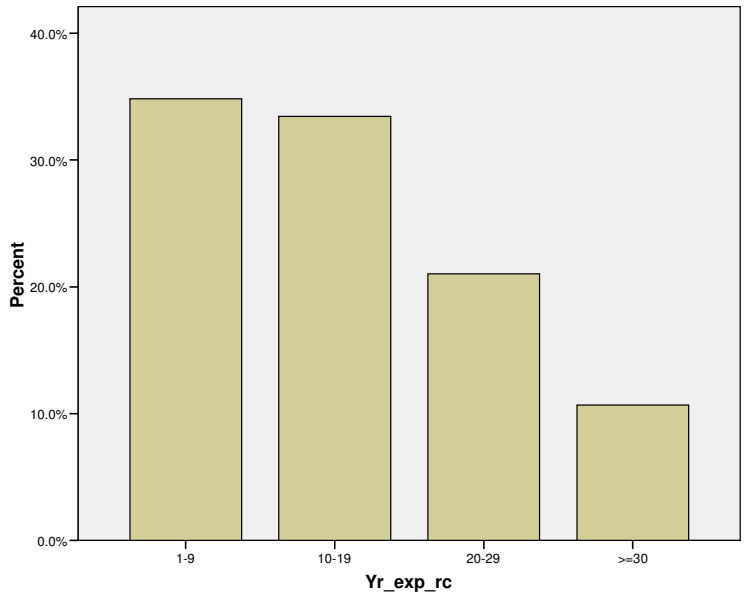

Figure 5. Years of Experience Distribution

The following results are based on dimension 1, "perceived status of technology services and support":

A one-way analysis of variance (ANOVA) was conducted to evaluate the difference between perceived status of technology support and services among faculty age. The factor variable age included five age groups: 20-29, 30-39, 40-49, 50-59, and ≥60. The criterion variable was the perceived status of technology support and services. The ANOVA was not significant, $F(4, 284) = .35$, $p = .847$. Therefore, Ho:1 was retained. The strength of the relationship between the age groups and the perceived status of technology support and services as assessed by η^2 was small (.005). The results indicate that perceived status of technology support and services was not significantly affected by age. The means and standard deviations for the age groups are reported in Table 1.

Table 1
Mean and Standard Deviations of Faculty Members Five Age Groups

Age	N	M	SD
20-29	14	4.02	.57
30-39	36	3.85	.60
40-49	74	3.86	.47
50-59	112	3.89	.53
>=60	53	3.92	.51

An independent-samples *t* test was conducted to evaluate whether the mean values between male and female responses regarding perceived status of technology support and services. The perceived status of technology support and services was the test variable and the grouping variable was male or female. The test result was not significant, (287) = -1.18, $p = .24$. Therefore the Ho:2 was retained. The eta η^2 index was .005, which indicated a small effect size. Males perceived status technology support and services (M = 3.85, SD = .55) about the same as females (M = 3.92, SD = .49). The 95% confidence interval for the difference in means was -.19 to .05. Figure 6 shows the distributions for the two groups.

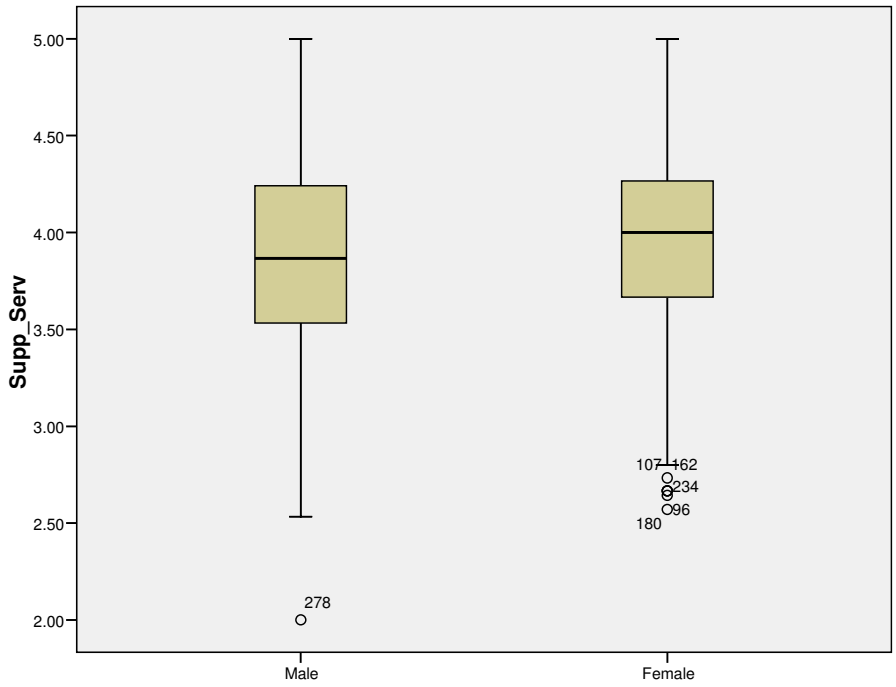

Figure 6. Distribution of Scores for Male and Female Faculty Members

An one-way analysis of variance (ANOVA) was conducted to evaluate the difference between perceived status of technology support and services among faculty ranks to include the faculty rank factor, included four ranks: instructor, assistant professor, associate professor, and professor. The criterion variable was the perceived status of technology support and services. The ANOVA was not significant, $F(3, 285) = 1.72$, $p = .162$. Therefore, Ho:3 was retained. The strength of the relationship between the faculty ranks and the perceived status of technology support and services as assessed by η^2 was small (.018). The results indicate that perceived status of technology support and services was not significantly associated by faculty ranks. The means and standard deviations for the faculty ranks are reported in Table 2.

Table 2
Mean and Standard Deviations of Faculty Ranks

Rank	N	Mean	SD
Professor	47	3.90	.47
Associate Professor	123	3.89	.52
Assistant Professor	76	4.80	.53
Instructor	43	4.03	.50

An one-way analysis of variance (ANOVA) was conducted to evaluate the difference between perceived status of technology support and services based on years of experience The factor variable years of experience was divided into four groups: 1-9, 10-19, 20-29, and ≥30. The criterion variable was the perceived status of technology support and services. The ANOVA was not significant, $F(3, 285) = .26$, $p = .854$. Therefore, Ho:4 was retained. The strength of the relationship between years of experience and the perceived status of technology support and services as assessed by η^2 was small (.003). The results indicate that perceived status of technology support and services was not significantly associated with years of experience. The means and standard deviations for the faculty ranks are reported in Table 3.

Table 3
Mean and Standard Deviation of Years of Experience Groups

Years of Experience	N	Mean	SD
1-9	100	3.89	.55
10-19	97	3.87	.48
20-29	61	3.94	.49
≥30	31	3.85	.56

An one-way analysis of variance (ANOVA) was conducted to evaluate the relationship between tenure status and the perceived status of technology support services. The factor

variable the tenure status included three groups: nontenured-tenure track, nontenure track, and tenured. The criterion variable was the perceived status of technology support and services. The ANOVA was not significant $F(2, 286) = 2.75$, $p = .066$. Therefore, Ho:5 was retained. The strength of the relationship between tenure status and perceived status of technology support and services as assessed by $\eta^{2,}$ was small (.02). The results indicate that the perceived status of technology support and services was not significantly affected by tenure status group. The means and standard deviations for the three tenure status groups are reported in Table 4.

Table 4
Mean and Standard Deviation of Tenure Status Groups

Tenure Status	N	Mean	SD
Nontenured/Tenure track	78	4.00	.50
Nontenure track	60	3.80	.57
Tenured	151	3.87	.49

The following results are based on dimension 2, "perceived barriers that inhibit the use of technology":

An one way analysis of variance (ANOVA) was conducted to evaluate the relationship between perceived barriers that inhibit the use of technology based on age. The factor variable age included five groups: 20-29, 30-39, 40-49, 50-59, and ≥60. The criterion variable was the perceived barrier that inhibit the use of technology. The ANOVA was not significant, $F(4, 284) = 1.90$, $p = .109$. Therefore, Ho:6 was retained. The strength of the relationship between age and perceived barriers that inhibit the use of technology as assessed by η^2 was small (.03). The results indicate that the perceived barriers that inhibit the use of technology was not significantly affected by age. The means and standard deviation for the five age groups are reported in Table 5.

Table 5
Means and Standard Deviations of Age Groups

Age	N	M	SD
20-29	14	2.05	.61
30-39	36	2.36	.59
40-49	75	2.12	.58
50-59	112	2.12	.53
≥60	52	5.04	.57

An independent-samples t test was conducted to evaluate whether perceived barriers that inhibit the use of technology differ between males and females. The perceived barriers that inhibit the use of technology was the test variable and the grouping variable was male and female. The test was not significant, $t(287) = .42$, $p = .678$. Therefore, Ho:7 was retained. The η^2 index was .001, which indicated a small effect size. Male (M = 2.15, SD = .57) tended to perceive barriers that inhibit the use of technology the same as females (M = 2.12, SD = .57). The 95% confidence interval for the difference in means was -.10 to .16. Figure 7 shows the distribution for the two groups.

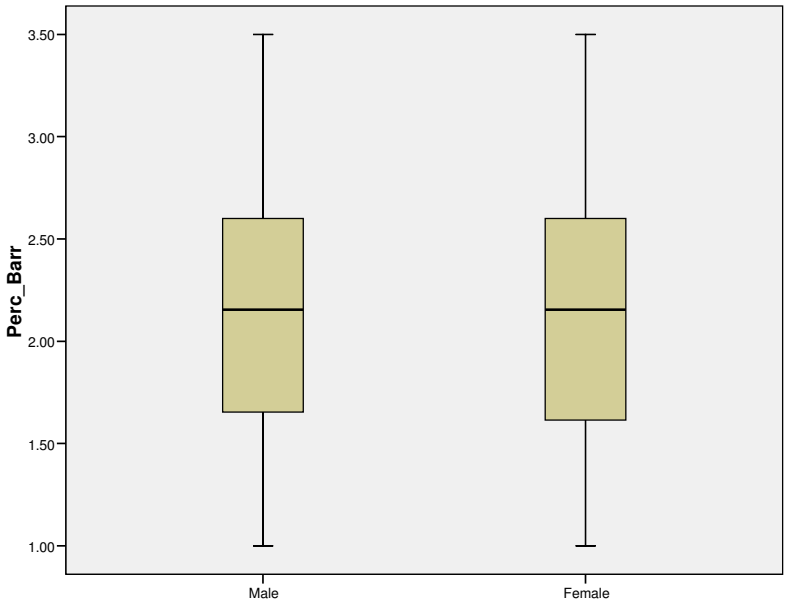

Figure 7. Distribution of Scores for Males and Females

An one-way analysis of variance (ANOVA) was conducted to evaluate the relationship between faculty ranks and perceived barriers that inhibit the use of technology. The factor variable faculty rank included four groups: professor, associate professor, assistant professor, and instructor. The criterion variable was perceived barriers that inhibit the use of technology. The ANOVA was not significant, $F(3,285) = .29$, $p = .877$. Therefore, Ho:8 is retained. The strength of the difference between faculty ranks and perceived barriers the inhibit the use of technology as assessed by η^2 was small (.002). The results indicate that the perceived barriers that inhibit the use of technology was not significantly affected by either groups of faculty ranks. The means and standard deviations for the four faculty groups are reported in Table 6.

Table 6
Means and Standard Deviations of Faculty Ranks

Faculty Ranks	N	M	SD
Professor	46	2.13	.57
Associate Professor	123	2.11	.56
Assistant Professor	77	2.18	.59
Instructor	43	2.15	.54

An one way analysis of variance (ANOVA) was conducted to evaluate the difference between years of experience and perceived barriers that inhibit the use of technology. The factor variable years of experience included four groups: 1-9, 10-19, 20-29, and ≥30. The criterion variable was the perceived barriers that inhibit the use of technology. The ANOVA was not significant, $F(3, 285) = .72$, $p = .542$. Therefore, the Ho:9 is retained. The strength of the relationship between the years of experience and perceived barriers that inhibit the use of technology as assessed by η^2 was small (.008). The results indicate that the perceived barriers that inhibit the use of technology was not significantly affected by years of experience. The means and standard deviations for the four years of experience groups are reported in Table 7.

Table 7
Means and Standard Deviations of Years of Experience Groups

Years of Experience	N	M	SD
1-9	101	2.16	.60
10-19	97	2.15	.52
20-29	67	2.11	.56
≥30	30	2.00	.59

An one way analysis of variance was conducted to evaluate the relationship between tenure status and perceived barriers that inhibit technology use. The factor variable tenure status

included three groups: nontenured-tenure track, nontenure track, and tenured. The criterion variable was the perceived barriers that inhibit technology use. The ANOVA was not significant, $F(2,286) = 1.95$, $p = .145$. Therefore, Ho:10 is retained. The strength of the difference between tenure status and the perceived barriers that inhibit technology use as assessed by η^2 was small (.01). The results indicate that the perceived barriers that inhibit technology use was not significantly affected by tenure status. The means and standard deviations for the three tenure status groups are reported in Table 8.

Table 8
Means and Standard Deviations of Tenure Status Groups

Tenure Status	N	M	SD
Nontenured-tenure track	79	2.14	.61
Nontenure track	60	2.25	.60
Tenured	150	2.08	.53

The following results are based on dimension 3, "faculty attitudes toward the use of technology in general and specific applications":

An one way analysis of variance was conducted to evaluate the relationship between faculty age and faculty attitudes toward the use of technology in general and specific applications. The factor variable faculty age included five groups: 20-29, 30-39, 40-49, 50-59, and ≥60. The criterion variable was faculty attitudes toward the use of technology in general and specific applications. The ANOVA was not significant, $F(4, 284) = .28$, $p = .889$. Therefore, Ho:11 is retained. The strength of the relationship between faculty age groups and attitudes toward the use of technology in general and specific applications as assessed by η^2 was small (.004). The results indicate faculty attitudes toward the use of technology in general and specific applications was not significantly affected by faculty age. The means and standard deviations for the five age groups are reported in Table 9.

Table 9
Means and Standard Deviations of Faculty Age Groups

Age Groups	N	M	SD
20-29	14	3.39	.57
30-39	36	3.44	.46
40-49	74	3.35	.50
50-59	112	3.40	.53
≥60	43	3.42	.57

An independent-samples t test was conducted to evaluate whether the mean amount of faculty attitudes toward the use of technology in general and specific applications differ between male and female faculty members. The faculty attitudes toward the use of technology in general specific applications was the test variable and the grouping variable was male and female. The test was significant, $t(287) = -2.05$, $p = .013$. Therefore, Ho:12 is rejected. Males (M = 3.30, SD = .53) attitude toward the use of technology in general and specific applications is less than females (M = 3.45, SD = .51). The 95% confidence interval for the difference in means was -.28 to -.03. The η^2 index was .02, which indicate a small effect size. Figure 3 shows the distribution for the two groups.

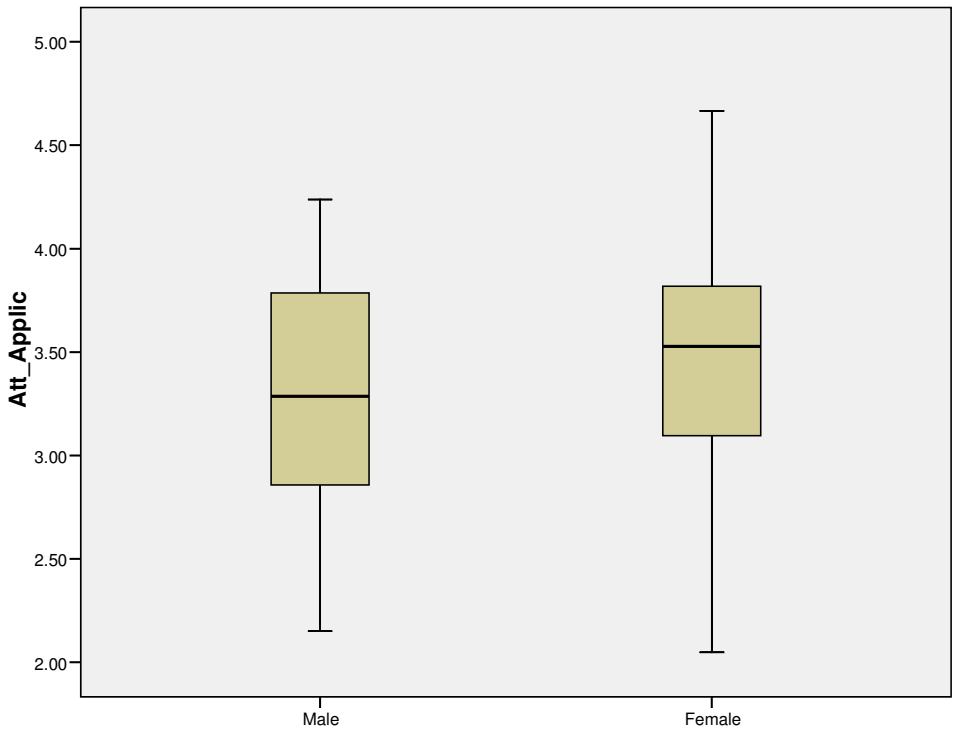

Figure 8. Distribution of Scores for Males and Females

An one-way analysis of variance (ANOVA) was conducted to evaluate the relationship between faculty ranks and attitudes toward the use of technology in general and specific applications. The factor variable faculty ranks include four groups: professor, associate professor, assistant professor, and instructor. The criterion variable was the attitudes toward the use of technology in general and specific applications. The ANOVA was not significant, $F(3, 285) = 1.16$, $p = .21$. Therefore, Ho:13 is retained. The strength of the relationship between faculty ranks and attitudes toward the use of technology in general and specific applications as assessed by η^2 was small (.02). The results indicate that attitudes toward the use of technology in general and specific applications was not significantly affected by faculty ranks. The means and standard deviations for the four faculty ranks are reported in Table 10.

Table 10
Means and Standard Deviations of Faculty Rank Groups

Faculty Rank	N	M	SD
Professor	47	3.34	.56
Associate Professor	123	3.35	.55
Assistant Professor	76	3.42	.45
Instructor	43	3.53	.50

An one way analysis of variance was conducted to evaluate the relationship between years of experience and faculty attitudes toward the use of technology in general and specific applications. The factor variable years of experience included four groups: 1-9, 10-19, 20-29, and ≥30. The criterion variable was faculty attitudes toward the use of technology in general and specific applications. The ANOVA was significant, $F(3, 285) = 2.87$, $p = .037$. Therefore, Ho:14 is rejected. The strength of the relationship between years of experience and faculty attitudes toward the use of technology in general and specific applications as assessed by η^2 was small (.03).

Because the overall F test was significant, post hoc multiply comparisons were conducted to evaluate pairwise difference among the means of the four groups. A LSD procedure was selected for the multiply comparisons because equal variances were assumed. There was significant difference in the means between 1-9 years of experience and 10-19 years of experience ($p = .013$). There was no significance among 1-9 years of experience and 20-29 years of experience ($p = .064$); 1-9 years of experience and ≥30 years of experience ($p = .881$); 20-29 years of experience and 10-19 years of experience ($p = .731$); ≥30 years of experience and 10-19 years of experience ($p = .061$); ≥30 years of experience and 20-29 years of experience ($p = .133$). The results indicate that faculty attitudes toward the use of technology in general and specific applications was not significantly associated with faculty years of experience. The means and standard deviations for the four years of experience groups are reported in Table 11.

Table 11
Means and Standard Deviations with 95% Confidence Interval of Pairwise Differences

Years of Exp.	N	M	SD	1-9	10-19	20-29
1-9	100	3.49	.47			
10-19	97	3.30	.53	-.04 to .33		
20-29	61	3.35	.51	-.01 to .32	-.19 to .14	
≥30	31	3.50	.62	-.22 to .19	-.41 to .01	-.39 to .05

An one way analysis of variance (ANOVA) was conducted to evaluate the relationship between tenure status and the faculty attitudes toward the use of technology in general and specific applications. The factor variable tenure status included three groups: nontenured-tenure track, nontenure track, and tenured. The criterion variable was the faculty attitudes toward the use of technology in general and specific applications. The ANOVA was not significant, $F(2, 286) = .68$, $p = .507$. Therefore, Ho:15 is retained. The strength of the relationship between tenure status and faculty attitudes toward to use of technology in general and specific applications as assessed by η^2 was small (.005). The results indicate that faculty attitudes toward the use of technology in general and specific applications was not significantly affected by tenure status. The means and standard deviations for the three tenure status groups are reported in Table 12.

Table 12
Means and Standard Deviations of Tenure Status Groups

Tenure Status Groups	N	M	SD
Nontenured-Tenure Track	78	3.40	.51
Nontenure Track	60	3.46	.47
Tenured	151	3.37	.54

At the end of questions 7 and 8, participants had the opportunity to list any other item they considered perceived barriers that inhibit technology use and their attitudes towards the use of technology. In addition, questions 9 and 11 gave participants the opportunity to provide comments pertaining to their attitudes and opinions of technology support and services. Due to the extremely large number of comments, the entire list is contained in Appendix E-I.

Although, these areas were provided for specific comments concerning the dimensions, many participants used it as a general comments area. Many of the participants provided comments that expanded beyond the items listed in the survey, which will provide additional qualifying data. Though, due to the nature of this study as quantitative, the qualitative data are mentioned briefly in Chapter 5.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter summarizes the data analysis and the results presented in Chapter 4 of the study. In addition, this chapter is organized according to the research questions posed in ChapterS 1 and 3. Furthermore, suggested recommendations for areas of future research are presented.

Summary

The purpose of this study was to examine full-time faculty members of eight Tennessee Board of Regents higher education community colleges perception of the status of technology support and services, perceived barriers to technology use, and attitudes towards the incorporation of technology in general and with specific applications. Additionally, the study focused on the association among the predictor variables of faculty members' gender, age, professional status, years of higher education teaching experience, and tenure versus nontenure status with their degree of technology use.

An on-line survey was developed to address the research questions posed in this study. The survey consisted of 44 questions, including areas for comments pertaining to each dimension. E-mail addresses were gathered from the eight participating institutions. Eight-hundred forty-seven full-time faculty members were identified and contacted. Two follow-up e-mails were sent resulting in 290 responses downloaded into Microsoft Excel for a (34%) return rate. Identifiable responses were eliminated and data transposed to number representation. Data were imported in SPSS 15.0 for statistical analysis. The data were used to perform descriptive and inferential analysis of full-time faculty members along the three dimensions.

Summary of Findings

Fifteen research questions were stated in Chapter 1 and again in Chapter 3 to meet the purpose of the study. The survey questions were divided into three dimensions and addressed accordingly with the survey. The following are the findings from the study for each research question.

Dimension 1: Findings to Research Questions

Findings Related to Research Question 1: Research Question 1 stated, "Are there differences in the mean scores for full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the technology support and services dimension of the survey instrument based on age"?

Results from the survey indicated age was not found to a significant indicator whether or not a faculty member participated in technology when considering technology support and services.

Findings Related to Research Question 2: Research Question 2 stated, "Are there differences in the mean scores for full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the technology support and services dimension of the survey instrument between male and female faculty members"?

Results from the survey indicated gender was not found to be a significant indicator whether or not faculty members participated in technology when considering technology support and services.

Findings Related to Research Question 3: Research Question 3 stated, "Are there differences in the mean scores for full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the technology support and services dimension of the survey instrument among the faculty members in each of four faculty ranks (instructor, assistant professor, associate professor, and professor)"?

No significance was found with regard to academic rank. It was found that faculty members holding ranks of Professor, Associate Professor, Assistant Professor, and Instructor appeared to perceive technology support and services similarly.

Finding Related to Question 4: Research Question 4 stated: "Are there differences in the mean scores for full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the technology support and services dimension of the survey instrument based on years of higher education experience"?

Results from the survey indicate that the perception of technology support and services is not significantly affected by the faculty members years of experience.

Finding Related to Question 5: Research Question 5 stated: "Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the technology support and services dimension of the survey instrument among the three tenure status groups"?

Results from the survey indicated that the perception of technology support and services is not significantly affected by the faculty members tenure versus nontenure status (nontenured-tenure track, nontenure track, tenured).

Dimension 2: Findings to Research Questions

Findings to Research Question 6: Research Question 6 stated: "Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the perceived barriers that inhibit the use of technology dimension of the survey instrument based on age"?

Results from the survey indicate that the perceived barriers that inhibit the use of technology are not significantly affected by the faculty members' ages.

Findings to Research Question 7: Research question 7 stated: "Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the perceived barriers that inhibit the

use of technology dimension of the survey instrument between male and female faculty members"?

Results from the survey indicate that the perceived barriers that inhibit the use of technology are not significantly affected by gender.

Findings to Research Question 8: Research question 8 stated: "Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the perceived barriers that inhibit the use of technology dimension of the survey instrument among the faculty members in each of four faculty ranks"?

The results of the survey indicate that the perceived barriers that inhibit the use of technology are not significantly affected by faculty rank.

Findings to Research Question 9: Research question 9 stated: "Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the perceived barriers that inhibit the use of technology dimension of the survey instrument based on years of higher education experience"?

Results from the survey indicate the perceived barriers that inhibit the use of technology are not significantly affected by faculty members years of experience.

Findings to Research Question 10: Research question 10 stated: "Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the perceived barriers to significant use of technology dimension of the survey instrument among the three tenure status groups"?

The results of the survey indicate that the perceived barriers that inhibit technology use are not significantly affected by the faculty members tenure versus nontenure status (nontenured-tenure track, nontenure track, tenured).

Dimension 3: Findings to Research Questions

Findings to Research Question 11: Research question 11 stated, "Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the attitudes toward the use of technology in general and specific applications dimension of the survey instrument based on age"?

Results from the survey indicate faculty members' attitudes toward the use of technology in general and specific applications are not significantly affected by the faculty members' age.

Findings to Research Question 12: Research question 12 stated: "Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the attitudes toward the use of technology in general and specific applications dimension of the survey instrument between male and female faculty members"?

Results from the survey indicate faculty member attitudes toward the use of technology in general and specific applications are significantly affected by the faculty members' gender. Males are more likely than females will use of technology and specific applications.

Findings to Research Question 13: Research question 13 stated: "Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the attitudes toward the use of technology in general and specific applications dimension of the survey instrument among the faculty members in each of four faculty ranks"?

Results from the survey indicate that attitudes toward the use of technology in general and specific applications were not significantly affected by faculty ranks.

Findings to Research Question 14: Research question 14 stated: "Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the attitudes toward the use of

technology in general and specific applications dimension of the survey instrument based on years of higher education experience"?

Results from the survey indicate that attitudes toward the use of technology in general and specific applications were significantly affected by years of experience. Additional testing resulted in faculty members with 1-9 to 10-19 years of experience compared to 20-29 and 30 plus years of experience had better attitudes toward the use of technology in general and are using more applications.

Findings to Research Question 15: Research question 15 stated, "Are there differences in the mean scores for the full-time faculty members at the eight community colleges within the Tennessee Board of Regents higher education system on the attitudes toward the use of technology in general and specific applications dimension of the survey instrument among the three tenure status groups"?

The results of the survey indicate that faculty attitudes toward the use of technology in general and specific applications were not significantly affected by faculty members tenure status.

Conclusions

According to the literature, the results of this study are both contradicting and supported by previous studies. Dimension 1, perceived technology support and services, and Dimension 2, perceived barriers to technology use, provided no significant difference when considering the demographic variables of age, gender, years of experience, faculty rank, and tenure versus nontenure status. Though, Dimension 3, attitudes towards the use of technology and specific applications, provided no significant difference when considering the demographic variable of age, faculty rank and tenure versus nontenure status but there was a slight indication of significance based on gender and years of experience.

According to Cheney (2002) many faculty members have inadequate technology services and support. Hinson and LaPrairie's (2005) study of Louisiana community colleges identified

technical support as the main influence on the development of online courses. Summers and Vlosky 's (2001) study indicated that faculty members' perception of hardware and software maintenance by technology support staff was "less than positive" (p. 82). Furthermore, … "25% felt their departmental maintenance was very adequate, almost twice as many (46%) said maintenance was only somewhat adequate, 27% described maintenance as inadequate, and 2% said no computer resources existed"(p. 82).

In addition researchers (Hall & Elliot, 2003; Massey & Zemskey, 1995; Richard, 1999; Spodark, 2003; Wolcott, 2003) provided many reasons why faculty members do not participate in technology, all which were addressed in the survey. These included no identifiable institutional policies, equipment availability or lack thereof, minimal or no incentives and rewards, no technical or faculty support, and no regard for technology use in promotion and tenure process.

Noble (2000) and Spotts et al. (1997) reported demographic variables of rank, age and gender were not significantly associated with the use of technology. These findings are supported by this study.

Although this study did find significance between males and females in dimension 3, attitudes toward the use of technology and specific applications, historically, males have advanced considerably more than females with technology use. Furthermore, historically males have better attitudes towards the use of technology. This study provided evidence that females are no longer in the rear with their attitudes toward and the use of technology. Females in this study actually have better attitudes toward the use technology. This implication may be a result of technology use by females becoming infused into their lives at an earlier age, and as a result this study showed an advance for females when considering attitudes and technology use.

Adams (2002) study supported the slight indication of faculty members years of experience could affect attitudes toward technology use. Adams (2002) study indicated faculty members with less teaching experience and greater than 20 years of teaching experience have a "higher level of integration" (p. 295) than those in the "middle years of teaching" (p. 295).

This study partially agreed with Adams' (2002) study indicating only faculty members with less than 19 years of experience had better attitudes toward the use of technology in general and are using more applications. Furthermore, participants with less than 19 years of experience are considered "early adopters" (Baldwin, 1998 p. 309). "Early adopters" tend to have a strong technology focus, are visionary, like to take risks and experiment, favor revolutionary change, and are largely self-sufficient with regard to technology. The 20 plus years of experience participants may be considered "mainstream faculty" (p. 309) "Mainstream faculty" (p. 309) and possible these participants are "pragmatic or conservative and need significant technical support and want proven applications" (p. 309) The following comments represents why or why not a participant participates in technology use according to their years of experience and where they obtain technical service and support.

15 years of experience: "Most of the technology I use is mostly self-taught. I tend to pick up the new technologies easily"

Technical service and support from: "I tend to provide support to my colleagues so again much is self-taught"

25 years of experience: "Probably the most relevant reason I do not use technology is simple inertia. I have taught my courses as chalk-and-talk for a long time and I am quite comfortable in that mode"

Technical service and support from: "I get help from book reps"

According to the survey instrument results and the literature, faculty members possess foundational knowledge of audio, film, video, and word processing, but an overwhelming number of faculty members want to learn more about specific technologies, "I most like to learn more about the following technologies" (Appendix D). Over 50% of the participants would most like to learn more about conducting web-based courses, lectures and notes, tests and quizzes, internet research, digital images, web images, web assignments, PowerPoint presentations, Course Management System, classroom web access, and simulations. While over

62% of the participants did not want to learn more about audio conferencing, chat rooms or video conferencing, these results could indicate that presently technologies such as audio, film, video and word processing are considered the "norm" for everyday use; therefore, these technology items should be considered as old as using a piece of chalk and blackboard to lecture and future research should not include these "norm" technologies.

Based upon the open-ended question 7 "I do not participate in technology because" (Appendix E), many responses included time and lack of training as reasons why they do not participate in technology. Although analysis of the survey results did not indicate such, it is worth mentioning that over 45% of the participants did not participate in technology because of the lack of training and technical support. This was supported by the fact that 60% of participants received technical support from staff members as compared to 67% from faculty members. In addition, 45% of the participants received support from campus computer services and the help desk, whereas 46% received support from information technology staff. According to open-ended responses, question 9 "I obtain technology technical support from" (Appendix G), participants indicated that technical support is provided by usually one person within a division or department, book representatives, colleagues and usually they are self-taught. This could indicate a lack of or knowledge of planned formal training supplied to faculty members at participating institutions. Due to the appearance of the lack of formal training or either adequate technical support by institutions, technology training and support services should be individualized for each faculty member. Just as faculty individualize their lesson plans, faculty members should have access to technology training that could be individualized, such as a library of training tools that would provide "self-directed learning" (Sahin & Thompson, p. 182).

Additionally, in open-ended responses to question 8 (Appendix F), participants supplied a diverse array of reasons for "I participate in technology because". Many indicated that incorporating technology enhances classroom and student experiences, while many thought of technology as a way of improving upon or "enhancing traditional teaching methods". This teaching enhancement has been supported by Brill and Galloway's (2007) survey that indicated

"most instructors feel that the technology they currently use in their classroom has a positive influence on their teaching and students' learning" (p. 100). Participants expressed that the students expected technology use or incorporation into the classroom, contrary to past research as administration expected technology use by faculty members. The participants provided the following comments for "I participate in technology because".

> "Students appreciate much of the technology brought into the classroom. Also, technology will be part of their professional lives. We need to provide a certain level of exposure now".
> "Expose students to contemporary technology. Encourage students to use technology"
> "Student strongly prefer that I use technology to engage their interest and active participation".

These comments could indicate that instructional technology pressures are not felt from the administration but from the students. Only 6% of participants indicated that they participate in technology due to administrative pressures. Wallace (2004) recommended, "a change from "instructor-centered" to "student-centered" learning may be necessary". (p. 101) It should be concluded that faculty members expressed that it appeared students prefer that faculty use technology within the classroom. As stated earlier, the literature does not express the same sentiments. The literature indicates that faculty members are pressured to use technology by administration. If faculty members are not being pressured by administration to incorporate technology into the classroom and pressure is being felt from students, then each faculty member needs to verify the use by having students express their preferred method of learning. The faculty members will not be able to meet all learning methods but should consider incorporating several teaching methods in addition to the use of technology.

In conclusion, this study included 290 participants. Future studies should incorporate additional faculty members to validate or contradict this study due to lack of significance found

with several research questions. This study incorporated many issues pertaining to status of technology; it must be noted that instructional technology use in higher education may well change daily and research in this area will be of a considerable effort due to these swift changes.

Recommendations for Best Practices

1. Institutions should review or initiate technology policy development before incorporating technology use by full time faculty members.
2. Institutions should develop a "one-stop shop" faculty development office that would provide faculty members the necessary technology training and resources in one location.
3. Student evaluations of faculty members must incorporate questions addressing technology use by their instructors.
4. Institutions should address the issue of technology access by all faculty members in their classrooms.
5. Institutions need to provide additional support to faculty members by training individuals within the faculty members division to provide technical support. These individuals would serve only a limited number of faculty members instead of the institution's entire population.

Recommendations for Further Research

1. Replication of this study needs to include all community colleges within the Tennessee Board of Regents higher education system.
2. Research needs to incorporate faculty members' responses to their field of professional experience.
3. Research needs to incorporate faculty responses to how much technology is being used by faculty members.
4. Research should address the attitudes of community college administrators relative to technology use and their attitudes to incorporation into the classroom.

5. Research should address faculty members' formal training and/or education in technology incorporation.
6. Research should include faculty members in other southeast states to determine whether findings from this study could be generalized.
7. Research should address faculty members regarding the community colleges role in providing technology training.
8. Research should include community college students and whether they address issues of technology use in the classroom.

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APPENDICES

APPENDIX A

Tennessee Board of Regents System Community Colleges

1. Chattanooga State Technical Community College
2. Cleveland State Community College
3. Columbia State Community College
4. Dyersburg State Community College
5. Jackson State Community College
6. Motlow State Community College
7. Nashville State Community College
8. Northeast State Community College
9. Pellissippi State Community College
10. Roane State Community College
11. Southwest Tennessee Community College
12. Volunteer State Community College
13. Walters State Community College

APPENDIX B

Letter of Permission to Vice-Presidents of Research, Assessment and Planning

May 26, 2008

Dear Participant:

My name is Nicole Cardwell-Hampton, and I am a graduate student at East Tennessee State University and faculty member at Walters State Community College. I am working on my Doctor of Education in Postsecondary Leadership and Policy Analysis. In order to finish my studies, I need to complete a research project. The name of my research study is "Faculty Perceptions About Instructional Technology in Thirteen Community Colleges in the Tennessee Board of Regents Higher Education System." I am writing you to obtain permission to send your institutions full-time faculty members a survey by e-mail to complete this study. In addition, I am providing you with this letter of request, East Tennessee State University, Institutional Review Board approval.

The purpose of this study is to determine the faculty perceptions about instructional technology at the 13 community colleges in the Tennessee Board of Regents System. In addition, this study will be used to determine the status of technology within the ranks of the full-time faculty in the Tennessee Board of Regents System community colleges. This study will provide Tennessee Board of Regents System community colleges the necessary statistical information to support adequate changes to technology initiatives involving full-time faculty members within their respective institutions. I would like to give a brief survey questionnaire to all full-time faculty members within the Tennessee Board of Regents community colleges. Faculty members will be asked about: technology services and support, perceived barriers that inhibit the use of technology, attitudes toward the use of technology in general and specific applications, and demographic variables to include the following age, gender, rank, years of higher education experience and tenure status. Since this project deals with faculty member opinion or attitudes of the status of technology at their individual institution, it may cause some minor stress. However, faculty members may also feel better after they have had the opportunity to express themselves about this issue of technology. This study may provide the necessary statistical information to formulate any changes to technology initiatives/faculty development involving community college faculty members within your respective institution.

This method is completely anonymous and confidential. In other words, there will be no way to connect faculty members name with their responses. Although, faculty members rights and privacy will be maintained, the ETSU IRB (for non-medical research) and personnel particular to this research with the ELPA department will have access to the study records.

If faculty members do not want to fill out the survey, it will not affect them in any way. There are no alternative procedures except to choose not to participate in the study.

Participation in this research study is voluntary. Faculty members may refuse to participate. Faculty members can quit at any time. If faculty members quit or refuse to participate, the benefits or treatment to which they are otherwise entitled will not be affected. Faculty members will be able to skip question if you so choose within the survey. By clicking the submit button at the end of this survey faculty members will be providing consent.

If you have any research-related questions or problems, you may contact me, Nicole Cardwell-Hampton, at 423-585-6961. I am working on this project under the supervision of Dr. Terry Tollefson. You may reach him/her at 423439-7617. Also, the chairperson of the Institutional Review Board at East Tennessee State University is available at 423-439-6055 if you have any questions about your rights as a research project. If you have any questions or concerns about the research and want to talk to someone independent of the research team, you may call an IRB Coordinator at 423-439-6055 or 423-439-6002.

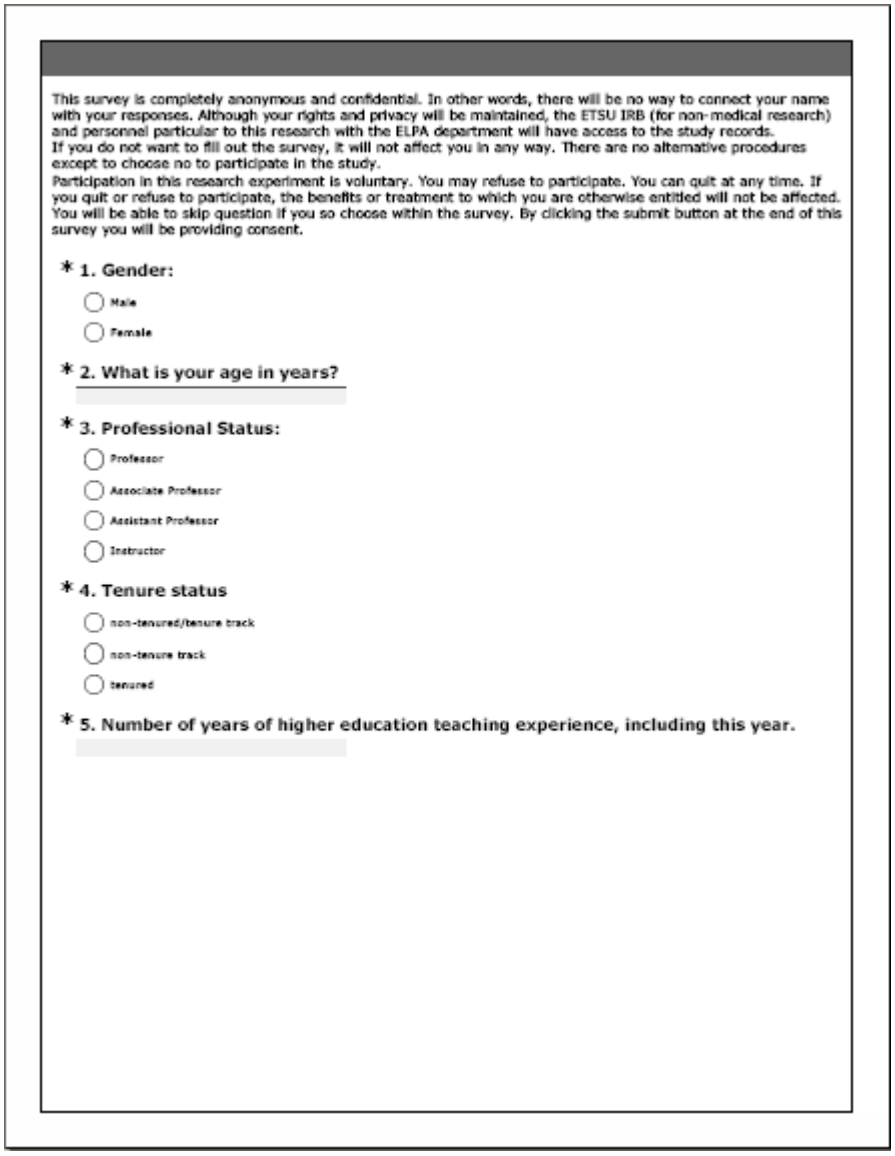
Please reply to this e-mail with permission for documentation purposes.

Sincerely,

Nicole Cardwell-Hampton

APPENDIX C

Internet-Based Survey



This survey is completely anonymous and confidential. In other words, there will be no way to connect your name with your responses. Although your rights and privacy will be maintained, the ETSU IRB (for non-medical research) and personnel particular to this research with the ELPA department will have access to the study records.
If you do not want to fill out the survey, it will not affect you in any way. There are no alternative procedures except to choose no to participate in the study.
Participation in this research experiment is voluntary. You may refuse to participate. You can quit at any time. If you quit or refuse to participate, the benefits or treatment to which you are otherwise entitled will not be affected. You will be able to skip question if you so choose within the survey. By clicking the submit button at the end of this survey you will be providing consent.

* 1. Gender:

- Male
- Female

* 2. What is your age in years?

* 3. Professional Status:

- Professor
- Associate Professor
- Assistant Professor
- Instructor

* 4. Tenure status

- non-tenured/tenure track
- non-tenure track
- tenured

* 5. Number of years of higher education teaching experience, including this year.

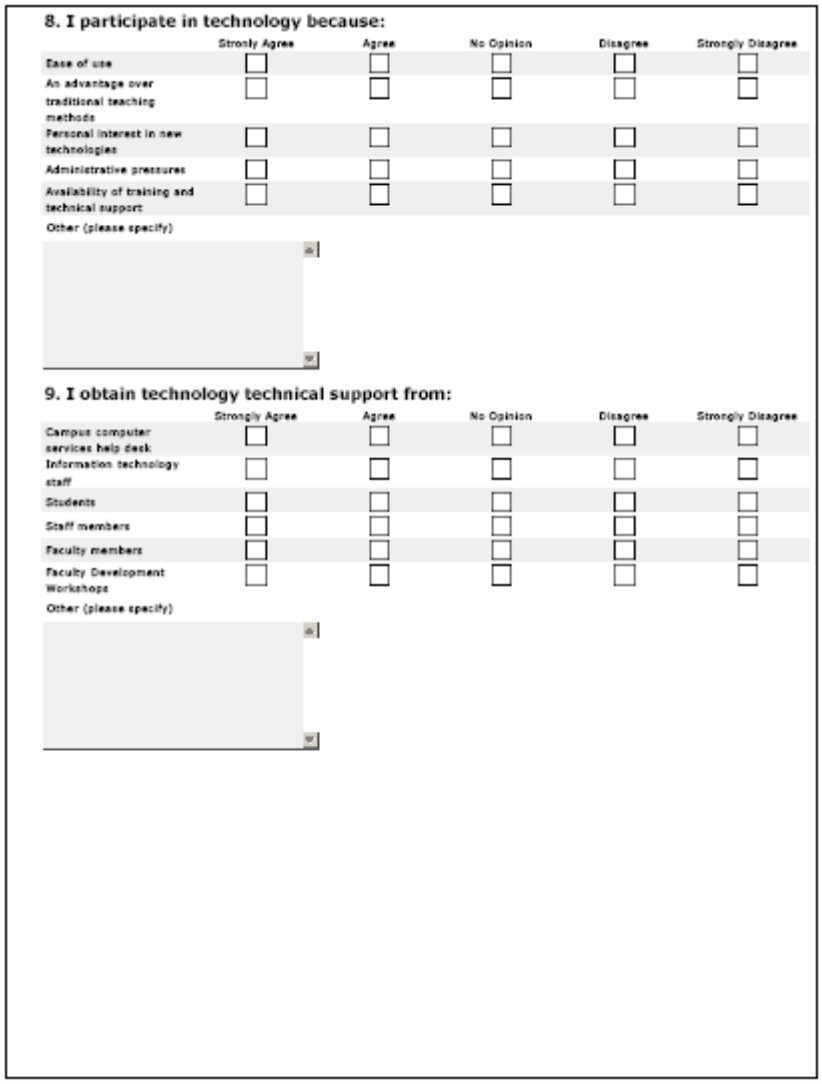
*** 6. Institution Affiliation:**

- ◯ Chattanooga State Technical Community College
- ◯ Cleveland State Community College
- ◯ Columbia State Community College
- ◯ Dyersburg State Community College
- ◯ Jackson State Community College
- ◯ Motlow State Community College
- ◯ Nashville State Community College
- ◯ Northeast State Community College
- ◯ Pellissippi State Community College
- ◯ Roane State Community College
- ◯ Southwest Tennessee Community College
- ◯ Volunteer State Community College
- ◯ Walters State Community College

7. I do not participate in technology because:

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Lack of time	☐	☐	☐	☐	☐
Lack of interest in technology	☐	☐	☐	☐	☐
Lack of relevance to course technology	☐	☐	☐	☐	☐
Lack of contribution to professional advancement (tenure and promotion)	☐	☐	☐	☐	☐
Lack of latest hardware	☐	☐	☐	☐	☐
Lack of technological support	☐	☐	☐	☐	☐
Lack of administrative support	☐	☐	☐	☐	☐
Lack of required hardware	☐	☐	☐	☐	☐

Other (please specify)



8. I participate in technology because:

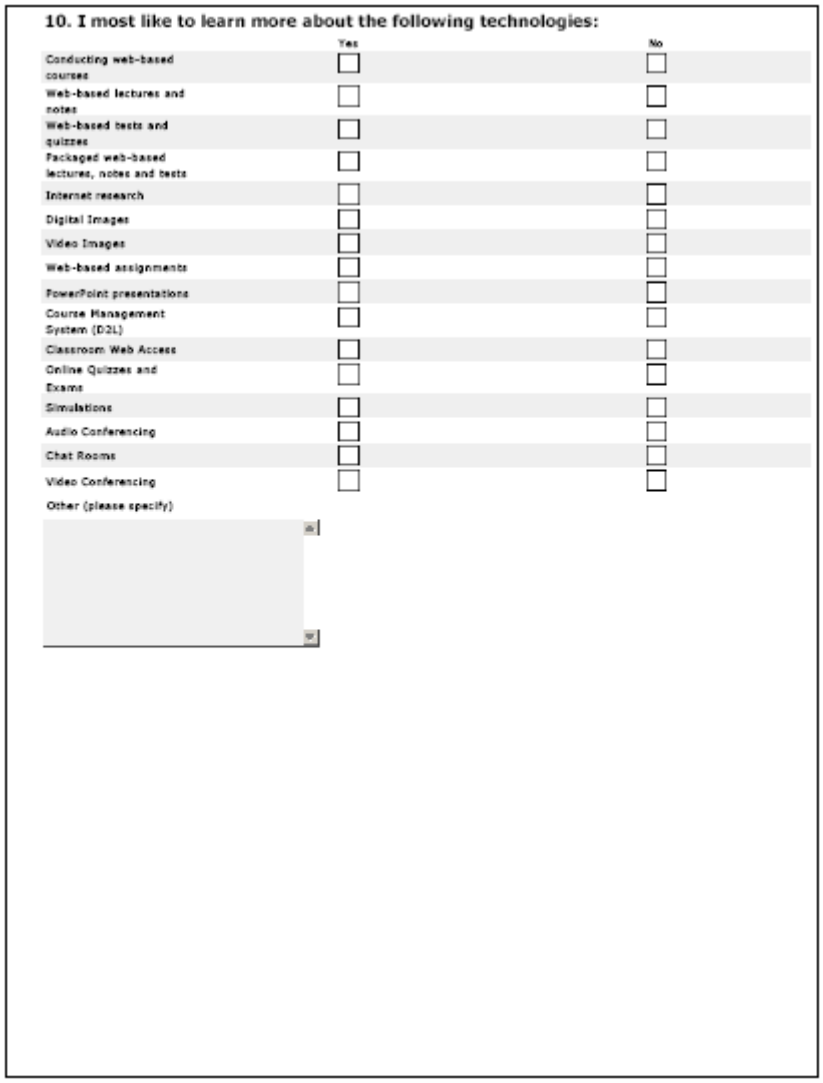
	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Ease of use	☐	☐	☐	☐	☐
An advantage over traditional teaching methods	☐	☐	☐	☐	☐
Personal interest in new technologies	☐	☐	☐	☐	☐
Administrative pressures	☐	☐	☐	☐	☐
Availability of training and technical support	☐	☐	☐	☐	☐

Other (please specify)

9. I obtain technology technical support from:

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Campus computer services help desk	☐	☐	☐	☐	☐
Information technology staff	☐	☐	☐	☐	☐
Students	☐	☐	☐	☐	☐
Staff members	☐	☐	☐	☐	☐
Faculty members	☐	☐	☐	☐	☐
Faculty Development Workshops	☐	☐	☐	☐	☐

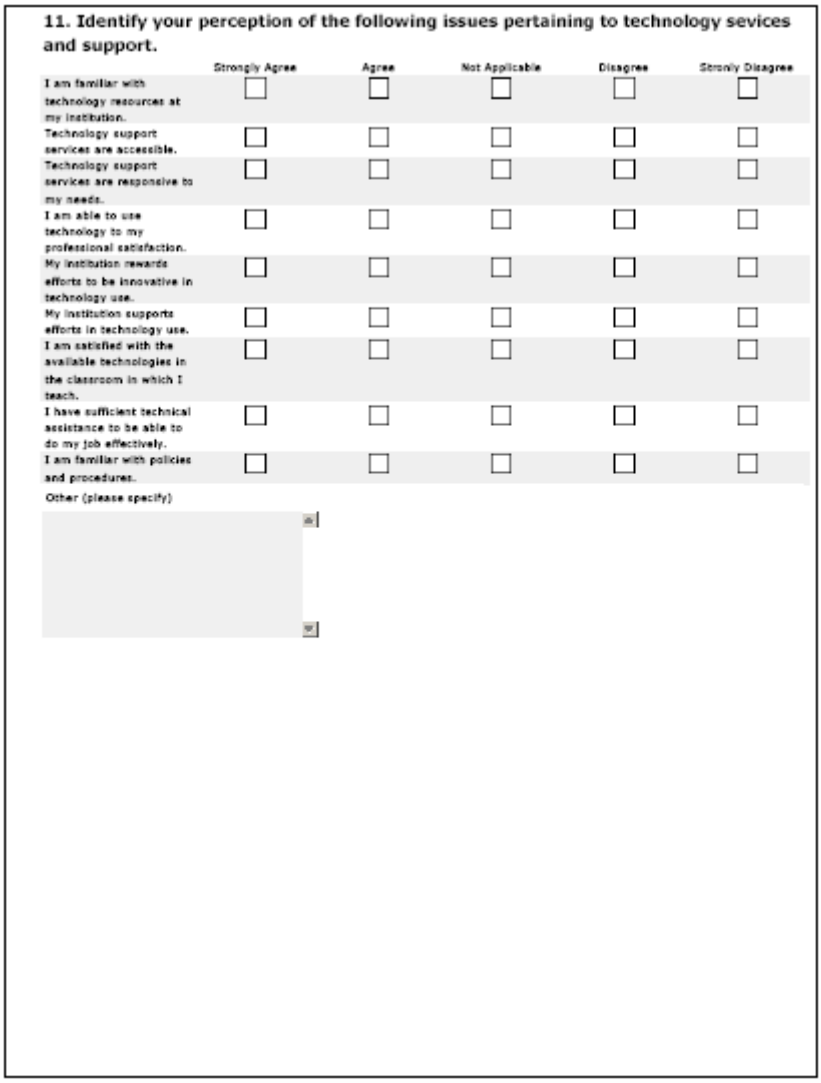
Other (please specify)



10. I most like to learn more about the following technologies:

	Yes	No
Conducting web-based courses	☐	☐
Web-based lectures and notes	☐	☐
Web-based tests and quizzes	☐	☐
Packaged web-based lectures, notes and tests	☐	☐
Internet research	☐	☐
Digital Images	☐	☐
Video Images	☐	☐
Web-based assignments	☐	☐
PowerPoint presentations	☐	☐
Course Management System (D2L)	☐	☐
Classroom Web Access	☐	☐
Online Quizzes and Exams	☐	☐
Simulations	☐	☐
Audio Conferencing	☐	☐
Chat Rooms	☐	☐
Video Conferencing	☐	☐

Other (please specify)



11. Identify your perception of the following issues pertaining to technology sevices and support.

	Strongly Agree	Agree	Not Applicable	Disagree	Strongly Disagree
I am familiar with technology resources at my institution.	☐	☐	☐	☐	☐
Technology support services are accessible.	☐	☐	☐	☐	☐
Technology support services are responsive to my needs.	☐	☐	☐	☐	☐
I am able to use technology to my professional satisfaction.	☐	☐	☐	☐	☐
My institution rewards efforts to be innovative in technology use.	☐	☐	☐	☐	☐
My institution supports efforts in technology use.	☐	☐	☐	☐	☐
I am satisfied with the available technologies in the classroom in which I teach.	☐	☐	☐	☐	☐
I have sufficient technical assistance to be able to do my job effectively.	☐	☐	☐	☐	☐
I am familiar with policies and procedures.	☐	☐	☐	☐	☐

Other (please specify)

APPENDIX D

Overall Results of Survey Questions 7-11

7. I do not participate in technology because:

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Response Count
Lack of time	8.1% (18)	20.6% (46)	8.5% (19)	29.6% (66)	**33.6% (75)**	223
Lack of interest in technology	0.9% (2)	7.7% (17)	6.8% (15)	31.8% (70)	**52.7% (116)**	220
Lack of relevance to course technology	2.3% (5)	10.0% (22)	10.9% (24)	29.5% (65)	**48.2% (106)**	220
Lack of contribution to professional advancement (tenure and promotion)	0.9% (2)	5.0% (11)	14.4% (32)	30.6% (68)	**49.1% (109)**	222
Lack of latest hardware	4.0% (9)	12.1% (27)	10.7% (24)	33.5% (75)	**40.2% (90)**	224
Lack of technological support	3.6% (8)	10.7% (24)	7.1% (16)	36.2% (81)	**42.4% (95)**	224
Lack of administrative support	2.7% (6)	6.3% (14)	11.3% (25)	36.7% (81)	**43.0% (95)**	221
Lack of required hardware	4.2% (9)	10.7% (23)	12.1% (26)	34.6% (74)	**38.3% (82)**	214
					Other (please specify)	36

8. I participate in technology because:

	Stronly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Response Count
Ease of use	25.7% (72)	**53.2% (149)**	6.1% (17)	12.9% (36)	2.1% (6)	280
An advantage over traditional teaching methods	37.9% (107)	**42.6% (120)**	7.4% (21)	9.9% (28)	2.1% (6)	282
Personal interest in new technologies	35.8% (100)	**47.0% (131)**	7.2% (20)	9.7% (27)	0.7% (2)	279

7. I do not participate in technology because:

Administrative pressures	5.8% (16)	22.0% (61)	16.2% (45)	**40.4% (112)**	16.6% (46)	277
Availability of training and technical support	19.3% (54)	**44.6% (125)**	16.1% (45)	14.6% (41)	5.7% (16)	280
				Other (please specify)		28

9. I obtain technology technical support from:

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Response Count
Campus computer services help desk	29.5% (83)	**45.2% (127)**	7.1% (20)	12.8% (36)	5.3% (15)	281
Information technology staff	42.8% (122)	**46.0% (131)**	3.5% (10)	6.0% (17)	1.8% (5)	285
Students	4.4% (12)	31.3% (85)	16.2% (44)	**34.9% (95)**	13.2% (36)	272
Staff members	14.1% (39)	**59.9% (166)**	9.7% (27)	13.7% (38)	3.2% (9)	277
Faculty members	24.1% (68)	**67.0% (189)**	3.2% (9)	5.0% (14)	0.7% (2)	282
Faculty Development Workshops	24.4% (68)	**53.4% (149)**	7.9% (22)	12.2% (34)	2.5% (7)	279
				Other (please specify)		23

10. I most like to learn more about the following technologies:

	Yes	No	Response Count
Conducting web-based courses	**68.5% (183)**	31.5% (84)	267
Web-based lectures and notes	**71.5% (188)**	28.5% (75)	263
Web-based tests and quizzes	**68.3% (181)**	31.7% (84)	265
Packaged web-based lectures, notes and tests	**51.8% (132)**	48.2% (123)	255
Internet research	**68.2% (178)**	31.8% (83)	261
Digital Images	**69.7% (182)**	30.3% (79)	261

9. I obtain technology technical support from:

Video Images	**74.6% (200)**	25.4% (68)	268
Web-based assignments	**72.8% (190)**	27.2% (71)	261
PowerPoint presentations	**64.2% (167)**	36.2% (94)	260
Course Management System (D2L)	**76.2% (198)**	23.8% (62)	260
Classroom Web Access	**69.0% (176)**	31.0% (79)	255
Online Quizzes and Exams	**66.5% (175)**	33.5% (88)	263
Simulations	**66.4% (168)**	33.6% (85)	253
Audio Conferencing	35.0% (86)	**65.0% (160)**	246
Chat Rooms	29.0% (71)	**71.4% (175)**	245
Video Conferencing	38.4% (93)	**61.6% (149)**	242
		Other (please specify)	24

11. Identify your perception of the following issues pertaining to technology sevices and support.

	Strongly Agree	Agree	Not Applicable	Disagree	Strongly Disagree	Response Count
I am familiar with technology resources at my institution.	41.4% (118)	**55.4% (158)**	0.0% (0)	2.1% (6)	1.1% (3)	285
Technology support services are accessible.	42.5% (121)	**49.8% (142)**	0.4% (1)	7.0% (20)	0.4% (1)	285
Technology support services are responsive to my needs.	**44.2% (126)**	42.1% (120)	1.8% (5)	9.8% (28)	2.1% (6)	285
I am able to use technology to my	28.1% (80)	**49.5% (141)**	0.7% (2)	20.7% (59)	1.4% (4)	285

11. Identify your perception of the following issues pertaining to technology sevices and support.

professional satisfaction.						
My institution rewards efforts to be innovative in technology use.	12.5% (35)	**43.2% (121)**	14.6% (41)	22.5% (63)	7.5% (21)	280
My institution supports efforts in technology use.	31.7% (88)	**58.3% (162)**	4.0% (11)	5.0% (14)	1.1% (3)	278
I am satisfied with the available technologies in the classroom in which I teach.	27.8% (79)	**48.9% (139)**	2.8% (8)	16.5% (47)	4.2% (12)	284
I have sufficient technical assistance to be able to do my job effectively.	28.8% (82)	**57.5% (164)**	1.8% (5)	9.1% (26)	2.8% (8)	285
I am familiar with policies and procedures.	23.8% (67)	**68.1% (192)**	2.8% (8)	5.0% (14)	0.7% (2)	282
					Other (please specify)	23

APPENDIX E

Open-Ended Responses Question 7

#	**I do not participate in technology because: Other (please specify)**
1.	I do participate
2.	What do you consider technology? Online, web assisted on-ground, by video, Powerpoint?
3.	I could be the greatest teacher on the planet if I just had more TIME! The same goes for utilizing technology.
4.	I am very interested in learning all new technology. Since I teach in technology, and every semester I have to learn something new to teach, it is difficult to learn extra, such as technology to make my online courses terrific.
5.	More emphasis is needed on & "train the trainer" to understand how to be a student friendly educator and fully appreciate class room (or workshop) management as well curriculum and instruction methods.
6.	Question #7 does not apply to me because I do use technology.
7.	I do participate in technology but not as much as I would like to.
8.	N/A
9.	I do not like to test technology for companies. Which is basically what happens when you use first generation technology.
10.	This is an awkward question. I do actively participate in technology.
11.	I teach Computer Applications, therefore I do participate in technology.
12.	….provides the latest hardware, software, and instruction sinour offices and in our classrooms. I am pleased as a faculty member at what …. does for us.
13.	Our OIT people are great, but they aren't in charge of the "new technology" The office that is usually too busy or behind -- due to the fact that they are way overloaded with their preexisting responsibilities.
14.	I do participate in technology.
15.	I teach technology courses
16.	I cannot answer this question. I DO participate in technology.
17.	I do participate in technology. This question was stated negatively assuming I did not.
18.	I teach mathematics so technology often takes away the classroom interaction that I need. I do use it (Excel) in statistics and find it very helpful. This semester I have included MyMathLab and it has early on become very time consuming because my students are unfamiliar with the technology.
19.	I do participate
20.	Starting with why I "do not" participate seemed negative. More questions in this area appears to me as an attempt to skew data.
21.	The most limiting factor would be that it works every time.
22.	I am an advocate of the use of Technology in the every course and classroom.
23.	I participate in technology as needed in the class room and everything I need is available in order for me to be a successful professor.
24.	seriously impaired vision
25.	I did not answer this question because I use technology heavily so I didn't understand how to make a choice that would convey that, i.e. if I choose strongly disagree, doesn't that mean

#	I do not participate in technology because: Other (please specify)
	that I do not participate, but that it not the reason?
26.	I participate so am not sure how to answer this question.....if I had more time I would do even more.
27.	I do participate in technology.
28.	Probably the most relevent reason I do not use more technology is simple inertia. I have taught my courses as chalk-and-talk for a long time and I am quite comfortable in that mode.
29.	I choose to participate in technology, so I did not see an appropriate choices list for question 7... I think you should have reworded the question or the choice of responses -- or asked people to skip to question 8.
30.	I do participate in technology, although that is an awkward phrasing of my interest in devloping on-line courses in my areas and generally having worked in programming and computers a good part of my adult life.
31.	Lack of training. I have not pursued the opportunities.
32.	Poorly worded question. Need a Not Applicable option.
33.	I'm not sure if I needed to respond to this item since I'm a “heavy user” of technology. I answered to the effect that these “lacks” do not impact my use of technology.
34.	When the software does not perform as it should.
35.	lack of skills and time to practice the new software/technology. limited office hours
36.	This question is not relevant to me because I do use technology....

APPENDIX F

Open-Ended Responses Question 8

#	**I participate in technology because: Other (please specify)**
1.	Technology enhances my classroom and my students' learning in so many ways! I love the possibilities!
2.	Student strongly prefer that I use technology to engage their interest and actiive participation.
3.	Usually I participate in technology because it is the state of the field. that does not always match administrative pressures. I feel I have had space to test and use technology for my best teaching environment.
4.	Once set up provides great benefits to our students and ease to the instructor. Win, win!
5.	Some technologies offer savings of time and energy relative to traditional methods; others consume more time and energy. In a basic science course (e.g., chemistry) technology is a useful tool but is no substitute for face to face, real time instructor/student interaction.
6.	….provides excellent technology and supports our use of technology by providing the best support.
7.	It is helpful to students.
8.	Hire more people to help our tech people (not OIT) and it would encourage more people to participate.
9.	I teach in the technology area -- is there any other way?? You have a typo in “Strongly Agree” in your choices.
10.	I think that most of the technology provides us with better tools to enhance the learning experience for the students. I do believe that most of the Schools are slow to take advantage of most technology and that the decision making process is poorly organized as to who chooses the technology that we implement.
11.	support available.....but time to sort out problems takes time/interaction.....fall back to non-tech for the sake of time management
12.	Our campus does not have a dedicated technical support person and it is very frustrating.
13.	Most of the technology I use is mostly self-taught. I tend to pick up the new technologies easily.
14.	I designed a course in RODP and I enjoy teaching it, especially the convenience.
15.	I find technology to be a useful tool, but technology has no special advantage over traditional teaching methods. It is another way of presenting information, in case the student looses the syllabus or needs lecture outline notes. It does not substitute for communication in the classroom, especially in speech communication, which I teach.
16.	Teaching on-line classes is the only way we can continue our low-enrollment classes and therefore our major.
17.	I am a web designer, as such I have a huge interest in eLearning technologies. Since I am motivated to push the limits I would not know if administration is pressuring anyone. Other reasons are: * ability to easily track performance metrics * ease of backing up and archiving student performance * more ecologically friendly * ease of incorporating media and interactivity across multiple class rooms * automated grading and reporting capabilities * it gives my students equal access to a degree even if they work full-time and have family

#	I participate in technology because: Other (please specify)
	obligations
18.	This is earth in the year 2008.
19.	Over the last two years, support for faculty use of technology has declined. This is primarily due to a change in CTAT (the faculty support department) staffing.
20.	Under Ease of Use; some things are easier, but some are not. But I love using technology even though online teaching is more time consuming than onground.
21.	Students are high-tech and they appreciate an instructor and a course that includes technology appropriately to enhance the learning experience.
22.	Expose students to contemporary technology. Encourage students to use technology
23.	Plan to develop skills in D2L course management system
24.	Students appreciate much of the technology brought into the classroom. Also, technology will be part of their professional lives. We need to provide a certain level of exposure now.
25.	Technology enhances traditional teaching methods.
26.	While technology will not replace me and what I have to give the student, it does provide the student with some tools for using different learning strtegies to help them succeed in my class.
27.	Environmentally friendly.
28.	I love technology and I like trying new things!

APPENDIX G

Open-Ended Responses Question 9

#	I obtain technology technical support from: Other (please specify)
1.	On paper, we have workshops, but they are limited, rushed, and ineffective. There are a few that try to assist faculty, but faculty needs more support and help.
2.	Knowledge about specifics of operating D2L is too regimented into too few hands. As a consequence, beginners can easily become frustrated getting a quick answer because only one individual in technology support has been designated as the D2L training source. D2L remains an area that most of the staff in computer and instructional technology services report is an "unknown" to them. Faculty may have received some training workshops, but to expect they will remember all the training without forgetting and needing frequent access to help from multiple people on staff is unrealistic, especially in the beginning of their D2L usage. Referring faculty to their already busy peers for help is not very practical. Instead of one staff person to deal with D2L confusions and questions there would more helpfully be at least half a dozen. My comment have to be kept anonymous as promised to avoid hurt feelings among those organizers who want to believe they have virtually perfected their short and long range strategic planning. Offering constructive criticisim about the methods of delivering training and methods of help could result in ill will between co-workers.
3.	I try to use the Helpdesk but with very frustrating results.
4.	Software supplier (publisher tech service)
5.	By getting an instruction manual and teaching myself.
6.	We have a faculty member in my department who is always helpful.
7.	I typically provide additional support for faculty and staff in our division
8.	Our center for teaching Arts and Technolgy (CTAT)
9.	I receive a lot of information from national workshops in my area of practice.
10.	I basically teach myself new technology and have been doing it for 42 years that I use technology. I started teaching computers in High School in 1967.
11.	I tend to provide support to my colleagues so again much is self-taught.
12.	RODP help desk for faculty
13.	I use the D2L How-To Manual for most things; and our D2L contact is fantasic for quick answers.
14.	Sometimes I get help from book reps.
15.	I'm pretty savvy with technology. People usually come see me for answers. When I need help, it usually very specific. I search out the personnel with expertise to answer my questions; usually help desk or instructional technology staff. While I learn from everyone, students and staff are rarely the sources of my information.
16.	Our OIT staff is excellent and always available to help faculty, staff, students.
17.	There used to be a good support organization for the use of technology in the classroom at …., but now faculty must rely on each other. This is so unfortunate and our students are suffering.
18.	I attend training, but I just get in there and play a lot to learn the technology.
19.	Instructional Services Support Staff
20.	A faculty member puts things on e-learn for me and is willing to teach me how to use the

#	I obtain technology technical support from: Other (please specify)
	system myself.
	OIT is helpful but busy. Our D2L staff is practically non-existent. I use books that I purchase
21.	myself along with trial and error. Faculty and staff spend a great deal of time helping each other.
22.	I learn a lot from the library professionals.
	We have a Technical Coordinator for instructional technology; I consult him weekly for help.
23.	He is available to both students and faculty, and his availability means I use D2L extensively for my classes (I'm in Humanities, not a technical area).

APPENDIX H

Open-Ended Responses Question 10

#	I most like to learn more about the following technologies: Other (please specify)
1.	Engineering Software
2.	Some other areas I want to more about are: 1. Interactive learning methods Online that increase student engagement;and 2. Best practices to train students unfamilar with technology who have signed up for an online class to navigate inside their course.
3.	TI-Navigator System Smartboards
4.	Question phrasing is odd. I marked responses based on “I’d most like to learn more about ....”
5.	All of the above are either things I already do or don't plan to use. I'm interested in more cutting edge uses - like wiki's, twitter, blogs, etc.
6.	Familiar with all of the above features
7.	Most of the sections that I selected the answer NO for are areas that I feel I have adequate knowledge in those areas. I do feel there is room for improvement in the other areas, especially in the area of Video and Web conferencing. I feel that Web conferencing is the next logical step in online education that will provide students live information as well as a way to ask questions of their instructors in a real time environment with out having to come to school. Some students thrive in an asynchronous environment which is fine but there are many others that need the personal level contact with the instructor and this is the next most logical step in providing those services to our students.
8.	Podcasting
9.	N/A
10.	Do you mean would I like to learn about these things, or do I use them? I use every technology that I did not check no,...but don't need to learn about them
11.	Podcasting & Vodcasting lectures
12.	I loathe the idea of online courses attempting synchronous settings through chat rooms and “conferencing”
13.	This may fall under simulations, but I'd like to see if I can use something like Second Life in my classes in communication.
14.	I have taught web-based courses and I put outlines of my lecture notes on line. I use d2l to inform my students and powerpoint when needed. I also use on line quizzes and exams. I do not use chat rooms, since we all have to be on line during the time. I do use discussion boards. For now, I am satisfied with my use of technology.
15.	While I already know some on topics I always WANT to learn more but time will not premit me to 'speacilize' in everything...but the way this question is worded
16.	I left these blank because I'm already familiar with all of those technologies.
17.	I am interested in leaning as much as I can regarding on-line teaching and learning/ instruction
18.	calculator & calculator to computer smart board presentations
19.	tegrity and memo smart strip
20.	I think you should have limited the responses to our top 3 or top 5... I am not certain that you will receive the response/validity that you want without having us limit our number of responses.

I most like to learn more about the following technologies:	
#	Other (please specify)
21.	I spent alot of time, energy and preparation (of course work) learning Web-CT only to have it replaced by D2L. What a waste.
22.	The sentence stem does not really make sense. Do you mean I would most like or I like...the most?
23.	I have wanted a room wired for virtual reality so students could “tour” caves, cathedrals, museums, etc. for several years.
24.	Not sure what “simulation” refers to...

APPENDIX I

Opened-Ended Responses Question 11

Identify your perception of the following issues pertaining to technology services and support.

#	Other (please specify)
1.	Due to band width limits (and failure by some administrative decision makers to appreciate the serious information value of You Tube and similar popular new developments in knowledge communication) I am forbidden to access the full internet in my class room expansion of student understanding. Some administrators seem to suspeciously regard teaching an online course as less legitimate and not equivalent to the "real efforts" of teaching a traditional on ground course. Online courses when taught correctly as highly interactive student-teacher experiences sure seem even more labor intensive to me as a teacher!
2.	Computer services is not usually helpful but the technology staff/faculty are extremely helpful.
3.	Update computers in classrooms!!!!! Keep internet connections in classrooms up and fast!!!!! WE NEED A WIRELESS CAMPUS!!!!!
4.	which policies and procedures are you referring to? ones related to use of technology?
5.	Typo in the word "services" in the title of this item.
6.	In order to be proficient in the use of new technologies I would have to invest much of my own time. Class preparation time and time to learn new methods/technology is almost non existent at my school.
7.	budget cuts and use of TAF monies for banner and other projects have taken away from faculty development and use of technology in the classroom.
8.	For this semester the classroom technologies are sufficient. This is often not the case which discourages investment in web-basing material
9.	our division has been recently moved into a new building, and although classes have begun, we do not have all of our technologies hooked up and ready to go. This is very frustrating when dealing with a class of 70 students, so my current perceptions of IT support are negative. In my area it is critical that technology be implented and state of the art.
10.	would like to have "clicker" technology available for class use.
11.	The "forced Choice" of this question is unfortunate. Technology support is available. But, timely, no.
12.	The technology support here is outstanding and the emphasis to make our rooms state of the art is apparent.
13.	I have already responded to your survey.
14.	I'm not sure what the last question is looking for.
15.	Technical support is FANTASTIC but the training staff is limited and it has been difficult for me to progress as far as I would like to because of this problem.
16.	Not much awareness or support for faculty innovation in technologically advanced teaching methods outside CIS.
17.	My program is online and I do not teach in the classroom. Most of the time our technology support is excellent.

Identify your perception of the following issues pertaining to technology services and support.

#	Other (please specify)
18.	Please note that the response to question 5 above is a combination of 3 years of fulltime teaching experience at … and 23 years of adjunct teaching experience at both … and …. Thank you for the opportunity to participate in this survey. Technology is and will continue to enhance the future of education.
19.	D2L faculty support is effectively provided at …. from one individual - ….. Without him I don't believe faculty would have such responsive help.
20.	Again, the OIT staff is very helpful here, but they are very busy. The D2L staff seems totally overwhelmed.
21.	The main problem on this campus is the inability to obtain and use software on faculty computers and classroom machines. For example, last march I went to a conference where camtasia was introduced as a great tool to use in web teaching. I came back and requested Camtasia. That request was approved but still the computer services division has not put the software on my machine. I need the testing software that comes free with the textbook for creating online tests. I could download install this software myself in two minutes but I am not allowed to. Still I do not have that testing software. I needed Quicken software at the beginning of this semster to develop a section of our Accounting Capstone course. The request was made in a timely manner. I still do not have the software. To sum the matter up, extreme difficulty that the average faculty member has on this campus in obtaining and using software is having a dampening effect on promoting the use of technology in both classroom and online classes.
22.	On-campus access is great. Dual enrollment access is nearly non-existent.
23.	I don't have the time to devote to learning and using the new technologies. I wish I had more time to “practice” the skills before I use them with the students.

APPENDIX J

Letter of Explanation to Participants

Dear Participants,

My name is Nicole Cardwell-Hampton, and I am a graduate student at East Tennessee State University. I am working on my Doctor of Education in Postsecondary Leadership and Policy Analysis. In order to finish my studies, I need to complete a research project. The name of my research study is "Faculty Perceptions About Instructional Technology in Thirteen Community Colleges in the Tennessee Board of Regents Higher Education System."

I am conducting a survey to determine faculty perceptions about instructional technology at the 13 community colleges in the Tennessee Board of Regents System. Since this project deals with your opinion or attitudes of the status of technology at your individual institution, it may cause some minor stress. However, you may also feel better after you have had the opportunity to express yourselves about this issue of technology.

This survey is completely anonymous and confidential. In other words, there will be no way to connect your name with your responses. Although your rights and privacy will be maintained, the ETSU IRB (for non-medical research) and personnel particular to this research with the ELPA department will have access to the study records.

If you do not want to fill out the survey, it will not affect you in any way. There are no alternative procedures except to choose no to participate in the study.

Participation in this research experiment is voluntary. You may refuse to participate. You can quit at any time. If you quit or refuse to participate, the benefits or treatment to which you are otherwise entitled will not be affected. You will be able to skip question if you so choose within the survey. By clicking the submit button at the end of this survey you will be providing consent.

If you have any research-related questions or problems, you may contact me, Nicole Cardwell-Hampton, at 423-585-6961. I am working on this project under the supervision of Dr. Terry Tollefson. You may reach him/her at 423439-7617. Also, the chairperson of the Institutional Review Board at East Tennessee State University is available at 423-439-6055 if you have any questions about your rights as a research project. If you have any questions or concerns about the research and want to talk to someone independent of the research team, you may call an IRB Coordinator at 423-439-6055 or 423-439-6002.

Sincerely,

Nicole Cardwell-Hampton

VITA

NICOLE CARDWELL-HAMPTON

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Bachelor of Science Ornamental Horticulture & Landscape Design
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Master of Science in Ornamental Horticulture & Landscape Design
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Educational Specialist in Educational Administration and Supervision
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Educational Leadership and Policy Analysis, Ed.D East Tennessee State University, Johnson City, Tennessee;. 2008

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Community Outreach Coordinator, Massachusetts Horticulture Society, Boston, MA, 1993 to 1994

Instructor, Human Biology and Environmental Science, Carson Newman College, Jefferson City, TN, 1996-1997

Associate Professor, Greenhouse and Nursery Management, Walters State Community College, Morristown, TN, 1997 to Present

Publications:

Cardwell, Nicole A. and Gary L. McDaniel. 1998. Comparison of Chitinases from Dogwood Anthracnose Resistant and Susceptible *Cornus* Species. HortScience 33(2): 298-301