FACULTY TRAINING AND PROFESSIONAL DEVELOPMENT PROGRAMS DESIGNED TO IMPACT WEB-BASED INSTRUCTION IN HIGHER EDUCATION: A FACULTY PERSPECTIVE

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Web-based instruction has fast become a common component of higher education. Although such instruction began as a supplemental form of interaction, it has now become a basic aspect of many college courses and degree programs. If teacher and student are not in the same place at the same time, it becomes necessary to introduce a communications medium that will not only deliver information but also provide a channel of interaction between them.

This study focused on faculty training and development programs designed to impact Web-based instruction in higher education at the five largest state-funded universities in Texas within a college of education. The instrument used in this study was developed by the research to collect data relating to faculty perception of training and development opportunities available to them at their institutions, perceptions of administrative support, and technical support. The objective was to determine if there was a relationship between these items listed above and faculty members' levels of confidence and perceptions of effectiveness when teach Web-based courses. The population consisted on 151 faculty members at the University of Texas at Austin, Texas A&M University, the University of Houston, the University of North Texas, and Texas Tech University.

This research study suggests that full-time tenure track faculty members at the five largest state-funded universities in Texas perceive that the amount of formal

training they have received increases their ability to teach Web-based courses effectively and that the amount of formal training received also increases their perceived level of confidence when teaching Web-based courses. The researcher discovered similar results when faculty members were asked about their perceived level of institutional commitment and current initiatives for teaching Web-based courses.

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CHAPTER 1

INTRODUCTION

This study analyzed higher education faculty training and professional development programs designed so that higher education faculty can improve their effectiveness in Web-based instruction. Faculty members who teach Web-based courses in a college of education at the five largest state-funded universities in Texas were the focus of this study.

Web-based instruction is fast becoming a common component of higher education. Although such instruction began as a supplemental form of interaction, it has now become a basic aspect of many college courses and degree programs (Green, 1998). Web-based instruction may include the use of email, bulletin board systems, chat rooms, WebCT, and the Internet (Moore & Kearsley, 1996). Different terms in the literature—telelearning (Collis, 1995), distance learning (United States Distance Learning Association, 2002), and nontraditional education (Cantelon, 1995) have all been used to describe the same basic processes and outcomes of Web-based instruction. Common to the definition of all these terms is the concept that Web-based instruction is facilitated within an organizational framework, with deliberate arrangements for providing instruction through print or electronic communications media to persons engaged in planned learning in a place or time different from that of the instructor (Keegan, 1996).

Statement of the Problem

The problem that was addressed in this study is whether faculty training and

development programs positively influence the ability of higher education faculty members to teach Web-based higher education courses effectively in a college of education. As individual societies seek to take advantage of economic globalization and the information explosion arising from the widespread use of computers and telecommunications, it is imperative to develop new educational programs for learning-on-demand (Gillespie, 1998). These programs must reflect customized delivery and assessment, incorporate teaching with Web-based instruction, provide non-classroom-based options for learning, and transcend geographical boundaries. With these emerging needs, the phenomenon of Web-based instruction has gained more significant institutionalized importance than the prior delivery of correspondence courses, and faculty members are being asked to integrate Web-based courses into their curricula (Cantelon, 1995).

Nunaley and Warner (2002) agreed that faculty members are being asked to integrate more Web-based instruction into their courses, not only by students, but also by colleagues and administrators. Within an institution, a wide range of Web-based instructional skills and /or experiences with distance learning exists among faculty members. When an institution considers use of the World Wide Web, Web-authoring, and computer-mediated communication tools, planners must recognize that faculty skills and knowledge exist on many levels. Thus, an institution's planning to provide faculty training and support should address the various technology-usage "entry-levels" of faculty and the succeeding "development stages" of existing Web-based teaching faculty. Many researchers also have argued that the role of the instructor should shift from that of expert lecturer to that of facilitator. Other shifts include greater

responsibility for learning by individual students and increased options for contextualized learning rather than abstract generalizations. In adopting any pedagogy and methodology for Web-based teaching that significantly includes the use of electronic technologies, many faculty members will require training, retraining, and retooling in an environment supportive of change.

Savery (2002) observed that faculty members commonly rated themselves as highly competent and proficient with the use of email, word processing, Internet research, and library research, which is consistent with their image as researchers and authors. Their reported confidence/proficiency level with other technologies was considerably lower. Comments collected in interviews and open-ended questions suggest a need for training in the use of certain other applications and a recognition that some applications are simply not needed and therefore have not been learned or developed to any level of competence. However, student perceptions of this information were much different from those of faculty, because the students noticed a lack of use of email and Internet research in their Web-based learning experience.

Gilbert (1996) suggested that Web-based instruction requires more thoughtful attention to pedagogy and to the settings in which learning can occur than with conventional education. Olcott and Wright (1996) indicated that both the quality of instruction and student support services are among the decisive factors in enhancing the institutional adoption process of Web-based instruction, with the faculty being the central resource for the integration of Web-based instruction practice and theory. There is great interest, therefore, in exploring how faculty members prepare to be effective instructors in the Web-based environment.

According to Kincannon (2000), Web-based instruction is the impetus for the development of distance programs worldwide. The challenge to faculty members is to meet the expectations of students and their administration to incorporate this Web-based instruction into their teaching practice and still retain their personal definition of high-quality teaching in the Web-based teaching environment. The challenge to instructional design professionals is to use an accurate concept of teaching practice in context to provide effective support for faculty members as they develop and teach Web-based courses.

The underlying belief of this study is that the phenomenon of Web-based instruction has provided a momentum for change and innovation in traditional teaching-learning processes for higher education. This change requires ongoing individual and institutional commitment, competency, collaboration, and creativity to ensure that faculty members are adequately trained and prepared to deliver effective Web-based instruction.

Purpose of the Study

The overall purpose of this study was to examine faculty perceptions of various training and professional development programs that have been developed and implemented for full-time tenure track faculty members to impact their instructional effectiveness in Web-based higher education courses in a college of education. Four research questions were examined in order to carry out these purposes.

Four research objectives were developed from the relevant literature as the basic framework for a needs assessment approach to the research. In terms of the

objectives, the study sought to accomplish the following: (a) describe the relationship between the amount of training and professional development faculty members have received versus their perceptions of their ability to teach Web-based instruction courses; (b) describe the relationship between the amount of training and professional development faculty members have received versus their confidence levels when teaching Web-based instruction courses; (c) determine whether the number of courses faculty members have taught in the past have a direct relationship to their current level of confidence when teaching Web-based courses; and (d) determine whether there is a relationship between institutional support in relation to faculty members' perceived training and professional development needs as they relate to facilities, equipment, administrative support, and technical support.

Particular interest was placed on the identification of current training and professional development needs which faculty members may or may not perceive as deficiencies in relation to desired competencies or expressed levels of instructional effectiveness. Emphasis was placed on the levels of institutional support for effective Web-based instruction in relation to training opportunities and the availability of equipment, facilities, and other infrastructure. This descriptive study was conducted by means of survey with full-time tenure track faculty members who currently teach Web-based courses.

Research Questions

The following research questions were addressed in this study.

Question 1: What is the perceived relationship between the amount of training

and professional development full-time tenure track faculty members have received versus their perceptions of their ability to teach Web-based instruction courses effectively?

Question 2: What is the perceived relationship between the amount of training and professional development full-time tenure track faculty members have received versus their perceived confidence levels when teaching Web-based instruction courses?

Question 3: What is the perceived relationship between the number of courses taught through Web-based instruction and full-time tenure track faculty members' perceived level of confidence when teaching Web-based courses?

Question 4: Is there a relationship between institutional support in relation to full-time tenure track faculty members' perceived training and professional development needs as they relate to facilities, equipment, administrative support, and technical support?

Faculty preparation represents an important aspect of the range of organizational and institutional factors that influence the process of adopting technology for Web-based instruction. As technological advancements facilitate classroom interaction beyond the boundaries of time and space, there emerge various challenges to conventional approaches to instructional design and implementation (Cyrs, 1997).

The concept of Web-based learning literally implies creative and ingenious ways of coordinating educational materials, infrastructure, and other instructional resources to overcome the barriers of distance (Moore, 1995). With the emergence of new interactive technologies, this creative potential for distance instructional delivery greatly

increases. However, the opportunities can be maximized only if appropriate instructional models for effective Web-based instruction are identified.

Willis (1994) emphasized the importance of training faculty members, not only in how to manage the technical aspects of Web-based instruction, but also in how to become innovative in the planning and delivery of effective Web-based instruction courses. It is essential that they learn to manage the process of continuous change and improvement in this dynamic technological teaching environment.

According to Hagner (2003), a common theme in Web-based teaching research is the need to create faculty support systems that are both scalable and flexible systems that stimulate and engage. Although faculty acceptance is essential to the success of Web-based instructional programs intended to improve teaching and learning, it is now widely understood that faculty members themselves must be willing to see that Web-based-enhanced learning environments are inextricably linked to an institution's ability to fulfill its mission.

Significance of the Study

The overall purpose of this study was to examine faculty perceptions of various training and professional development programs that have been developed and implemented for full-time tenure track faculty members to impact their instructional effectiveness in Web-based higher education courses in a college of education. Recent professional education research has included numerous articles defining what it means to be an instructor in Web-based learning, what should constitute a core set of distance teaching competencies/skills, and what institutions are doing to incorporate distance

courses in their curricula. Many publications have also indicated that institutions of higher learning have recognized the need to assist faculty members in the integration of new technologies and methodologies for teaching and learning. This recognition is reflected in the establishment of faculty development programs and technological resource centers, for education programs in general, and more specifically with facilities to accommodate Web-based instructional programs.

However, only limited research focuses on how faculty members actually develop and learn these skills. There exists also no clear indication of how to implement a comprehensive plan for faculty preparation that addresses the challenges of the transition process for integrating technology for Web-based instruction. A recent review of literature reveals that little has changed since Dillon and Walsh (1992) observed that faculty development is a neglected topic in most scholarly publications discussing Web-based instruction. Dillon and Walsh's study sought to highlight issues relating to faculty characteristics, roles, faculty rewards and incentives, leadership, attitudes, and training needs.

Definition of Terms

The following are definitions of terms used in this study.

- Blended instruction – A term for the delivery of instruction based on the integration of face-based instruction and computer-based instruction. In blended instruction, a significant amount of student learning is achieved through online instruction, resulting in changes to course structure and how/where students allocate their time in mastery of the course content (Marsh & McFadden, 2005).

- Development – The phase involving the construction of any instructional resources to be used by the learner in training.
- Faculty – Full-time tenure track faculty members who currently teach Web-based instructional courses in a college of education at either the University of North Texas, Texas Tech University, the University of Texas (Austin), Texas A&M, or the University of Houston.
- Faculty development – A set of activities planned to foster the intellectual growth and development of faculty members.
- Training – Making proficient at a particular task through special instruction and/or practice.
- Web-based instruction – A form of computer-based instruction which uses the World Wide Web as the primary method of delivering information. A textbook is usually required, and all other materials, as well as communication with the instructor, are provided through the course Web-site (Oregon Network for Education, 2005).
- Web-Based teaching – Global communication network (World Wide Web) facilitated by high-speed, graphical interface for the Internet which permits video, sound, text, and sophisticated graphics to be transmitted to the user. It is also known as an "online" medium that accommodates electronic mail, listserv, and newsgroup discussions. The transmission may be synchronous – real-time, simultaneous; or asynchronous – delayed time.

Delimitations

Anything that the researcher does to the population that might affect the

generalizability of the results is a delimitation (Terrell, 1998). This research concentrated on the study of the Web-based instructional training needs of faculty members teaching Web-based courses in a college of education at the five largest state-funded universities in Texas. Therefore, the results of this study targeted only these individuals and cannot be generalized through other departments or faculty members in other areas.

Limitations

A limitation is some aspect of the study that the researcher knows may negatively affect the results or generalizability of the results but over which he or she has no control. The major limitations of this study were as follows:

1. The results and conclusions may be applicable only to the five largest state-funded institutions in Texas and may not be generalizable to another population.
2. The survey used for the data collection process for this study creates validity concerns because of the aspect of self-reporting by faculty members at each institution.

Summary

Due to the continual rapid growth of and need for Web-based instruction, it is essential that training and professional development programs be developed so that faculty members can increase their knowledge and abilities to teach Web-based courses. Given this growth of postsecondary learning, pressure is being put upon college faculties to create and teach Web-based courses at a distance as well as to supplement traditional courses. The underlying belief of this study is that the

phenomenon of Web-based instruction has provided a momentum for change and innovation in traditional teaching-learning processes for higher education. This change requires ongoing individual and institutional commitment, competency, collaboration, and creativity to ensure that faculty members are adequately trained and prepared to deliver effective instruction.

Particular interest was placed on the identification of current training and professional development needs that faculty members perceive as possible deficiencies in relation to desired competencies or expressed levels of confidence and instructional effectiveness. Emphasis was also placed on the levels of institutional support for effective Web-based instruction in relation to training opportunities and the availability of equipment, facilities, and other infrastructure. This descriptive study was conducted by means of survey with full-time tenure track faculty members who currently teach Web-based courses in higher education.

CHAPTER 2

REVIEW OF LITERATURE

Overview

The overall purpose of this study was to examine faculty perceptions of various training and professional development programs that have been developed and implemented for full-time tenure track faculty members to impact their instructional effectiveness in Web-based courses in a college of education. The following four research questions were answered with the data collected from this study.

Question 1: What is the perceived relationship between the amount of training and professional development full-time tenure track faculty members have received versus their perceptions of their ability to teach Web-based instruction courses effectively?

Question 2: What is the perceived relationship between the amount of training and professional development full-time tenure track faculty members have received versus their perceived confidence levels when teaching Web-based instruction courses?

Question 3: What is the perceived relationship between the number of courses taught through Web-based instruction and full-time tenure track faculty members' perceived level of confidence when teaching Web-based courses?

Question 4: Is there a relationship between institutional support in relation to full-time tenure track faculty members' perceived training and professional development needs as they relate to facilities, equipment, administrative support, and technical support?

The fundamental concept of Web-based instruction is simple enough. Students and teachers are separated by both time and space. This separation contrasts with the primitive tutorial in which a teacher and an individual learner met at the same time and place, and with the more contemporary model of instruction in a classroom, where an instructor meets with a group of learners all together at the same time in the same place (Moore & Kearsley, 1996). If teacher and student are not in the same place at the same time, it becomes necessary to introduce a communications medium that will not only deliver information but also provide a channel of interaction between them.

In order to ensure that effective training and development initiatives are being developed, it is necessary to examine various programs in use by full-time faculty members in higher education Web-based environments and the perceived effects of these programs by faculty members who currently practice Web-based teaching.

Lehman (2002) suggested that faculty development in Web-based higher education must first begin with a needs assessment to determine what the educator's current knowledge and skill levels are and plan accordingly. Faculty members will not likely be motivated to learn new technologies if their current training needs are not being met. Early and ongoing needs assessment via surveys, testing, or one-to-one interaction is a key ingredient in developing successful faculty development. Technical skills training is only one aspect of faculty development. The greater need is for training and guidance on how, when, and why to integrate Web-based instruction into learning. The pedagogical aspects of Web-based instruction must be emphasized. Numerous approaches have been conducted in successful faculty development of Web-based

teaching. The most successful approaches seem to be mentoring, workshops, design teams, and one-to-one attention.

In agreement with the theme of mentoring, workshops, and one-to-one attention, Dubois (1996), Moore (1993), and Redline (2004) noted that faculty members who work towards course development in a one-to-one relationship with a mentor in a timely manner, using their own course material, will report positive attitudes toward refocusing on technological possibilities. Based on the success of these one-to-one workshops, the encouraging of collaboration and the sharing of best practices as well as important lessons learned while implementing Web-based courses would further enhance the medium. Current practices of distance education have largely involved adding new technology to old ways of teaching and learning. A “craft” view of teaching still exists, and most distance learning programs suffer from amateurishness, because educators, administrators, and policymakers have yet to come to terms with the consequences of teaching and redistribution of educational resources. In certain circumstances, the best technology is available to support teaching, but the human element is overlooked as a dimension in providing excellence in Web-based instruction. This neglect of the human element in terms of faculty development may be better understood in the context of the slow adoption of Web-based teaching in higher education. This response is typified by the hesitancy of higher education institutions to implement fundamental change and their reliance on a pondering tinkering process in which limited experimentation is relegated to peripheral activities, process, and function. It is important to note the factors identified in the literature that impact the implementation of training and professional development programs for Web-based instruction and the extent to which

these are faculty driven or institutionally driven. To meet these challenges, faculty development to assist faculty members in integrating Web-based instruction into teaching and learning concerns many institutions. Researchers have pointed out that training and support are significant in helping and facilitating faculty members to effectively integrate Web-based instruction into their classes.

Wilson (2003) and Young (2002) have written that university efforts to introduce Web-based technologies are influenced by several factors. Web-based instruction provides a way for students to learn more and varied content faster. Many public officials and higher education administrators see Web-based instruction as a means to make universities more efficient and more accessible. Others view Web-based instruction as a possible income generator for the institution. Still other officials see Web-based instruction as a vehicle to make education available to a diverse and dispersed population. Many students, professionals, and employers expect Web-based instruction to offer ways for them to gain the learning they want without leaving the home or workplace. However, new methods for teaching and effectively using Web-based instruction need to prevail. The complexity, or the degree to which the technology used in Web-based instruction is difficult to understand or use, can be intimidating to many faculty members due to their perceived complexity. Even if the technology itself is not perceived to be difficult to understand, learning how to effectively apply it to Web-based instruction and learning can be. This perception of complexity causes many faculty members to assume, often incorrectly, that learning how to use Web-based instructional activities will take an inordinate amount of time and effort. Compounding the problem is the fact that many faculty members across the country say

that the tenure-and-promotion system fails to recognize the investment of time and effort in learning how to use Web-based instructional technology. To ensure that the fear of technical complexity does not present itself as an obstacle, it is important that the content and outcomes of the development and training program be consistent with the knowledge, skills, and abilities of the faculty members involved.

These were not the only factors that could persuade faculty members to use technology when teaching via Web-based instruction. They may have different responses to innovative practice; therefore, faculty development needs to address the individual needs in professional practice when motivating faculty members to adopt Web-based instruction in addition to institutional incentives such as rewards and resources. A connection exists between faculty training and development, the transformation of teaching and learning, and faculty rewards. Depending on the type of faculty member, the rewards will be different. For the so-called entrepreneurs, who are self-transformed, the rewards are personal. They do it because it is the right thing to do. The so-called second wave consists of faculty members motivated by the promise of equipment, support, and training. For them, the use of technology and Web-based instruction is not in itself a reward. The third group, the careerists, will not use technology unless they see a direct link to career advancement. The last group, the reluctants, are not interested and do not see the rewards (Bai, Lehman, 2002; Hagner, 2003).

According to Zilberman (2004), adequate faculty training for Web-based distance learning courses has become a critical issue in many institutions of higher education. Increased student demand for online courses has forced administrators to seek ways to

open new sections for already existing courses. However, finding faculty members with adequate training to teach these courses has become more difficult than ever. It is important that these faculty members enroll in courses to help train them in Web-based learning. Those who enroll as students should be asked to visit each other's course sites and role play as students at their colleagues' courses. This type of training can provide a model for online teaching strategies with the caveat that participants provide constructive feedback to their trainer and the course itself, thus turning it into a work in progress. Training objectives should include asynchronous discussions of topics relevant to Web-based learning, online communication, online course management, instructional design, assessment, and evaluation. Much of this type of work can be done either as a team effort or as a one-to-one collaboration between two faculty members.

McDaniel (2004) noted that one important dimension to course quality is the faculty member's perception of quality. In examining faculty perceptions of the online learning experience and their reasons for using online learning experiences, he found that the reason faculty members use educational technologies may affect their perceptions of the quality of the learning experience. Due to a lack of training in Web-based teaching, many faculty members felt that the effectiveness of their online course was diminished compared to a traditional course because they were uncertain about their ability to teach via Web-based interaction. Institutions need to integrate Web-based instruction into faculty training and development programs rather than teaching how to use the Web-based instruction in isolation.

According to Epper and Bates (2001), faculty use of Web-based instruction occurs as a four-stage process. The first stage of this process is access, which pertains to the faculty member's ability to gain possession of the basic tools of technology such as computers, software, networks, and network services. The second stage in this process is awareness. Faculty members need to be aware of the resources available to them and how these available resources can be applied to their work in higher education. The third stage that is essential in encouraging faculty members to use Web-based instruction is mastery, which deals with the ability to have the skills necessary to use Web-based instructional resources in ways that are relevant to teaching and scholarly work. The last stage of this process is application. Access, awareness, and mastery allow faculty members to apply Web-based instruction, as appropriate, in their daily lives. Only when faculty members achieve some level of mastery, or proficiency, with particular Web-based instructional technologies can the application of that technology follow.

Bower (2001) concluded that institutional support for faculty involvement in Web-based learning is essential and should take a variety of forms to recognize the range of motivations and needs of faculty members. The literature indicates that Web-based courses require more faculty time than do traditional courses. The availability of adequate and effective training is also a requirement for the institution that intends to embark on Web-based education initiatives. Faculty development workshops that introduce faculty members to Web-based instruction and to the changes in pedagogical approach needed to effectively conduct Web-based courses are a necessity. Through these types of workshops, faculty members can learn, among other things, strategies to

improve the interpersonal dimension of Web-based learning, a concern of many educators. Many faculty members have been disillusioned by previous technologies touted as innovations that would alter the course of education. They show skepticism when they resist the call to jump on the latest educational bandwagon before assessing how this new technology will help their delivery of Web-based course information.

Chism (2003) encouraged university administration to use a framework to engage faculty members in instructional technologies. The study of how faculty in higher education develops as teachers focuses on individual development as well as on the context in which this development takes place. In order for faculty members to embrace instructional technologies, the faculty learning cycle must be developed. The power of this learning is that it arises from a felt need. For example, they observe the effect on student learning, followed by reflection on whether this strategy should be used in the future, should be adjusted, or should be abandoned as a bad idea. Once this observation has been assessed, faculty members can then experiment with the four- stage faculty learning cycle, which includes planning, acting, observing, and reflecting. Once a plan has been put into place for an educational purpose, the acting (experimentation) ensures that the learning is authentic rather than imposed, and the observation and reflection ensure that the planning is monitored and adapted to the need. Faculty members are critical to the successful use of technology in higher education. Developmental approaches rooted in an understanding of how faculty members grow in teaching and how this growth is influenced by their organizational environment are more likely to produce lasting change than those that are not. For this

reason, it is important to continue to discuss different ways of modeling the learning-to-teach process so that efforts to influence it are intentional and effective.

A growing number of colleges and universities are exhorting faculty members to integrate Web-based instruction into their instructional activities. This pressure is coming from administrators seeking to turn their institutions into high-tech learning communities and from students who are becoming increasingly insistent on Web-based instruction. Faculty members also face pressure from their peers who are considered early adopters of Web-based instruction and are always eager to cite its pedagogical advantages to non-adopters. Despite the increased pressure on faculty to integrate Web-based instruction into their courses, many remain reluctant to do so. In fact, the greatest obstacle to applying Web-based instruction in the classroom at many institutions is not a lack of funds or technology but a faculty that is unwilling to use the technology available to them. For example, despite the fact that 80% of public 4-year colleges make course management tools available to their faculty members, professors actually use them in only 20% of their courses (Bennett & Bennett, 2003; Lynch, 2002).

Conceptual Framework

Research has stressed that no single theory of faculty training and professional development exists for Web-based instruction, because no single set of ideas exists that is sufficient to explain the dynamics of the process and to encompass all the important aspects that must be considered (Lieberman & Miller, 1991). The approach to developing a conceptual framework for this study was derived from a proposal for education in the 1990s by Lieberman and Miller. This proposal was in recognition of the

diverse perspective of the contemporary work on professionalizing teaching, restructuring schools, and rethinking teacher training and professional development. It is relevant to this study because designing teacher training and professional development programs will be essential in order for faculty members to have an impact on Web-based higher education course delivery.

Lieberman and Miller (1991) argued that training and professional development is part of the institutional culture and that teachers must be at the center of helping to create and participate in their own development. In adapting their perspectives of training and professional development, two relevant themes are offered as critical to the professional development of faculty in Web-based instructional environments: innovation and instructional effectiveness.

The theme of innovation in this study reflects an attempt to understand the importance of the faculty member as a learner, leader, and colleague in helping to shape a professional community (Lieberman & Miller, 1991). Of significant interest are the formal and informal networks in facilitating social support and continuous growth in professional practice.

The theme of instructional effectiveness in this study relates to the primary purpose of the professional development of instructors through the adoption of new ideas and informed practices (Lieberman & Miller, 1991). The ultimate goal of the instructor is to enhance student learning as teachers learn to expand their pedagogy to better serve students.

The outcome of Lieberman and Miller's (1991) study stated that faculty members should be equipped with the resources necessary to continue their professional

development and that once this professional development is met or perceived to be met by faculty members, they can then enhance student learning through their expanded knowledge of pedagogy and be better equipped to serve their students' needs.

Innovation

The pace of adoption and diffusion of educational Web-based instruction by faculty may be better understood within the context of the theory of innovation expounded by Rogers (1995), who explained the concept of innovation in terms of an idea, practice, or object that is perceived to be new. He also described innovativeness as the degree to which an individual is relatively quick in adopting new ideas over the procrastination of his or her social system. Rogers proposed that the adoption and diffusion of an innovation will occur at different rates within society or organizations and produce five groups of participants: innovators, early adopters, late majority, early majority, and laggards. In applying Rogers's theory to Web-based instruction, faculty members could be classified within the following categories. The innovators are the most receptive and are often the creators of innovation. The early adopters are faculty members who respond on the basis of relative value, compatibility, complexity, and observability. The early majority faculty members are more cautious, less self-confident, and more reactive to the experiences of the early adopters. The late majority faculty members are slower at adopting and often need motivation, peer pressure, proof of worth, or training before they become involved.

Throughout the literature on Web-based instruction, several personal barriers to faculty involvement have evolved. These barriers include users' fear of technology,

previous negative experiences, confidence in present skills, ignorance of current technological capabilities, and uncertainty about the advantages of acquiring these new technological skills. Faculty members are also hesitant about change and feel concern about increased workloads, perceived lack of institutional support and training, inadequate compensation, loss of autonomy and control of the curriculum, lack of technical training and support, and lack of time for proper planning.

Instructional Effectiveness

Hagner (2001) noted that while faculty members are still in varying stages of learning and incorporating new ways of presenting information to their students, those students possess the skills necessary to utilize these new communication forms and increasingly expect that these new communication paths be used. Faculty now find themselves in an environment in which the use of new technologies is demanded by those who often possess a superior understanding of their use. While faculty members can see the benefits of adopting Web-based instruction into the teaching and learning process, many are uneasy about doing so, given the changing nature of their audience or fearing looking foolish or incompetent in front of their students. Higher education administrators must understand the challenges presented by the revolutionary changes created by new teaching and learning technologies and by the pressures from students entering colleges and universities. Administrators must realize that faculty members vary considerably in both their abilities and their attitudes towards new technologies, and institutional-based attempts to engage the faculty must consider these variations in order to be successful. In order for faculty members to feel a sense of confidence and

skill with these new technologies, institutions must consider and implement more training and professional development programs to achieve a greater level of success in Web-based instruction.

The increasing adoption of distance education raises questions in a general sense about teaching effectiveness in higher education that have been largely ignored. According to Willis (1994), teachers face new and greater challenges in seeking to transfer their traditional skills to the Web-based environment. He argued the case for enhancing faculty effectiveness within a larger context of a support model for instructional effectiveness in Web-based instructional environments. He identified underlying issues such as student-teacher ratios, teaching loads, compensation, collegiality, and the need for retraining. As these issues intensify, there is the need for rethinking the traditional academic values relating to pedagogy, faculty autonomy, and learning productivity.

Cyrs (1997) suggested that good distance teaching does not come naturally. He indicated that some administrators tell teachers that no difference exists between traditional classroom teaching and teaching at a distance. However, these administrators are poorly informed, and they perpetuate the myth that no additional training is necessary to go from the classroom to the Web-based classroom.

According to Murray (1995), many higher educational institutions have focused on the research requirements and teaching tasks of faculty for tenure purposes, giving only slight attention to formative evaluation of teaching and learning processes. He argued that before colleges and universities can implement evaluation portfolios, they must address the task of defining good teaching.

Summary and Direction for Research

Hudson and Walther (2002) argued that the greatest impact of Web-based instruction on higher education comes from the World Wide Web. Increasingly, colleges and universities are using the Web as a mainstream tool; it is ubiquitous, and skill in using it is assumed. The Web is already so much a part of life that familiarity has clouded the perception of the Web itself. In 1945 Vannevar Bush wrote about a photo-electrical-mechanical device called a Memex, for memory extension, which could make and follow links between documents on microfiche. This was followed in 1965 by Ted Nelson, who coined the word hypertext. In December 1991, Tim Berners Lee developed what is known as the World Wide Web; there were no predictions then about the impact on higher education and the importance of faculty training associated with Web-based learning.

Emerging trends in the literature (Cyrs, 1997; Moore & Kearsley, 1996; Yoakum, 1999) indicated, however, that the success in faculty training and professional development for instructional effectiveness depends on clearly articulated sets of goals, policies, and a systemic change model to improve professional competencies.

The following observations are deemed pertinent to the research on examining the programs for faculty training and professional development in Web-based instruction.

1. Faculty members are essential to the development of Web-based learning programs. The implementation and expansion of Web-based learning is more than just planning for new technologies. The success of any Web-based learning effort depends

primarily on the commitment of the faculty, because the responsibility for instructional quality and control, the improvement of learning, and the aggregate effectiveness of education by distance rests with teachers (Olcott & Wright, 1996).

2. Successful Web-based learning programs are faculty-driven in institutions of higher education. Faculty members have a strategic role in advocacy for Web-based teaching within the wider institution. Web-based education also provides opportunity for unique faculty leadership roles in Web-based instruction in the academic community (Dubois, 1996; Willis, 1994).

3. Faculty training and professional development for Web-based learning has to be a priority in the wider institutional mission. Congruency must exist between the institution's strategic plans and the operational goals of each subdivision. Position papers on Web-based learning and educational technology often endorse faculty development but leave fundamental operational issues unresolved. Without a clearly unified policy and total systems approach, institutional support for faculty preparation will remain at a distance (Cyrs, 1997; Moore & Kearsley, 1996; Willis, 1994; Yoakum, 1999).

4. The process of innovation and transition must be supported for successful faculty development. Innovations must be integrated within the institutional culture so that a facility exists for developing a collaborative agenda and for accommodating the differences between early adopters and mainstream faculty. Individual and collective transition processes would be supported by the institution-wide process of transition (Donovan & Macklin, 1998; McIntyre & Finder, 1996).

5. A team approach for continuous quality improvement is essential. Programs should include the identification of guiding principles or best practices, benchmarking quality outcomes, the development of a discipline-based research agenda for distance faculty, support of faculty involvement in regional and national professional development activities (Moore, 1993; Ragan, 1999; Thac & Murphy, 1995; Willis, 1994).

Ultimately, the success of Web-based faculty training and professional development programs will relate to the creation of supportive relationships for innovation within the educational system. Sustained programs will require even greater institutional commitment to systematic programs and allocation of necessary resources for faculty training, technological support, and recognition for distance faculty members who upgrade their skills. This requires decisions beyond the level of marginal change (Moore, 1995).

CHAPTER 3

METHODOLOGY

This study analyzed higher education faculty training and professional development programs designed for higher education faculty members to improve their effectiveness in Web-based instruction. The overall purpose of this study was to examine faculty perceptions of various training and professional development programs that have been developed and implemented for full-time tenure track faculty members to impact their instructional effectiveness in Web-based courses in a college of education. Four research questions were examined in order to carry out these purposes.

Full-time tenure track faculty members who teach Web-based courses in a college of education at the five largest state-funded universities in Texas were the focus of this study. The research methodology included a survey, focusing on faculty perceptions of their current effectiveness when using various modes of Web-based instruction. Full-time tenure track faculty members were the focus of this study. Multiple survey questions were presented dealing with both the formal and informal training of these faculty members and the impact of this training on their Web-based teaching and their own professional development.

Research Questions

The research questions for this study were as follows:

Question 1: What is the perceived relationship between the amount of training and professional development faculty members have received versus their perceptions of their ability to teach Web-based instruction courses?

Question 2: What is the perceived relationship between the amount of training and professional development faculty members have received versus their perceived confidence levels when teaching Web-based instruction courses?

Question 3: What is the perceived relationship between the number of courses taught through Web-based instruction and faculty members' perceived level of confidence when teaching Web-based courses?

Question 4: Is there a relationship between institutional support in relation to faculty members' perceived training and development needs as they relate to facilities, equipment, administrative support, and technical support?

Research Hypotheses

The research hypotheses for this study were as follows.

$H_0$1: There will be no statistically significant difference between the amount of training and professional development faculty members have received versus their perceptions of their ability to effectively teach Web-based instruction courses.

$H_0$2: There will be no statistically significant difference between the amount of training and professional development faculty members have received versus their perceived confidence levels when teaching Web-based instruction courses.

$H_0$3: There will be no statistically significant difference between the number of courses taught through Web-based instruction and faculty members' perceived level of confidence when teaching Web-based courses.

$H_0$4: There will be no statistically significant difference in the relationship between institutional support in relation to faculty members' perceived training and development needs as they relate to facilities, equipment, administrative support, and technical support.

The test statistics for these hypotheses was computed through use of the following formula (Hinkle, Wiersma, & Jurs, 1998, p. 547):

$$\chi^2 = \sum \frac{(O-E)^2}{E} \quad (1)$$

Where O = observed frequency and E = expected frequency.

The sections in this chapter include information about the population and random sample, survey instrument, data collection procedures, data analysis, and reporting of the data.

Population

Full-time tenure track faculty members involved in Web-based instruction at the five largest state-funded institutions in Texas (University of North Texas, Texas Tech, the University of Texas, Texas A&M University, and the University of Houston) were selected for this particular study. These faculty members were in the best position to identify their own Web-based training needs in the area of instruction, with the specific criteria that they had taught at least one course in the Web-based environment. After the population was determined, the survey instrument was sent to those respondents from each of the five largest state-funded universities in Texas and distributed to those faculty members in each college of education.

A total of 151 faculty members from colleges of education were involved in this research study. All of this information was collected via email and through multiple phone conversations from department chairpersons in each college of education at the five largest state-funded universities in Texas and is based on information collected during the spring 2006 semester. In some instances, the department chairpersons referred the researcher to their administrative assistants to gather this information and deemed the information valid and reliable.

Information was first collected via email at the University of North Texas, where a total of 38 full-time tenure track faculty members teach Web-based learning. There were four departments within the College of Education at the University of North Texas. Professor Ron Newsom (personal communication, February 27, 2006), interim department chair in the Department of Counseling, Development and Higher Education, reported 5 full-time tenure track faculty members teaching Web-based courses; Barb Howe (personal communication, February 28, 2006), administrative services officer in the Department of Kinesiology, Health Promotion and Recreation reported 5; Professor Mary Harris (personal communication, February 28, 2006), interim department chair in the Department of Teacher Education and Administration, reported 9; and Professor Bill Elieson (personal communication, February 27, 2006), interim department chair in the Department of Technology and Cognition, reported 19.

Information collected at the University of Texas at Austin via email revealed a total of 18 full-time tenure track faculty members teaching Web-based courses. Professor Larry Abraham (personal communication, February 27, 2006), associate dean in the Department of Curriculum and Instruction, reported 6 full-time tenure track faculty members teaching Web-based courses; Professor Edmund Emmer (personal communication, May 10, 2006), department chair in the Department of Educational Psychology, reported that they currently had 9 full-time tenure track faculty members teaching Web-based courses; and Sarah Cale (personal communication, February 28, 2006), executive assistant in the Department of Educational Administration, reported that they currently had no full-time tenure track faculty members teaching Web-based courses. Cindy Mills (personal communication, May 31, 2006), administrative assistant

in the Department of Kinesiology and Health Education, reported 2 full-time tenure track faculty members teaching Web-based courses; and Mary Ann Gustafson (personal communication, February 28, 2006), executive assistant in the Department of Special Education, reported that only 1 full-time tenure track faculty member was teaching Web-based courses.

Information collected via email at the University of Houston revealed a total of 28 full-time tenure track faculty members teaching Web-based courses. Blanca Plazas (personal communication, February 27, 2006), doctoral student and student assistant to the department chair in the Department of Educational Leadership and Cultural Studies Information, reported 10; Professor Chuck Layne (personal communication, February 28, 2006), department chair in the Department of Health and Human Performance, reported 10; Professor Jacqueline Hawkins (personal communication, February 28, 2006), department chair in the Department of Educational Psychology, reported 2; and Professor Juanita Copley (personal communication, March 27, 2006), department chair in the Department of Curriculum and Instruction, reported a total of 6 full-time tenure track faculty members teaching Web-based courses.

Information collected via email from Texas A&M University revealed a total of 42 full-time tenure track faculty members teaching Web-based courses. Professor Dennie Smith (personal communication, February 28, 2006), department chair in the Department of Teaching, Learning and Culture, reported a total of 10; and Carol Wagner (personal communication, February 28, 2006) director of academic advising in the Department of Educational Psychology, reported 11; Becky Carr (personal communication, February 28, 2006), assistant dean for academic affairs in the

Department of Educational Administration, reported 14; and Janene Kissinger (personal communication, February 28, 2006), senior administrative coordinator in the Department of Health and Kinesiology, reported 7 full-time tenure track faculty members teaching Web-based courses.

Information collected via email from Texas Tech University revealed a total of 25 full-time tenure track faculty members teaching Web-based courses. Professor Fred Hartmeister (personal communication, February 27, 2006), department chair in the Department of Educational Psychology and Leadership, reported 23; and Professor Peggy Johnson (personal communication, February 27, 2006), department chair in the Department of Curriculum and Instruction, reported 2 full-time tenure track faculty members teaching Web-based courses.

Random Sample

A random sample of full-time tenure track faculty members who teach Web-based courses in a college of education at the five largest state-funded universities in Texas was the focus of this study.

According to Cohen (1988), sample size is the reliability (or precision) of a sample value, and the closeness with which it can be expected to approximate the relevant population value and the power of a statistical test of a null hypothesis is the probability that it will lead to the rejection of the null hypothesis; that is, the probability that it will result in the conclusion that the phenomenon exists. The researcher determined both sample size and power using a sample size and power table made available by Cohen. Using Cohen's table, the level of significance is set at .01, the

degrees of freedom is determined to be 3, the effect size is set at .50, and the power is set at .99. With these calculations set forth by Cohen, the researcher has determined that a minimum of 119 subjects is required for a significant random sample size; however, the entire population of 151 subjects was surveyed during the data collection process. The goal of this research study was to obtain a minimum of 119 survey results while trying to increase that number through email contacts and phone conversations to all nonrespondents.

Instrument

A descriptive survey research methodology was used for this study. Data collected for this study can be classified as descriptive because the research study seeks to reveal current perceptions of faculty towards Web-based instructional training needs. The Web-based survey for this study is a four-part survey. Part I of the survey identified appropriate items to reflect an assessment of the amount of Web-based training that faculty members have received and current perceptions of their ability to teach Web-based courses effectively. Part II of the survey identified appropriate items to reflect an assessment of faculty perceptions of confidence in teaching Web-based courses. Part III of the survey identified appropriate items to reflect an assessment of the number of Web-based courses that faculty members have taught and the effect, if any that has had on their level of confidence when teaching these Web-based courses. Part IV of the survey identified appropriate items to reflect an assessment of institutional support as it relates to faculty members' perceived training and development needs.

A panel of experts, solicited outside of the population, from a college of education was asked to review the first copy of the survey instrument. The expert panel consisted of 6 faculty and staff members who currently teach or design Web-based courses at Midwestern State University. Any fundamental changes that were made to the survey were dependent on feedback received from the panel of experts. After any fundamental changes were made, a sample of 20 full-time tenure track faculty members from a college of education within the population was asked to review a pilot test of the instrument. These faculty members were in the best position to evaluate the survey instrument because they were full-time tenure track faculty members within the five largest state-funded universities in Texas that currently teach Web-based courses. Any essential changes in the survey instrument were made based upon evaluation of the pilot test and suggestions from the pilot test sample. The survey method was used as an effective means of facilitating the systematic collection of baseline data, although there was no intention of predicting the data until most responses had been received. The survey instrument is a four-part survey prepared by the researcher and was derived from the researcher to answer specific questions addressed in this research study and deemed reliable through conducting extensive research in the review of literature.

Part I of the survey included short completion items related to the individual instructor's amount of Web-based training and perceptions of his or her Web-based teaching ability. This section was designed to identify the selected personal and professional characteristics of the faculty respondents and their perceptions of their overall readiness for Web-based instruction. The variables include the amount of

training they received in Web-based instruction, their perception of this training, and how they rate their overall training in relation to Web-based instruction.

Part II measured faculty perceptions of confidence while teaching Web-based courses. It consists of statements involving two Likert-type response scales and identification items. The Likert response choices range from 1 (*Low*) to 5 (*High*) and 1 (*Little*) to 4 (*Significant*). The items in Part II were designed to measure the perceived needs evolving from (a) identification of current and ideal levels of confidence in relation to training in Web-based instruction and workloads; (b) identification of current and ideal types of training needed to improve perceived confidence in Web-based instruction; and (c) identification of current and ideal perceived levels of improving confidence in Web-based training.

Part III consisted of questions relating to faculty members' perceived level of confidence in teaching Web-based courses as it relates to the number of courses they have taught via Web-based methods. Items in Part III were designed to measure (a) the number of Web-based courses taught by faculty members; (b) the amount of experience each faculty member possesses in Web-based instruction; and (c) the perception that faculty confidence levels have a direct relationship to the number of courses they have taught via Web-based communications.

Part IV consisted of questions relating to faculty members' level of institutional support as it relates to their perceived training and development needs. Items also relate to the institutional commitment and strategic plans for faculty training and professional development and suggestions for continuous improvement in faculty training and development needs. Items in Part IV were designed to measure (a) faculty

perception of the amount of resources made available by the department and/or institution; (b) faculty perceptions of their current initiatives for Web-based training; (c) faculty perceptions of their institutions' commitment to training and professional development; and (d) faculty needs as they relate to activities for successful training and professional development.

Data Collection

All Web-based instructional faculty members in this proposed random sample group were contacted via email by the researcher with a Web link (https://secure.mwsu.edu/survey) to the survey site, consent form, and a cover letter describing the research project. After a 1-week period, reminder messages were sent to nonrespondents via email memorandum and phone conversations were extended to all department chairpersons. After a 2-week period, a second reminder message was sent to nonrespondents via email memorandum and phone conversations were extended to all department chairpersons asking that they remind their faculty to complete the survey instrument. After a 3-week period, a third reminder message was sent to nonrespondents via email memorandum and phone conversations were again extended to all department chairpersons. The purpose of multiple follow-ups is to lessen the effects of low response due to noncontact and to increase the random sample size. In this particular study, increasing the number of respondents was important because the researcher sampled with replacement. Therefore, in order to reach the appropriate random sample size of 119 subjects, a minimum of 119 surveys were collected by the researcher.

During the 4 weeks of data collection, the researcher was responsible for collecting each individual survey and filing the data for analysis. This process ensured confidentiality because the researcher was the only person viewing the data as submitted by the participants.

Data Analysis

Data collected were analyzed using SPSS software version 13.0 for Windows. Because this study is designed to explore faculty perceptions in Web-based higher education, inferential statistics was used to organize, describe, summarize, and simplify data sets using chi-square tests of independence and Pearson product-moment correlation coefficient. All research hypotheses using Pearson product-moment correlation coefficient were tested at the alpha .05 level. Prior to implementing the statistical test using chi-square tests of independence and Pearson product-moment correlation coefficient, the researcher determined both power and sample size using power and sample size tables as recommended by the Center for Interdisciplinary Research and Analysis (CIRA) at the University of North Texas.

In order to guide the data analysis, a description of the analysis utilized by each objective is given:

Research Question 1

The first research question in this study dealt with the relationship between the amount of training and professional development faculty members received versus their perceptions of their ability to teach Web-based higher education courses. A chi-square

test of independence was used as the statistical analysis tool to determine whether a relationship exists between subjects' attribute on Questions 3 and 4 of the survey. Question 3 of the survey measured the amount of formal training each faculty member has received. Question 4 measured faculty perceptions of their current ability to teach Web-based courses effectively. In this scenario, the amount of formal training each faculty member has received was the independent variable, and faculty perceptions of their current ability to teach Web-based courses effectively were the dependent variable.

A chi-square test of independence was used as the statistical analysis tool to determine whether a relationship exists between subjects' attribute on Questions 3 and 7 of the survey. Question 3 measured the amount of formal training each faculty member has received. Question 7 measured whether or not faculty members believe more training is needed in order for them to improve their overall effectiveness as Web-based educators. In this scenario, the amount of formal training each faculty member has received was the independent variable, and whether or not faculty believes more training was needed in order for them to improve their overall effectiveness as a Web-based educator is the dependent variable.

Research Question 2

The second research question in this study dealt with the relationship between the amount of training and professional development faculty members have received versus their level of confidence when teaching Web-based higher education courses. A chi-square test of independence was used as the statistical analysis tool to determine

whether a relationship exists between subjects' attribute on Questions 3 and 8 of the survey. Question 3 measured the amount of formal training each faculty member has received, and Question 8 measured faculty perceptions of their current level of confidence as it relates to formal training when teaching Web-based courses. In this scenario, the amount of formal training each faculty member has received was the independent variable, and faculty perceptions of their current level of confidence as it relates to formal training was the dependent variable.

A chi-square test of independence was used as the statistical analysis tool to determine whether a relationship exists between subjects' attribute on Questions 3 and 9 of the survey. Question 3 measured the amount of formal training each faculty member has received, and Question 9 allowed faculty members to rank order items they feel would assist them in their confidence level when teaching Web-based course. In this scenario, the amount of formal training each faculty member has received was the independent variable, and items that faculty members perceive would assist them in their confidence level when teaching Web-based courses was the dependent variable.

A chi-square test of independence was used as the statistical analysis tool to determine whether a relationship exists between subjects' attribute on Question 3 and 10 of the survey. Question 3 measured the amount of formal training each faculty member has received, and Question 10 measured overall confidence levels by faculty members on a Likert scale selection. In this scenario, the amount of formal training each faculty member has received was the independent variable, and overall confidence levels when teaching Web-based courses was the dependent variable.

Research Question 3

The third research question in this study dealt with the relationship between the number of courses taught by faculty members via Web-based instruction and their perceived level of confidence when teaching Web-based higher education courses. The Pearson product-moment correlation coefficient was used to measure the relationship between these two separate variables. In this case, the two variables were derived from Questions 11 and 13 of the survey. Question 11 was concerned with the number of Web-based courses taught, and Question 13 measured faculty members' level of confidence as it relates to the number of courses taught via Web-based instruction. In this scenario, the number of Web-based courses taught was the independent variable, and the level of confidence faculty members perceive was the dependent variable.

Research Question 4

The fourth research question in this study deals with the relationship between institutional support in relation to faculty members perceived training and development needs as they relate to facilities, equipment, administrative support, and technical support. The Pearson product-moment correlation coefficient was used to measure the relationship between these two separate variables. In this case, the two variables were derived from Question 16 and Question 17 on the survey. Question 16 was concerned with faculty members' perceptions of institutional commitment in training and development for Web-based education. Question 17 asked faculty members to rate their perceived level of support and encouragement they have received from their

administration in preparing to teach Web-based courses. In this scenario, faculty members' perception of institutional commitment in training and development for Web-based education was the independent variable, and faculty members' rating of their level of support and encouragement was the dependent variable.

The Pearson product-moment correlation coefficient was used to measure the relationship between the two separate variables. In this case, the two variables were derived from Question 15 and Question 17 on the survey. Question 15 discussed faculty satisfaction with current initiatives for Web-based faculty training and development. Question 17 asked faculty members to rate their perceived level of support and encouragement from their administration in preparing to teach Web-based courses. In this scenario, faculty satisfaction with current initiatives for Web-based faculty training and development was the independent variable, and faculty perceived level of support and encouragement from their administration in preparing to teach Web-based courses was the dependent variable.

A chi-square test of independence was used as the statistical analysis tool to determine whether a relationship exists between subjects' attribute on Questions 14 and 16 of the survey. Question 14 measured faculty perceptions of the adequacy of resources provided to them from their departments to meet their training and development needs. Question 16 was concerned with faculty members' perceptions of institutional commitment in training and development for Web-based education. In this scenario, faculty perceptions of the adequacy of resources provided to them from their departments to meet their training and development needs was the independent

variable, and faculty members' perceptions of institutional commitment in training and development for Web-based education was the dependent variable.

Reporting of the Data

The reporting of the data was organized around the research objectives of the study. The specific data and interpretations followed the statement of the research objective. In other words, after objective 1, the survey findings were reported using individuals from each of the five colleges, and survey findings were reported comparing the five colleges with each other to determine differences. Also, a list of tables and diagrams was created to describe the data in a more uniform manner suitable for different populations.

Summary

This study employed a descriptive research method. The random sample for the survey consisted of full-time tenure track faculty members currently administering Web-based instruction at the five largest state-funded universities in Texas. Data were collected with a survey instrument titled Faculty Training and Professional Development Self-Assessment of Web-Based Professional Training Needs. Statistical treatment of the data in this study included chi-square test of independence and Pearson's product-moment correlation coefficient utilizing statistical software known as SPSS. After the data were collected and analyzed, the results were posted, with guidance coming from the four research objectives.

CHAPTER 4

FINDINGS

This chapter presents an analysis of data gathered in this study for the purpose of examining faculty perceptions of various training and professional development programs that have been developed and implemented for full-time tenure track faculty members to impact their instructional effectiveness in Web-based courses in a college of education. The research questions answered via this research were as follows:

1. What is the perceived relationship between the amount of training and professional development full-time tenure track faculty members have received versus their perceptions of their ability to teach Web-based instruction courses effectively?

2. What is the perceived relationship between the amount of training and professional development full-time tenure track faculty members have received versus their perceived confidence levels when teaching Web-based instruction courses?

3. What is the perceived relationship between the number of courses taught through Web-based instruction and full-time tenure track faculty members' perceived level of confidence when teaching Web-based courses?

4. Is there a relationship between institutional support in relation to full-time tenure track faculty members' perceived training and professional development needs as they relate to facilities, equipment, administrative support, and technical support?

Results of all procedures related to the research questions are discussed. Both descriptive statistics and information obtained through responses to an open-ended question were used.

The population of interest for this study consisted of full-time tenure track faculty members involved in Web-based instruction at the five largest state-funded institutions in Texas (University of North Texas, Texas Tech, the University of Texas, Texas A&M University and the University of Houston) and were selected for this particular study.

The Likert-type scale survey questionnaire used in this study was developed by the researcher. The researcher evaluated the survey questionnaire using both an expert panel and a pilot study. The expert panel consisted of 6 faculty and staff members who currently teach or design Web-based courses at Midwestern State University. Any fundamental changes made to the survey were dependent on feedback received from the panel of experts. After any fundamental changes were made, a sample of 20 full-time tenure track faculty members from a college of education within the random sample was asked to review a pilot test of the instrument. These faculty members were in the best position to evaluate the survey instrument as they were full-time tenure track faculty members within the five largest state-funded universities in Texas that currently teach Web-based courses Any essential changes in the survey instrument were made based upon evaluation of the pilot test and suggestions from the pilot test sample.

The population identified for this study was initially contacted via email with a link to access the survey site. Once the survey site was accessed, the respondents were welcomed with a cover letter, informed consent notice, directions to complete the survey, and a brief glossary of key terms. The information was addressed to each of the 151 full-time tenure track faculty members at the five largest state-funded universities in Texas within a college of education. A copy of the glossary of key terms,

cover letter, and informed consent notice are in Appendixes A, B, and C, respectively. The response rate for the first mailing was 31%. A follow-up email to all nonrespondents as well as phone calls to each department chairpersons was sent after 1 week of the initial email. A copy of the follow-up letter is included in Appendix D. This second request increased the response rate to 64%. A third request was made exactly one week after the second request was sent to nonrespondents as well as phone calls to each department chairpersons. The third request increased the response rate to 71%. A final appeal was made to all nonrespondents as well as phone calls to each department chairpersons via the fourth email. This appeal increased the response rate to 94%, which accounts for the random sample of 141 participants.

Non-Research Question-Related Data

Four questions within the survey questionnaire were not used as part of the research data. Question 1 of the survey was used to determine whether the faculty member was indeed full-time tenure track, which was a prerequisite for being involved in the study. Of the 141 faculty members, 141 answered yes to this question. Question 2 of the survey was used to determine whether faculty members used Web-based instruction, blended instruction, or another type of instruction when teaching Web-based courses. Of the 141 respondents, 113 said they used Web-based instruction and 78 said they used blended instruction, or a combination of both. Question 5 of the survey asked the respondents to rate their perceived effectiveness as a Web-based instructor. Of the 141 faculty members, 18 rated themselves as excellent, 67 rated themselves as good, 21 rated themselves as neutral, 25 rated themselves as fair, and 7 rated

themselves as poor, whereas 3 respondents chose to omit this question. Question 6 of the survey asked faculty members how they perceived the amount of overall Web-based training they had received from their current institution. Of the 141 faculty members, 16 rated their amount of training as excellent, 50 rated their amount of training as good, 28 rated their amount of training as neutral, 23 rated their amount of training as fair, 21 rated their amount of training as poor, and 3 respondents chose to omit this question.

Analysis of Research Questions

The overall purpose of this study was to examine faculty perceptions of various training and professional development programs that have been developed and implemented for full-time tenure track faculty members to impact their instructional effectiveness in Web-based courses in a college of education. Four research questions were examined in order to carry out these purposes.

Research Question 1: What is the perceived relationship between the amount of training and professional development full-time tenure track faculty members have received versus their perceptions of their ability to teach Web-based instruction courses effectively?

> Null Hypothesis: There will be no statistically significant difference between the amount of training and professional development received and faculty members' perceptions of their ability to effectively teach Web-based instruction courses. The .05 level of significance was used.

Data collected from Questions 3 and 4 of the survey provided the responses necessary to address this null hypothesis. Question 3 dealt with the number of hours/days of formal training faculty members had received on Web-based teaching within the last calendar year. Question 4 dealt with the extent to which faculty members

perceived that formal training had contributed to their perceived ability to effectively teach Web-based courses.

Table 1 contains the observed frequencies, expected frequencies, and the residuals between the observed and expected frequencies for the cross-tabulation of the responses to Questions 3 and 4. The test statistic for this hypothesis was computed by using formula 1. The degrees of freedom associated with this test statistic were 20. Therefore, the critical value of this test statistic (χ^2_{cv}) = 31.410. The computed value of χ^2 was 39.365. Since the computed value of χ^2 (39.365) exceeds the critical value (31.410) (p = .006), the null hypothesis was rejected.

A statistical analysis of the standardized residuals indicates that the faculty who received 0 hours/days of formal training, 1-2 hours orientation of formal training, and half day workshop formal training were major contributors to the significant χ^2 values when observing faculty members' perceptions of effectively teaching Web-based courses.

The conclusion was that faculty members that received 0 hours/days of formal training, 1-2 hours orientation of formal training, and half-day workshop formal training were major contributors to the significant χ^2 values. Faculty members that received full-day formal training, multiple day formal training or Web-based training were not major contributors to the significant χ^2 values as it relates to the number of hours of formal training faculty members have received and their perceptions of teaching Web-based courses effectively.

Table 1

Hours of Formal Training and Teaching Web-based Courses Effectively N=*125*

		Very insignificant	Insignificant	Neutral	Significant	Very significant	Total
0 Days/hours	Observed Count	7	8	8	5	4	32
	Expected Count	2.8	3.1	4.5	17.2	4.4	32.0
	Residual	4.2	4.9	3.4	-12.2	-0.4	
1-2 Hour orientation	Observed Count	2	2	6	24	4	38
	Expected Count	3.3	3.6	5.5	20.4	5.2	38.0
	Residual	-1.3	-1.6	0.5	3.6	-1.2	
Half day [workshop]	Observed Count	2	2	1	19	3	27
	Expected Count	2.4	2.6	3.9	14.5	3.7	27.0
	Residual	-0.4	-0.6	-2.9	4.5	-0.7	
Full day [workshop]	Observed Count	0	0	1	5	1	7
	Expected Count	0.6	0.7	1.0	1.8	1.0	7.0
	Residual	-0.6	-0.7	0.0	1.2	0.0	
Multiple day training	Observed Count	0	0	1	6	2	9
	Expected Count	0.8	0.9	1.3	1.8	1.2	9.0
	Residual	-0.8	-0.9	-0.3	1.2	0.8	
Web-based instructional training	Observed Count	0	0	1	8	3	12
	Expected Count	1.1	1.2	1.7	1.4	1.6	12.0
	Residual	-1.1	-1.2	-0.7	1.6	1.4	
Total	Observed Count	11	12	18	67	17	125
	Expected Count	11.0	12.0	18.0	67.0	17.0	125.0

Data collected from Questions 3 and 7 of the survey provided the responses necessary to address this null hypothesis. Question 3 dealt with the number of hours/days of formal training faculty members had received on Web-based teaching within the last calendar year. Question 7 asked faculty members if they thought that more training was needed to improve their overall effectiveness as a Web-based educator.

Table 2 contains the observed frequencies for the cross-tabulation of the responses to questions 3 and 7. The test statistic for this hypothesis was computed by using formula 1. The degrees of freedom associated with this test statistic were 5. Therefore, the critical value of this test statistic (χ^2_{cv}) = 11.070. The computed value of χ^2 was 7.821. Since the computed value of χ^2 (7.821) does not exceed the critical value (11.070) (p = .006), the null hypothesis was not rejected.

The conclusion was that the standardized residuals indicated there was not a significant χ^2 value when comparing the observed frequencies and expected frequencies between the number of hours/days of formal training faculty members had received on Web-based teaching within the last calendar year and whether faculty members thought that more training was needed to improve their overall effectiveness as a Web-based educator.

Table 2

Number of Hours of Formal Training and Is More Training Needed N=*126*

Amount of training	Is more training needed?		
	Yes	No	Total
0 days/hours	24	9	33
1-2 Hour Orientation	33	5	38
Half Day Training	24	3	27
Full Day Training	7	0	7
Multiple Day Training	9	0	9
Web-Based Training	11	1	12

Two separate sets of survey questions were used to answer Research Question 1. They were Questions 3 and 4 and Questions 3 and 7. Data provided from Survey Questions 3 and 4 rejected the null hypothesis and data collected when comparing Survey Questions 3 and 7 failed to reject the null hypothesis.

Research Question 2: What is the perceived relationship between the amount of training and professional development full-time tenure track faculty members have received versus their perceived confidence levels when teaching Web-based instruction courses?

> Null Hypothesis: There will be no statistically significant difference between the amount of training and professional development faculty members have received versus their perceived confidence levels when teaching Web-based instruction courses.

Data collected from comparing Questions 3 and 8, 3 and 9, and 3 and 10 of the survey provided the responses necessary to address this null hypothesis. Questions 3, 8, 9, and 10 of the survey were designed to identify the perceived relationship between the amount of training and professional development faculty members received versus

their perceived confidence levels when teaching Web-based instruction courses. Question 3 dealt with the number of hours/days of formal training faculty members received on Web-based teaching within the last calendar year. Question 8 dealt with the extent to which any formal training faculty members have received contributed to their current level of confidence when teaching Web-based courses. Questions 9a, 9b, 9c, 9d, and 9e dealt with ranking items that could possibly increase faculty members' confidence levels when teaching Web-based courses. These items included outsourced workshop training, peer mentoring, in-house training, professional conferences, and release time. Question 10 dealt with faculty members' confidence improving with training when teaching Web-based courses.

Table 3 contains the observed frequencies, expected frequencies, and the residuals between the observed frequencies and expected frequencies for the cross-tabulation of the responses to Questions 3 and 8, 3 and 9, and 3 and 10. The test statistic for this hypothesis was computed using formula 1. The degrees of freedom associated with the test statistic were 20. Therefore, the critical value of the test statistic of Questions 3 and 8 (χ^2_{cv}) = 31.410. The computed value of χ^2 was 44.925. Since the computed value of χ^2 (44.925) exceeds the critical value (31.410) (p = .001), the null hypothesis was rejected.

A statistical analysis of the standardized residuals indicates that the faculty who received 0 hours/days of formal training, 1-2 hours orientation of formal training, half-day workshop formal training, full day workshop formal training, multiple day formal training, and Web-based instructional training were all major contributors to the

significant χ^2 values when observing faculty members' perceptions of their level of confidence as a result of training when teaching Web-based courses.

The conclusion was that faculty members that had received 0 hours/days of formal training, 1-2 hours orientation of formal training, half day workshop formal training, full-day workshop formal training, multiple day formal training, and Web-based instructional training were all major contributors to the significant χ^2 values as this relates to the amount of formal training faculty members have received and their perceived level of confidence when teaching Web-based courses.

Table 4 contains the observed frequencies for the cross-tabulation of the responses to Questions 3 and 9a. The test statistic for this hypothesis was computed by using formula 1. The degrees of freedom associated with this test statistic were 20. Therefore, the critical value of the test statistic of Questions 3 and 9a (χ^2_{cv}) = 31.410. The computed value of χ^2 was 22.034. Since the computed value of χ^2 (22.034) does not exceed the critical value (31.410) (p = .339), the null hypothesis is not rejected.

The conclusion was that the standardized residuals indicated there was not a significant χ^2 value when comparing the observed frequencies and expected frequencies between the amount of formal training faculty members received and outsourced workshop training as a way to increase the confidence levels of faculty members who teach Web-based courses.

Table 3
Amount of Formal Training and Levels of Confidence N=*123*

		Very insignificant	Insignificant	Neutral	Significant	Very significant	Total
0 Days/hours	Observed Count	4	7	10	6	4	31
	Expected Count	1.5	3.3	4.0	16.4	5.8	31.0
	Residual	2.5	3.7	6.0	-10.4	-1.8	
1-2 Hour orientation	Observed Count	0.0	4	3	24	6	37
	Expected Count	1.8	3.9	4.8	19.6	6.9	37.0
	Residual	-1.8	0.1	-1.8	4.4	-0.9	
Half day [workshop]	Observed Count	2	1	2	17	5	27
	Expected Count	1.3	2.9	3.5	14.3	5.0	27.0
	Residual	0.7	-1.9	-1.5	2.7	0.0	
Full day [workshop]	Observed Count	0	0	0	4	3	7
	Expected Count	0.3	0.7	0.9	3.7	1.3	7.0
	Residual	-0.3	-0.7	-0.9	0.3	1.7	
Multiple day training	Observed Count	0	1	1	7	0	9
	Expected Count	0.4	1.0	1.2	4.8	1.7	9.0
	Residual	-0.4	0.0	-0.2	2.2	-1.7	
Web-based instructional training	Observed Count	0	0	0	7	5	12
	Expected Count	0.6	1.3	1.6	6.3	2.2	12.0
	Residual	-0.6	-1.3	-1.6	0.7	2.8	
Total	Observed Count	6	13	16	65	23	123
	Expected Count	6.0	13.0	16.0	65.0	23.0	123.0

Table 4

Amount of Formal Training and Outsourced Workshop Training N=*122*

	Lowest	Low	Middle	High	Highest	Total
0 Days/Hours	8	1	9	4	9	31
1-2 Hour Orientation	6	4	13	8	6	37
Half Day Training	6	0	5	5	10	26
Full Day Training	1	0	2	2	2	7
Multiple Day Training	0	1	4	2	2	9
Web-based Training	2	3	5	2	0	12
Total	23	9	38	23	29	122

Table 5 contains the observed frequencies for the cross-tabulation of the responses to Questions 3 and 9b. The test statistic for this hypothesis was computed by using formula 1. The degrees of freedom associated with this test statistic were 20. Therefore, the critical value of the test statistic of Questions 3 and 9b (χ^2_{cv}) = 31.410. The computed value of χ^2 was 14.481. Since the computed value of χ^2 (14.481) does not exceed the critical value (31.410) (p = .805), the null hypothesis is not rejected.

The conclusion was that the standardized residuals indicated there was not a significant χ^2 value when comparing the observed frequencies and expected frequencies between the amount of formal training faculty members received and peer mentoring one-on-one training as a way to increase the confidence levels of faculty members who teach Web-based courses.

Table 5

Amount of Formal Training and Peer Mentoring (One-on-One Training) N=*121*

	Lowest	Low	Middle	High	Highest	Total
0 Days/Hours	1	2	5	7	16	31
1-2 Hour Orientation	1	1	3	10	22	37
Half Day Training	2	0	4	6	14	26
Full Day Training	0	0	1	1	4	6
Multiple Day Training	0	0	0	2	7	9
Web-based Training	1	2	1	4	4	12
Total	5	5	14	30	67	121

Table 6 contains the observed frequencies for the cross-tabulation of the responses to Questions 3 and 9c. The test statistic for this hypothesis was computed by using formula 1. The degrees of freedom associated with this test statistic were 20. Therefore, the critical value of the test statistic of Questions 3 and 9c (χ^2_{cv}) = 31.410. The computed value of χ^2 was 24.820. Since the computed value of χ^2 (24.820) does not exceed the critical value (31.410) (p = .208), the null hypothesis is not rejected.

The conclusion was that the standardized residuals indicated there was not a significant χ^2 value when comparing the observed frequencies and expected frequencies between the amount of formal training faculty members received and in-house training as a way to increase the confidence levels of faculty members who teach Web-based courses.

Table 6

Amount of Formal Training and Type of Training (In-House) N=*119*

	Lowest	Low	Middle	High	Highest	Total
0 Days/Hours	4	2	5	4	16	31
1-2 Hour Orientation	2	0	4	10	20	36
Half Day Training	2	0	2	7	14	25
Full Day Training	0	0	0	0	6	6
Multiple Day Training	0	0	0	4	5	9
Web-based Training	0	0	1	0	11	12
Total	23	9	38	23	29	119

Table 7 contains the observed frequencies for the cross-tabulation of the responses to Questions 3 and 9d. The test statistic for this hypothesis was computed by using formula 1. The degrees of freedom associated with this test statistic were 20. Therefore, the critical value of the test statistic of Questions 3 and 9d (χ^2_{cv}) = 31.410. The computed value of χ^2 was 14.331. Since the computed value of χ^2 (14.331) does not exceed the critical value (31.410) (p = .813), the null hypothesis is not rejected.

The conclusion was that the standardized residuals indicated there was not a significant χ^2 value when comparing the observed frequencies and expected frequencies between the amount of formal training faculty members received and professional conferences as a way to increase the confidence levels of faculty members who teach Web-based courses.

Table 7

Amount of Formal Training and Type of Training (Professional Conferences) N=*122*

	Lowest	Low	Middle	High	Highest	Total
0 Days/Hours	6	3	10	7	7	33
1-2 Hour Orientation	4	4	12	8	5	33
Half Day Training	4	3	4	8	6	25
Full Day Training	2	1	2	2	3	10
Multiple Day Training	1	0	2	3	2	8
Web-based Training	1	3	2	5	2	13
Total	18	14	32	33	25	122

Table 8 contains the observed frequencies for the cross-tabulation of the responses to Questions 3 and 9e. The test statistic for this hypothesis was computed by using formula 1. The degrees of freedom associated with this test statistic were 20. Therefore, the critical value of the test statistic of Questions 3 and 9e (χ^2_{cv}) = 31.410. The computed value of χ^2 was 24.127. Since the computed value of χ^2 (24.127) does not exceed the critical value (31.410) (p = .237), the null hypothesis is not rejected.

The conclusion was that the standardized residuals indicated there was not a significant χ^2 value when comparing the observed frequencies and expected frequencies between the amount of formal training faculty members received and release time as a way to increase the confidence levels of faculty members who teach Web-based courses.

Table 8

Amount of Formal Training and Type of Training (Release Time) N=*127*

	Lowest	Low	Middle	High	Highest	Total
0 Days/Hours	4	2	5	6	16	33
1-2 Hour Orientation	8	4	6	7	10	35
Half Day Training	4	6	1	8	7	26
Full Day Training	2	0	0	4	3	9
Multiple Day Training	2	2	4	1	2	11
Web-based Training	3	3	4	2	1	13
Total	23	17	20	28	39	127

Data collected from Questions 3 and 10 of the survey provided the responses necessary to address this null hypothesis. Question 3 dealt with the number of hours/days of formal training faculty members had received on Web-based teaching within the last calendar year. Question 10 dealt with the extent to which faculty members' confidence had improved due to formal training in teaching Web-based courses.

Table 9 contains the observed frequencies, expected frequencies, and the residuals between the observed and expected frequencies for the cross-tabulation of the responses to Questions 3 and 10. The test statistic for this hypothesis was computed by using formula 1. The degrees of freedom associated with this test statistic were 20. Therefore, the critical value of this test statistic (χ^2_{cv}) = 31.410. The computed value of χ^2 was 45.429. Since the computed value of χ^2 (45.429) exceeds the critical value (31.410) (p = .001), the null hypothesis was rejected.

A statistical analysis of the standardized residuals indicates that the faculty members who received 0 hours/days of formal training, 1-2 hours orientation of formal training, half-day workshop formal training, multiple day formal training, and Web-based instructional training were all major contributors to the significant χ^2 values when observing faculty members' perceptions of their confidence improving as a result of formal training when teaching Web-based courses.

The conclusion was that faculty members who received 0 hours/days of formal training, 1-2 hours orientation of formal training, half day workshop formal training, multiple day formal training, and Web-based instructional training were all major contributors to the significant χ^2 values. Faculty members that received full-day formal training were not major contributors to the significant χ^2 values as it relates to the amount of formal training faculty members received and faculty members' perceived increase in confidence due to training when teaching Web-based courses.

Seven separate sets of survey questions were used to answer Research Question 2. They were Questions 3 and 8, Questions 3 and Questions 9a, 9b, 9c, 9d, 9e and Questions 3 and 10. Data provided from Survey Question 3 and 8 rejected the null hypothesis and data collected when comparing Survey Questions 3 and 9a, 9b, 9c, 9d, and 9e each failed to reject the null hypothesis. Data collected when comparing Survey Questions 3 and 10 also failed to reject the null hypothesis.

Table 9

Amount of Formal Training and Perceived Increased Confidence Due to Training N=*122*

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Total
0 Days/hours	Observed Count	1	1	19	6	4	31
	Expected Count	0.8	1.5	7.6	14.7	6.4	31.0
	Residual	0.2	-0.5	11.4	-8.7	-2.4	
1-2 Hour orientation	Observed Count	0	2	7	22	6	37
	Expected Count	0.9	1.8	9.1	17.6	7.6	37.0
	Residual	-0.9	0.2	-2.1	4.4	-1.6	
Half day [workshop]	Observed Count	2	2	3	15	4	26
	Expected Count	0.6	1.3	6.4	12.4	5.3	26.0
	Residual	1.4	0.7	-3.4	2.6	-1.3	
Full day [workshop]	Observed Count	0	0	1	3	3	7
	Expected Count	0.2	0.3	1.7	1.3	1.4	7.0
	Residual	-0.2	-0.3	-0.7	-0.3	1.6	
Multiple day training	Observed Count	0	1	0	5	3	9
	Expected Count	0.2	0.4	2.2	4.3	1.8	9.0
	Residual	-0.2	0.6	-2.2	0.7	1.2	
Web-based instructional training	Observed Count	0	0	0	7	5	12
	Expected Count	0.3	0.6	3.0	5.7	2.5	12.0
	Residual	-0.3	-0.6	-3.0	1.3	2.5	
Total	Observed Count	3	6	30	58	25	122
	Expected Count	3.0	6.0	30.0	58.0	25.0	122.0

Research Question 3: What is the perceived relationship between the number of courses taught through Web-based instruction and full-time tenure track faculty members' perceived level of confidence when teaching Web-based courses?

> Null Hypothesis: There will be no significant difference between the number of courses taught through Web-based instruction and faculty members' perceived level of confidence when teaching Web-based courses.

Data collected from Questions 11 and 13 of the survey provided the responses necessary to address this null hypothesis. Question 11 dealt with the number of Web-based courses faculty members had taught within the past year. Question 13 dealt with faculty members' perceived amount of confidence when teaching Web-based courses and whether or not this confidence was related to the number of Web-based courses taught in their past.

Table 10 contains the Pearson correlation between Questions 11 and 13. A Pearson *r* correlation was used as the statistical treatment for this question. The Pearson correlation revealed a 0.139 correlation between Questions 11 and 13. The conclusion was that there was little, if any relationship or correlation between the amount of courses faculty members had taught in the past year and their levels of confidence related to the number of Web-based courses they had taught in the past.

Table 10

Number of Courses Taught in the Past Year and Confidence N=*130*

		Correlation	
		Total Number of Courses	Number of Courses and Confidence
Total Number of Courses	Pearson Correlation	1	0.139
	Sig. (2-tailed)		0.117
	N	130	129
Number of Courses and Confidence	Pearson Correlation	0.139	1
	Sig. (2-tailed)	0.117	
	N	129	129

One set of survey questions were used to answer Research Question 3. They were Questions 11 and 13. Data provided from Survey Question 11 and 13 showed little, if any relationship between the amount of Web-based courses faculty members had taught in the past year and faculty members level of confidence related to the number of Web-based courses they had taught in the past.

Research Question 4: Is there a relationship between institutional support in relation to full-time tenure track faculty members' perceived training and professional development needs as they relate to facilities, equipment, administrative support, and technical support?

> Null Hypothesis: There will be no significant difference in the relationship between institutional support in relation to faculty members' perceived training and development needs as they relate to facilities, equipment, administrative support, and technical support.

Data collected from results of comparing Questions 16 and 17, 15 and 17, Questions 14a, 14b, 14c, 14d, and Question 16 of the survey provided the responses necessary to address this research question. Question 16 dealt with faculty members' perceptions of their institutions commitment relating to faculty training and development for Web-based education. Question 17 dealt with faculty members' perceptions of the amount of support and encouragement they had received from their administration in preparation for teaching Web-based courses. Question 15 dealt with faculty members' perceived satisfaction with current initiatives in place to assist them in training and development for teaching Web-based courses. Question 14 asked faculty members to rate the adequacy of their facilities (14a), equipment (14b), administrative support (14c), and technical support (14d) in terms of these items meeting their training and development needs in order to teach Web-based courses.

A Pearson *r* correlation was used as the statistical treatment for comparing Questions 16 and 17. The Pearson correlation revealed a 0.730 correlation between Questions 16 and 17. Therefore, according to the data, there was a statistically significant relationship and correlation between faculty members' perceptions of their institutions commitment relating to faculty training and development for Web-based education and faculty members' perceptions of the amount of support and encouragement they had received from their administration in preparation for teaching Web-based courses (see Table 11).

Table 11

Number of Courses Taught in the Past Year and Support and Encouragement N=*127*

		Correlation	
		Institutional Commitment	Support and Encouragement
Institutional Commitment	Pearson Correlation	1	0.730
	Sig. (2-tailed)		0.000
	N	127	127
Support and Encouragement	Pearson Correlation	0.730	1
	Sig. (2-tailed)	0.000	
	N	127	127

A Pearson *r* correlation was also used as the statistical treatment for comparing Questions 15 and 17. The Pearson correlation revealed a 0.763 correlation between Questions 15 and 17. Therefore, the data conclude that there was a statistically significant relationship and correlation between faculty members' perceived satisfaction with current initiatives in place to assist them in training and development for teaching Web-based courses and faculty members' perceptions of the amount of support and encouragement they had received from their administration in preparation for teaching

Web-based courses (see Table 12).

Table 12

Current Initiatives and Support and Encouragement N=*127*

		Correlation	
		Current Initiatives	Support and Encouragement
Current Initiatives	Pearson Correlation	1	0.763
	Sig. (2-tailed)		0.000
	N	127	127
Support and Encouragement	Pearson Correlation	0.763	1
	Sig. (2-tailed)	0.000	
	N	127	127

Data collected from Questions 14a and 16 of the survey provided the responses necessary to address this null hypothesis. Question 14a dealt with the quality of facilities that faculty members perceived as having access to when teaching Web-based courses. Question 16 dealt with the extent to which faculty members perceived the institutional commitment to faculty training and development when teaching Web-based courses.

Table 13 contains the observed frequencies, expected frequencies, and the residuals between the observed and expected frequencies for the cross-tabulation of the responses to questions 14a and 16. The test statistic for this hypothesis was computed by using formula 1. The degrees of freedom associated with this test statistic were 16. Therefore, the critical value of this test statistic (χ^2_{cv}) = 26.296. The computed value of χ^2 was 71.163. Since the computed value of χ^2 (71.163) exceeds the critical value (26.296) (p = < .001), the null hypothesis was rejected.

A statistical analysis of the standardized residuals shows that the category of

facilities being perceived as fair, neutral, good, and excellent were all major contributors to the significant χ^2 values as it relates to faculty members' perceptions of their institutional commitment when teaching Web-based courses.

The conclusion was that faculty members that perceived their facilities as being fair, neutral, good, and excellent were all major contributors to the significant χ^2 values as it relates to faculty members' perceptions of their institutional commitment when teaching Web-based courses. Faculty members that perceived their facilities as being poor were not major contributors to the significant χ^2 values as it relates to faculty members' perceptions of their institutional commitment and facilities when teaching Web-based courses.

Data collected from Questions 14b and 16 of the survey provided the responses necessary to address this null hypothesis. Question 14b dealt with the quality of facilities that faculty members perceived as having access to when teaching Web-based courses. Question 16 dealt with the extent to which faculty members perceived the institutional commitment to faculty training and development when teaching Web-based courses.

Table 14 contains the observed frequencies, expected frequencies, and the residuals between the observed and expected frequencies for the cross-tabulation of the responses to Questions 14b and 16. The test statistic for this hypothesis was computed by using formula 1. The degrees of freedom associated with this test statistic were 16. Therefore, the critical value of this test statistic (χ^2_{cv}) = 26.296. The computed value of χ^2 was 58.713. Since the computed value of χ^2 (58.713) exceeds the critical value (26.296) (p = > .001), the null hypothesis was rejected.

Table 13

Facilities and Institutional Commitment N=*125*

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Total
Poor	Observed Count	2	0	0	0	0	2
	Expected Count	0.2	0.6	0.3	0.6	0.3	2.0
	Residual	1.8	-0.6	-0.3	-0.6	-0.3	
Fair	Observed Count	3	3	2	1	1	10
	Expected Count	0.9	2.8	1.7	2.8	1.7	10.0
	Residual	2.1	0.2	0.3	-1.8	-0.7	
Neutral	Observed Count	4	4	2	1	2	13
	Expected Count	1.2	3.7	2.3	3.6	2.3	13
	Residual	2.8	0.3	0.7	-2.6	-1.3	
Good	Observed Count	3	26	10	20	4	63
	Expected Count	6.0	17.9	10.9	17.4	10.9	63.0
	Residual	-3.0	8.1	0.1	2.6	-7.9	
Excellent	Observed Count	0	3	6	13	17	39
	Expected Count	3.7	11.1	6.8	10.7	6.8	39.0
	Residual	-3.7	-8.1	-0.8	2.3	10.2	
Total	Observed Count	12	36	22	35	22	125
	Expected Count	12.0	36.0	22.0	35.0	22.0	125.0

Table 14

Equipment and Institutional Commitment N=*125*

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Total
Poor	Observed Count	1	0	0	0	0	1
	Expected Count	-0.1	0.3	0.2	0.3	0.2	1.0
	Residual	0.9	-0.3	-0.2	-0.3	-0.2	
Fair	Observed Count	4	3	4	2	0	13
	Expected Count	1.2	3.6	2.3	3.6	2.2	13.0
	Residual	2.8	-0.6	1.7	-1.6	-2.2	
Neutral	Observed Count	4	5	2	3	1	15
	Expected Count	1.4	4.2	2.6	4.2	2.5	15.0
	Residual	2.6	0.8	-0.6	-1.2	-1.5	
Good	Observed Count	3	24	10	18	4	59
	Expected Count	5.7	16.5	10.4	16.5	9.9	59.0
	Residual	-2.7	7.5	-0.4	1.5	-5.9	
Excellent	Observed Count	0	3	6	12	16	37
	Expected Count	3.6	10.4	6.5	10.4	6.2	37.0
	Residual	-3.6	-7.4	-0.5	1.6	9.8	
Total	Observed Count	12	35	22	35	21	125
	Expected Count	12.0	35.0	22.0	35.0	21.0	125.0

Data collected from Questions 14c and 16 of the survey provided the responses necessary to address this null hypothesis. Question 14c dealt with faculty members' perceived level of administrative support when teaching Web-based courses. Question 16 dealt with the extent to which faculty members perceived the institutional commitment to faculty training and development when teaching Web-based courses.

Table 15 contains the observed frequencies, expected frequencies, and the residuals between the observed and expected frequencies for the cross-tabulation of the responses to questions 14c and 16. The test statistic for this hypothesis was computed by using formula 1. The degrees of freedom associated with this test statistic were 16. Therefore, the critical value of this test statistic (χ^2_{cv}) = 26.296. The computed value of χ^2 was 72.936. Since the computed value of χ^2 (72.936) exceeds the critical value (26.296) (p = < .001), the null hypothesis was rejected.

A statistical analysis of the standardized residuals shows that the category of administrative support being perceived as poor, fair, neutral, good, and excellent were all major contributors to the significant χ^2 values as it relates to faculty members perceptions of their institutional commitment when teaching Web-based courses.

The conclusion was that the categories of administrative support being perceived as poor, fair, neutral, good, and excellent were all major contributors to the significant χ^2 values as it relates to faculty members perceptions of their institutional commitment when teaching Web-based courses.

Table 15

Administrative Support and Institutional Commitment N=*125*

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Total
Poor	Observed Count	10	9	2	2	1	24
	Expected Count	2.3	6.7	4.2	6.7	4.0	24.0
	Residual	7.7	2.3	-2.2	-4.7	-3.0	
Fair	Observed Count	2	17	7	8	3	37
	Expected Count	3.6	10.4	6.5	10.4	6.2	37.0
	Residual	-1.6	6.6	0.5	-2.4	-3.2	
Neutral	Observed Count	0	4	6	10	1	21
	Expected Count	2.0	5.9	3.7	5.9	3.5	21.0
	Residual	-2.0	-1.9	2.3	4.1	-2.5	
Good	Observed Count	0	4	3	11	8	26
	Expected Count	2.5	7.3	4.6	7.3	4.4	26.0
	Residual	-2.5	-3.3	-1.6	3.7	3.6	
Excellent	Observed Count	0	1	4	4	8	17
	Expected Count	1.6	4.8	3.0	4.8	2.9	17.0
	Residual	-1.6	-3.8	1.0	-0.8	5.1	
Total	Observed Count	12	35	22	35	21	125
	Expected Count	12.0	35.0	22.0	35.0	21.0	125.0

Data collected from Questions 14d and 16 of the survey provided the responses necessary to address this null hypothesis. Question 14d dealt with faculty members' perceived level of technical support when teaching Web-based courses. Question 16 dealt with the extent to which faculty members perceived the institutional commitment to faculty training and development when teaching Web-based courses.

Table 16 contains the observed frequencies, expected frequencies, and the residuals between the observed and expected frequencies for the cross-tabulation of the responses to Questions 14d and 16. The test statistic for this hypothesis was computed by using formula 1. The degrees of freedom associated with this test statistic were 16. Therefore, the critical value of this test statistic (χ^2_{cv}) = 26.296. The computed value of χ^2 was 76.036. Since the computed value of χ^2 (76.036) exceeds the critical value (26.296) (p = < .001), the null hypothesis was rejected.

A statistical analysis of the standardized residuals shows that the category of technical support being perceived as fair, neutral, good, and excellent were all major contributors to the significant χ^2 values as it relates to faculty members perceptions of their institutional commitment when teaching Web-based courses.

The conclusion was that faculty members' rating of technical support as being poor, fair, neutral, good, and excellent were all major contributors to the significant χ^2 values as it relates to faculty members perceptions of their institutional commitment when teaching Web-based courses.

Table 16

Technical Support and Institutional Commitment N=*124*

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Total
Poor	Observed Count	9	11	4	2	1	27
	Expected Count	2.6	7.6	4.8	7.4	4.6	27.0
	Residual	6.4	3.4	-0.8	-5.4	-3.6	
Fair	Observed Count	3	14	2	5	0	24
	Expected Count	2.3	6.8	4.3	6.6	4.1	24.0
	Residual	0.7	7.2	-2.3	-1.6	-4.1	
Neutral	Observed Count	0	3	6	7	1	17
	Expected Count	1.6	4.8	3.0	4.7	2.9	17.0
	Residual	-1.6	-1.8	3.0	2.3	-1.9	
Good	Observed Count	0	6	7	16	9	38
	Expected Count	3.7	10.7	6.7	10.4	6.4	38.0
	Residual	-3.7	-4.1	0.3	5.6	2.6	
Excellent	Observed Count	0	1	3	4	10	18
	Expected Count	1.7	5.1	3.2	4.9	3.0	18.0
	Residual	-1.7	-4.1	-0.2	-0.9	7.0	
Total	Observed Count	12	35	22	34	21	124
	Expected Count	12.0	35.0	22.0	34.0	21.0	124.0

Six separate sets of survey questions were used to answer Research Question 4. They were Survey Questions 16 and 17, Survey Questions 15 and 17, Survey Questions 14a, 14b, 14c, 14 d and Survey Question 16. Data provided from Survey Question 16 and 17 showed a statistically significant relationship between faculty members perceptions of institutional commitment relating to faculty training and development for Web-based education and faculty members perceptions of the amount of support and encouragement they had received from their administration in preparation for teaching Web-based courses. Survey Questions 15 and 17 showed a statistically significant relationship between faculty members perceived satisfaction with current initiatives in place to assist them in training and development and faculty members perceived amount of support and encouragement they had received from their administration when teaching Web-based courses. Survey Questions 14a, 14b, 14c, 14d and Survey Question 16 all rejected the null hypothesis.

Summary

This chapter has provided a discussion of the data obtained for the purpose of examining faculty perceptions of various training and professional development programs that have been developed and implemented for full-time tenure track faculty members to impact their instructional effectiveness in Web-based courses in a college of education. Non-research-related data provided information confirming that these faculty members completing the survey instrument were full-time tenure track, which was a prerequisite for being involved in the study.

Question 1 of the survey was used to determine whether the faculty member was indeed full-time tenure track, which was a prerequisite for being involved in the study. Of the 141 faculty members, 141 answered yes to this question. Question 2 of the survey was used to determine whether faculty members used Web-based instruction, blended instruction, or another type of instruction when teaching Web-based courses. Of the 141 respondents, 113 said they used Web-based instruction and 78 said they used blended instruction, or a combination of both, whereas 2 used other types of Web-based instruction. Question 5 of the survey asked the respondents to rate their perceived effectiveness as a Web-based instructor. Of the 141 faculty members, 18 rated themselves as excellent, 67 rated themselves as good, 21 rated themselves as neutral, 25 rated themselves as fair, and 7 rated themselves as poor, whereas 3 respondents chose to omit this question. Question 6 of the survey asked faculty members how they perceived the amount of overall Web-based training they had received from their current institution. Of the 141 faculty members, 16 rated their amount of training as excellent, 50 rated their amount of training as good, 28 rated their amount of training as neutral, 23 rated their amount of training as fair, 21 rated their amount of training as poor, and 3 respondents skipped this question.

Data provided in response to Research Question 1 showed that the number of hours or days of formal training faculty members received had a statistically significant relationship to how these faculty members perceived their current ability to teach Web-based courses effectively as it relates to the amount of formal training they had received. However, there was not a statistically significant relationship between the numbers of hours or days of formal training faculty members had received versus their

perceptions that more training would be needed to improve their overall effectiveness as a Web-based educator.

Responses to Research Question 2, which dealt with the perceived relationship between the amount of training and professional development full-time tenure track faculty members had received and their perceived confidence levels when teaching Web-based instruction courses, showed a statistically significant relationship between the number of hours or days of formal training faculty members had received and the extent to which formal training had increased the perceived level of confidence for faculty members who teach Web-based courses. Similarly, a statistically significant relationship was found between the number of hours and days of formal training faculty members had received and faculty members' perceived level of confidence improvement associated with training. However, there was not a statistically significant relationship between the numbers of hours or days of formal training faculty members had received and the ranking of items that would possibly increase faculty members' confidence levels when teaching Web-based courses. The items that were ranked on the survey instrument were outsourced workshop training, peer mentoring (one-on-one training, in-house training, professional conferences, and release time).

The issue of the total number of Web-based courses faculty members' had taught in the past and their perceived amount of confidence they feel when teaching Web-based courses as it relates to the total number of courses they had taught, was the basis of Research Question 3. According to the data provided by the respondents to this question, no statistically significant relationship existed between the numbers of

Web-based courses faculty members had taught in the past and their perceived level of confidence when teaching Web-based courses.

Data provided in response to Research Question 4 showed a statistically significant relationship between faculty members' perceived amount of institutional commitment and how they rated the amount of perceived support and encouragement they had received from their administration in preparation for teaching Web-based courses. Similarly, a statistically significant relationship between faculty members' level of satisfaction with current initiatives for Web-based faculty training and development at their respective institutions and how they rated the amount of perceived support and encouragement they received from their administration in preparation for teaching Web-based courses was detected. There was also a statistically significant difference between faculty members' ratings of adequacy of different types of resources currently provided to them from their department to meet their training and development needs in Web-based education and how faculty members' perceived their institutional commitment to faculty training and development for teaching Web-based education.

CHAPTER 5

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

In this chapter, the research is summarized, and conclusions regarding the findings of the survey as they related to the research questions are discussed. Recommendations for further research related to faculty training and professional development programs designed to impact Web-based instruction in higher education are provided.

Summary

Web-based instruction has fast become a component of higher education. Although such instruction began as a supplemental form of interaction, it has now become a common aspect of many college courses and degree programs. Web-based instruction uses email, bulletin board systems, chat rooms, WebCT, and the Internet to deliver pertinent information to students enrolled in these Web-based courses. Different terms such as telelearning, distance learning, and nontraditional education have all been used to describe the same basic processes and outcomes of Web-based instruction. Common to the definition of all these terms is the concept that Web-based instruction is facilitated within an organizational framework, with deliberate arrangements for providing instruction through print or electronic communications media to persons engaged in planned learning in a place or time different from that of the instructor (Keegan, 1996).

Recent professional education research has included numerous articles defining what it means to be an instructor in Web-based learning, what should constitute a core

set of distance teaching competencies/skills, and what institutions are doing to incorporate distance courses in their curricula. Many publications have also indicated that institutions of higher learning have recognized the need to assist faculty members in the integration of new technologies and methodologies for teaching and learning. This recognition is reflected in the establishment of faculty development programs and technological resource centers, for education programs in general, and more specifically, with facilities to accommodate Web-based instructional programs.

However, only limited research focuses on how faculty members actually develop and learn these skills. There existed no clear indication of how to implement a comprehensive plan for faculty preparation that addresses the challenges of the transition process for integrating technology and training and development for Web-based instruction.

The overall purpose of this study was to examine faculty perceptions of various training and professional development programs that have been developed and implemented for full-time tenure track faculty members to impact their instructional effectiveness in higher education Web-based courses in a college of education.

Four research objectives were developed from the relevant literature as the basic framework for a needs assessment approach to this research. In terms of the objectives, the study accomplished the following: (a) described the relationship between the amount of training and professional development faculty members have received versus their perceptions of their ability to teach Web-based instruction courses; (b) described the relationship between the amount of training and professional development faculty members have received versus their confidence levels when

teaching Web-based instruction courses; (c) determined whether the number of courses faculty members have taught in the past have a direct relationship to their current level of confidence when teaching Web-based courses; and (d) determined whether there was a relationship between institutional support in relation to faculty members' perceived training and professional development needs as they relate to facilities, equipment, administrative support, and technical support.

Particular interest was placed on the identification of current training and professional development needs which faculty members may or may not perceive as deficiencies in relation to desired competencies or expressed levels of instructional effectiveness. The population consisted of full-time tenure track faculty members involved in Web-based instruction at the five largest state-funded institutions in Texas (the University of North Texas, Texas Tech, the University of Texas, Texas A&M University, and the University of Houston). These faculty members were in the best position to identify their own Web-based training needs in the area of instruction, with the specific criterion that they had taught at least one course in the Web-based environment.

Conclusions

It is the conclusion of the researcher that this study has added new information to a vast collection of literature involving faculty training and professional development programs designed to impact instruction in Web-based higher education. More specifically, a number of conclusions can be made based on the outcomes of the research questions from this study.

This study suggests that full-time tenure track faculty members at the five largest state-funded universities in Texas perceive that the amount of formal training they have received increases their ability to teach Web-based courses effectively and that the amount of formal training received also increases their perceived level of confidence when teaching Web-based courses. These results are similar to a study previously mentioned in this document. Savery (2002) observed that faculty members commonly rated themselves as highly competent and proficient with the use of email, word processing, Internet research, and library research, which is consistent with their image as researchers and authors. Their reported confidence/proficiency level with other technologies was considerably lower. Comments collected in interviews and open-ended questions suggest a need for training in the use of certain other applications and a recognition that some applications are simply not needed and therefore have not been learned or developed to any level of competence.

Previous literature (Hagner, 2003) has stated that a common theme in Web-based teaching research is the need to create faculty support systems that are both scalable and flexible systems that stimulate and engage. The researcher discovered similar results when faculty members were asked about their perceived level of institutional commitment and current initiatives for teaching Web-based courses. A statistically significant difference was found, as the null hypothesis was rejected, between how faculty rated their perceived level of support and encouragement from their administration in preparation for teaching Web-based courses. Therefore, the researcher believes that a greater amount of support and encouragement fro administration will lead to greater outcomes for those faculty members that teach Web-

based courses because they feel that the support and encouragement from their administration is useful and beneficial to them when preparing to teach Web-based courses.

Bower (2001) concluded that institutional support for faculty involvement in Web-based learning is essential and should take a variety of forms to recognize the range of motivations and needs of faculty members. Similarly, the researcher concluded that faculty members also perceive a statistically significant difference, as the null hypothesis was rejected, between the adequacy of facilities, equipment, administrative support, and technical support provided by their department to meet their training and development needs and the perceived level of institutional commitment to faculty training and development. The researcher believes that in order to get faculty members involved in teaching Web-based courses, university administration must be willing to have the facilities and equipment needed to effectively teach Web-based courses and faculty members must be trained on the proper use of the equipment. This leads to the administrative support and institutional commitment that must be present for these faculty members to ensure they have the proper tools necessary to perceive their ability as a Web-based instructor to be effective.

In contrast, the data provided in response to questions 3 and 7 regarding the amount of formal training faculty members had received and whether or not they perceived that more training was needed did not support a statistically significant difference. The researcher believes that faculty members do not perceive more training to be the answer, however; the quality of the training must be significant and the support for these faculty members to attend this training must be transparent. Similarly, the

data provided in response to questions 3 and 9 regarding the amount of formal training faculty members had received and their ranking of items that would possibly increase their confidence levels when teaching higher education Web-based courses did not support a statistically significant difference. Last, responses from questions 11 and 13 concluded that there was no difference between the total number of Web-based courses faculty members had taught in the past year and the perceived amount of confidence faculty members feel when teaching Web-based courses and the relationship to the amount of Web-based courses these faculty members had taught in the past. It is the belief of the researcher that the number of courses faculty members have taught will not increase their confidence levels when teaching Web-based courses because there is no guarantee that these faculty members are learning more effective ways to teach these courses. Therefore, the conclusion is the numbers of courses these faculty members have taught does not have a significant relationship with increased confidence levels by faculty members when teaching Web-based courses but the quality of training needed to increase faculty members confidence levels has a significant relationship to their perceived levels of increased confidence when teaching Web-based courses. The researcher is confident that quality over quantity is the significant difference in this scenario.

The last conclusion regarding the outcome of this study deals with the overwhelming response rate from the participant population. 94% of those full-time tenure track faculty members in the five largest state-funded universities in Texas within a college of education responded to this survey research. This leads the researcher to believe that there was significant interest in this particular study and that more attention

needs to be directed towards training and development of these faculty members and how to best meet the needs of these faculty members through administrative support and encouragement as well as initiatives offered through training and development programs.

Recommendations

A recommendation for further study would be to expand the scope of this study to include faculty members who teach only Web-based courses and to include those faculty members who are not tenure track. The researcher noticed a significant number of those faculty members that were not tenure track faculty that would have chosen to participate in this study but did not meet the minimum requirements. There were actually faculty members that contacted the researcher to ask if they could participate in this study but they were rejected because they were not full-time tenure track faculty members. Also, with this expanded scope of participants, a researcher would be more able to make conclusions about Web-based educators in general and not just those full-time tenure track professors at the five largest state-funded universities in Texas.

A second recommendation would be to include a question in the survey regarding demographic information such as age and to conduct research to determine whether any significant differences exist between faculty members' perceptions of Web-based training and development when age was a predictor.

A third recommendation would be to include a question or questions relating to the training and development that faculty members were attending. To be more

specific, further research would be useful to determine whether the training was mandatory or voluntary and whether the training was self-paced or timed.

A fourth recommendation would be to compare specific departments at each of the universities and determine whether one of the departments at the five largest state-funded universities seemed to be meeting the perceived training and development needs of their faculty members that teach Web-based courses more effectively than others. This could be achieved by comparing the responses from faculty members within each department and then looking for statistically significant correlations between effective training and each department.

A fifth recommendation would be to conduct a research study that examined student perceptions of their perceived course effectiveness in Web-based higher education and compare those results to the faculty perceptions of effectiveness within the same course. This would allow the researcher to look at both student perceptions and faculty perceptions within the same course and determine if there are difference between what the faculty member perceives as being effective and what the actual student perceives as being effective. Once this had been accomplished, the two sets of data could be analyzed and significant training and development initiatives can be formed from student feedback and better assist faculty members with their perceived effectiveness when teaching future Web-based courses.

The final recommendation would be to compare the specific universities - in this research study the five largest state-funded colleges in Texas were chosen as the primary focus - and determine whether one of the five universities seemed to be meeting the perceived training and development needs of their faculty members that

teach Web-based courses more effectively than the others. This information could prove to be invaluable if it were determined that there was a statistically significant way to effectively meet all training and development needs of faculty members who teach Web-based courses and a benchmark could be developed. Based on the findings of the current study, the issue of being able to generalize about all faculty training and professional development programs designed to impact Web-based instruction in higher education should be the focus of a comparative study.

APPENDIX A

SURVEY QUESTIONNAIRE

Survey Questionnaire

Faculty Training and Professional Development Self-Assessment of Perceived Web-Based Professional Training Needs

SURVEY QUESTIONNAIRE

Please answer the following questions by placing a check mark (X) beside the blank spaces. Confidentiality will be maintained; no responses will be made available in an individually identifiable form.

Please note that the key terms are defined below.

KEY TERMS:

Web-Based Teaching: global communication network (World Wide Web) facilitated by high speed, graphical interface for the Internet which permits video, sound, text, and sophisticated graphics to be transmitted to the user. It is also known as an “online” medium which accommodates electronic mail, listserv, and newsgroup discussions. The transmission may be synchronous – real-time, simultaneous, or asynchronous – delayed time.

Blended Instruction: Blended instruction is a term for the delivery of instruction based on the integration of face-based instruction and computer-based instruction. In blended instruction, a significant amount of student learning is achieved through online instruction, resulting in changes to course structure and how/where students allocate their time in mastery of the course content (Marsh & McFadden, 2005).

Faculty Training and Professional Development Self-Assessment of Web-Based Professional Training Needs

Date_____

Eligibility

1. Are you full-time tenure track faculty?

Yes _____ No_____

2. What form of Web-based instruction do you use? [Check all that apply]

□ Web-Based Instruction

□ Blended Instruction

□ Other:_____

Part I – Amount of Web-Based Training and Perception of Effective Teaching

3. How many hours/days of formal training on Web-based teaching have you received within the last calendar year? [Check all that apply]

□ 0 [days/hours]

□ 1-2 hour orientation [brief training]

□ Half day [workshop]

□ Full day [workshop]

□ Multiple day training [conference/institute]

□ Web-based instructional training

4. To what extent has any formal training on Web-based teaching that you have received contributed to your perceived current ability to teach Web-based courses effectively?

____Very Significant (5) ____Significant (4) ____Neutral (3) ____Insignificant (2) ____Very Insignificant (1)

5. How would you rate your effectiveness as a Web-based instructor?

____Excellent (5) ____Good (4) ____Neutral (3) ____Fair (2) ____Poor (1)

6. How do you perceive the amount of overall training you have received from your current institution to teach Web-based courses?

____Excellent (5) ____Good (4) ____Neutral (3) ____Fair (2) ____Poor (1)

7. Do you think that more training is needed to improve your overall effectiveness as a Web-based educator? Yes____ No____

Part II – Perceptions of Confidence in Teaching Web-Based Courses

8. To what extent has any formal training on Web-based teaching that you have received contributed to your current perceived level of confidence with Web-based teaching?

____Very Significant (5) ____Significant (4) ____Neutral (3) ____Insignificant (2) ____Very Insignificant (1)

9. Rank the following items that would possibly increase your confidence level when teaching Web-based courses: [High] 5 4 3 2 1 [Low]

____outsourced workshop training

____peer mentoring (one-on-one training)

____in-house training

____professional conferences

____Release time

10. My confidence with Web-based instruction has improved with training?

____Strongly Agree (5) ____Agree (4) ____Neutral (3) ____Disagree (2) ____Strongly Disagree (1)

Part III – Number of Courses Taught Through Web-Based Instruction and Level of Confidence When Teaching Web-Based Classes.

11. Number of Web-based courses taught last year:

□ 0-1

□ 2-3

□ 4-5

□ 6-10

□ 11-15

□ >15

12. Prior to this current semester, have you had any direct classroom experience with Web-based teaching at your current institution? [Check all that apply]

YES	NO	
□	□	Experience as a course participant
□	□	Experience providing guest lectures
□	□	Experience in individual teaching

□ □ Experience in team teaching

13. The perceived amount of confidence I feel when teaching Web-based courses has a direct relationship to the amount of Web-based courses I have taught in the past.

____Strongly Agree (5) ____Agree (4) ____Neutral (3) ____Disagree (2) ____Strongly Disagree (1)

Part IV – Institutional Support as It Relates to Faculty Members' Perceived Training and Development Needs.

14. Rate the adequacy of each type of resource currently provided by your department to meet your training and development needs in terms of:

____Excellent (5) ____Good (4) ____Neutral (3) ____Fair (2) ____Poor (1)

a. ____Facilities

b. ____Equipment

c. ____Administrative Support

d. ____Technical Support

15. I am satisfied with the current initiatives for Web-based faculty training and development at my institution.

____Strongly Agree (5) ____Agree (4) ____Neutral (3) ¬¬¬¬____Disagree (2) ____Strongly Disagree (1)

16. My institution is committed to faculty training and development for Web-based education.

____Strongly Agree (5) ____Agree (4) ____Neutral (3) ¬¬¬¬____Disagree (2) ____Strongly Disagree (1)

17. How do you rate the perceived support or encouragement you have received from your administration in preparation for teaching a Web-based education course?

____Excellent (5) ____Good (4) ____Neutral (3) ____Fair (2) ____Poor (1)

18. Additional comments with regards to improving your personal instructional effectiveness in teaching higher education Web-based courses.

_____.

Thank you for taking time to complete this questionnaire.

APPENDIX B

COVER LETTER

Cover Letter

Dear (GREETING LINE),

I am conducting a survey and would like your response. I have contacted you once before in regards to my study. It is now time for the data collection and I hope you choose to participate. Please take the time to go to the survey link. This should not take more than 10-15 minutes of your time and could contribute greatly to the field on web-based teaching.

The link to the survey is:
https://secure.mwsu.edu/classapp/TakeSurvey.asp?EID=52MB746B865BH26BM5oBM11B2KM

If you do not wish to respond to this survey, please click on the link below to decline:
https://secure.mwsu.edu/classapp/DeclineSurvey.asp?EID=52MB746B865BH26BM5oBM11B2KM

Thanks in advance for responding to the survey, Joey

APPENDIX C

INFORMED CONSENT NOTICE

Informed Consent Notice

My name is Joey Greenwood, and I am a doctoral student in the Applied Technology Training and Development Department at the University of North Texas. I am conducting an on-line study about faculty training and professional development programs designed to impact instruction in Web-based higher education.

If you agree to take part in this study, you will be asked complete a questionnaire titled Faculty Training and Professional Development Self-Assessment of Web-Based Professional Training Needs. It will take approximately 15 minutes to complete.

Participation in this study may benefit you by providing a new perspective on training and development strategies for faculty involved in Web-based instruction. Your responses may help us learn more about faculty perceptions of their ability to teach Web-based courses effectively.

Participation in this study is completely voluntary. You have the right to skip any question you choose not to answer. There are no foreseeable risks involved in this study; however, if you decide to withdraw your participation you may do so at any time by simply leaving the Web site.

All research records will be kept confidential by the principal investigator. No individual responses will be disclosed to anyone, because all data will be reported on a group basis. If you have any questions about the study, please contact Joey Greenwood at (940) 397-4206. You may also contact my major professor at the University of North Texas in the Applied Technology Training and Development Department. Her name is Michelle Walker, and her office telephone number is (940) 565-2154.

This research project has been reviewed and approved by the UNT Institutional Review Board. Please contact the UNT IRB at 940-565-3940 with any questions regarding your rights as a research subject.

If you agree to participate, you may print this document for your records.

By clicking below, you are giving your informed consent to participate in this study.

Click Here To Enter Study

APPENDIX D

FIRST FOLLOW-UP LETTER

First Follow-Up Letter

Good Morning,

I appreciate the many survey responses I have received to this point from all of you. Since this survey is completely anonymous, I must resend to the entire population. If you have replied, please disregard this email. However, there are still many of you that have yet responded to my request for survey submittal. Please take 5-10 minutes to copy/paste the link below into your internet browser and complete the online survey. I have made the survey much easier to complete as it is all on one page. The link is:

https://secure.mwsu.edu/ClassApp/TakeSurvey.asp?PageNumber=1&SurveyID=4509o4M38o91G

Be sure you copy the entire link.

Thank you in advance for your time.

Joey Greenwood

Doctoral Student

University of North Texas

APPENDIX E

SECOND FOLLOW-UP LETTER

Second Follow-Up Letter

Good Morning,

This is my second request for your assistance in my doctoral studies. Many of you have responded to the survey and I appreciate your assistance tremendously. I am REALLY close to meeting my sample from this population. Please take a few minutes of your time and complete the survey. The link is working great now and the entire process should take less than 10 minutes of your time. Thank you in advance as I have already learned you are all a great group of individuals.

Thanks again,

Joey Greenwood

Doctoral Student

University of North Texas

Instructions:

Either click the link: https://secure.mwsu.edu/survey

Or copy/paste the link into your browser.

APPENDIX F

FINAL FOLLOW-UP LETTER

Final Follow-Up Letter

Good Morning,

This is my final request for your assistance in my doctoral studies. Many of you have responded to the survey and I appreciate your assistance tremendously. I am REALLY close to meeting my sample from this population. Please take a few minutes of your time and complete the survey. The link is working great now and the entire process should take less than 10 minutes of your time. Thank you in advance as I have already learned you are all a great group of individuals.

Thanks again,

Joey Greenwood

Doctoral Student

University of North Texas

Instructions:

Either click the link: https://secure.mwsu.edu/survey

Or copy/paste the link into your browser.

APPENDIX G

LETTER TO THE EXPERT PANEL

Letter to the Expert Panel

Good Afternoon,

I am asking for some assistance from you all. As many of you know, I am working on my dissertation in Applied Technology Training and Development at the University of North Texas. I am preparing to send out my survey to a large number of faculty members at the five largest state funded universities in Texas (Population). However, before this survey can be sent out, I must have evaluation of my survey instrument from an expert panel. Expert panel is defined as anyone in the field of education that teaches some sort of web-based courses. Therefore, I am requesting (begging) each of you take a few minutes and evaluate my survey as it relates to the research questions listed in the attachment.

Thank you very much,

Joey Greenwood

APPENDIX H

LETTER TO THE PILOT STUDY PARTICIPANTS

Letter to the Pilot Study Participants

Dear Participant,

Thank you for your responses to the previous email. I am currently conducting a pilot study to elicit feedback about my survey instrument. I am attaching my research questions that I am trying to answer with this survey instrument, the instrument itself, and an evaluation form for the survey. I would ask that you complete the evaluation form and return via email at your earliest convenience. I do not foresee this taking much of your time! You assistance is GREATLY appreciated and much needed.

Thank you very much!

Joey Greenwood

Doctoral Student

University of North Texas

(940) 397-4206

REFERENCES

Bai, B., & Lehman, J. (2002). *Impact of a professional development project on university faculty members' perceptions and use of technology*. Purdue University, U.S. Department of Education: PT3 Grant. Retrieved June 5, 2005, from www.p3t3.soe.purdue.edu/EdMedia2003_Faculty.pdf

Bennett, J., & Bennett, L. (2003). The review of factors that influence the diffusion of innovation when structuring a faculty training program. *The Internet and Higher Education, 6* (1), 53-63.

Bower, B (2001). *Distance education: Facing the faculty challenge*. Florida State University. Retrieved January 17, 2005, from http://www.westga.edu/~distance/ojdla/summer42/bower42.html

Cantelon, J. E. (1995). The evolution and advantage of distance education. *New Directions for Adult and Continuing Education, 67*, 3-10.

Chism, N. (2003). Using a framework to engage faculty in instructional technologies. *Educause Quarterly, 27*, 1-9.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.), NJ. Erlbaum.

Collis, B. (1995). *Tele-learning in a digital world: The future of distance learning*. London: International Thompson Computer Press.

Cyrs, T. E. (1997). Competence in teaching at a distance. In T. E. Cyrs (Ed.) *New directions for teaching and learning: Teaching and learning at a distance: What is takes to effectively design, deliver, and evaluate programs* (pp.15-18). San Francisco: Jossey-Bass.

Dillon, C. L., & Walsh, S. M. (1992). Faculty: The neglected resource in distance education. *American Journal of Distance Education, 3* (6), 5-21.

Donovan, M., & Macklin, S. (1998). *One size doesn't fit all: Designing scaleable, client-centered support for technology in teaching*. Paper presented at the CAUSE98 conference, Seattle, WA. Retrieved June 1, 2005, from http://www.educause.educause.edu/ir/library/html/cnc9846/cnc9846.html

Dubois, J. H. (1996). Distance learning: A transformational model for higher education. *MAHE Journal, 19*.

Epper, R., & Bates, A. (2001). *Teaching faculty how to use technology: Best practices from leading institutions*. Westport, CT. American Council on Education, Oryx Press.

Gilbert, C. (1996). *Teaching and learning on the Web at Queensland University of Technology*. Paper presented at AUS WEB 96, the second Australian World Wide Web conference. Retrieved June 1, 2005, from http://www.scu.edu.au/sponsored/ausWeb/ausWeb96/educn/gilbert/paper.html

Gillespie, K. H. (Ed.). (1998). Using technology in faculty development: Practical examples. *New directions for teaching and learning, No.76: The impact of technology on faculty development, life, and work*. (pp.151-187). San Francisco: Jossey-Bass.

Green, K. (1998). *The campus computing project*. Retrieved January 3, 2005, from www.campuscomputing.net/summaries/1998/index.html

Hagner, P. (2001). *Interesting practices and best systems in faculty engagement and support* (NLII Final Report). Hartford, CT: University of Hartford.

Hagner, P. (2003). *Transforming teaching in a technology-enabled learner-centered world. True enterprise-wide change requires faculty development, support, and rewards!* NLII 2002-2003, Annual Review. Hartford, CT. University of Hartford.

Hinkle, D., Wiersma, W. & Jurs, S. (1998). *Applied statistics for the behavioral sciences* (4th ed.). New York: Houghton Mifflin Company.

Hudson, L., & Walther, K. (2002). *Impact of the Web on higher education: A case study approach offered for discussion* (Report No. HE036041). Oxford, England: Oxford Roundtable. (ERIC Document Reproduction Service No. ED478811)

Kaufman, R.A (1972). *Educational systems planning*. Englewood Cliffs. NJ: Prentice Hall.

Keegan, D. (1996). *Foundations of distance education* (3rd ed.). London: Routledge.

Kincannon, J. (2000). *From the classroom to the Web: A study of faculty change* (Report No. IR021415). Annual Meeting of the American Educational Research Association, New Orleans, LA. (ERIC Document Reproduction Service No. ED467096)

Lehman, J. (2002). *Preparing tomorrow's teachers to use technology: Faculty development.* Retrieved November 2, 2004, from www.pt3.org/stories/faculty.html

Lieberman, A., & Miller, L. (Eds.) (1991). *Staff development for education in the '90s: New demands, new realities, new perspectives* (2nd ed.). New York: Columbia University, Teachers College Press.

Lynch, D. (2002). Professors should embrace technology in courses. *Chronicle of Higher Education*, 2-5.

Marsh, G., & McFadden, A. (2005). *Blended instruction: Adapting conventional instruction large classes*. Retrieved May 17, 2005, from http://www.westga.edu/~distance/ojdla/winter64/297_GM_blended.html

McDaniel, S. (2004). *Faculty attitude, preparation: The implications for courses*. (Distance Education Report). October 2004.

McIntyre, S., & Finder, K. (1996). *An effective model for technological professional development in higher education*. University of Wisconsin-Eau Claire. Retrieved January 4, 2005, from http://www.coe.uh.edu/insite/elec_pub/html1996/19techdi.htm#mcintyre

Moore, M. & Kearsley, G. (1996). *Distance education: A systems view*. Belmont, CA: Wadsworth.

Moore, M. G. (1993). Is teaching like flying? A total systems view of distance education. *American Journal of Distance Education. 7* (1), 1-10.

Moore, M. G. (1995). The death of distance. *American Journal of Distance Education. 9* (3), 1-3.

Murray, J. P. (1995). *Successful faculty development and evaluation: The complete teaching portfolio* (ASHE-ERIC Higher Education Report No. 8). Washington DC: The George Washington University, Graduate School of Education and Human Development.

Nunaley, M., & Warner, D. (2002). *From key handouts to more hands on keys: Planning for the progressive use of technology by faculty* (Report No. IR021400). Murfreesboro, TN: Annual Mid-South Instructional Technology Conference. (ERIC Document Reproduction Service No. ED464630)

Olcott, D., Jr., & Wright, J. (1996). Aligning distance education practice and academic policy: A framework for institutional change. *Continuing Higher Education Review 60* (1), 1-12.

Oregon Network for Education. (2005). *Glossary of terms*. Retrieved May 30, 2006, from http://oregonone.org/glossary.htm

Ragan, L. C. (1999). Good teaching is good teaching: An emerging set of guiding principles and practices for the design and development of distance education. *CAUSE/EFFECT, 22* (1), 1-7. Retrieved May 18, 2005, from http://www.educause.edu/ir/library/html.cem9915.html

Redline, C. (2004). Reluctant professors discover the power of Web-based tools. *Educause Quarterly, 12*, 1-2.

Rogers, E. M. (1995). *Diffusion of innovation* (4th ed.). New York: The Free Press.

Savery, J. (2002). Faculty and student perceptions of technology integration in teaching. *Educause: The Journal of Interactive Online Learning, 1*, 1-16.

Terrell, S. (1998). The changing definition of learning. Educom Review, 3, 2-19.

Thac, E. C., & Murphy, K. L. (1995). Competencies for distance education professionals. *Educational Technology Research and Development, 43* (1), 57-59.

UCLA Department of Statistics. (2006). *Power calculators*. Retrieved March 18, 2006, from http://calculators.stat.ucla.edu/powercalc/correlation

United States Distance Learning Association. (2002). *Research information and statistics*. Retrieved May 25, 2005, from http://www.usdla.org/04_research_info.htm

Van Dusen, G. C. (1997). *The virtual campus: Technology and reform in higher education* (ASHE-ERIC Higher Education Report 25, [5]). Washington, DC: The George Washington University, Graduate School of Education and Human Development.

Willis, B. (Ed.). (1994). *Distance education: Strategies and tools*. Englewood Cliffs, NJ: Educational Technology Publication.

Wilson, W. (2003). Faculty perceptions and uses of instructional technology. *Educause Quarterly, 2*, 60-62.

Yoakum, M. (1999). *Distance learning: A guide to system planning and implementation.* Indianapolis: Indiana University School of Continuing Studies.

Young, M. R. (2002). Windowed, wired and Webbed—now what? *Journal of Marketing Education, 23* (1), 45-54.

Zilberman, D. (2004). Training online for teaching online. *Educause Quarterly, 3*, 1-2.