TILLMAN, MAKIA RAHNELLA. Factors Contributing to the Development of Distance Education through Preliminary Online Training and Identifying Various Levels of Technical Competencies by Online Instructors within the University of North Carolina System. (Under the direction of Dr. Terri E. Varnado.)

Distance Education (DE) is one of the well-known methods of instruction and learning at many colleges and universities throughout the United States as well as other countries. Instructors teaching online courses need some form of training prior to teaching online classes. Most higher education institutions use some form of Learning Management System (LMS), which serves as a medium to correspond between the facilitator and learners. This study provided results on whether instructors teaching hybrid or online courses were adequately prepared based on their levels of technical competencies, and determined if DE training was necessary prior to teaching online courses. The identified competencies were compiled by a collection of researchers and instructors within the Making the Virtual Classroom a Reality (MVCR) online faculty development program at the University of Illinois. MVCR provided an efficient number of technical competencies that were relevant to this study. Competencies from other sources, such as the National Educational Technology Standards (NETS), the International Society for Technology in Education (ISTE), and the North Carolina Technology Competencies were included as well. DE instructors teaching at each of the 15 higher education institutions within the University of North Carolina (UNC) System were studied (Appendix A). Individuals, through self-evaluation, identified their level of technical competencies and whether preliminary DE training was received prior to
teaching online courses. A t-test was conducted to analyze the mean scores among individuals who received training. The levels of technical competencies were identified with questions comprised of the following categories: (a) technical access, (b) technical proficiency, and (c) technical assistance. A composite analysis was conducted for each of the categories. The findings were based on the four research questions addressed in this study.

An online survey was disseminated to the total population of 1,143 online instructors. Of the total population, 298 responded. The results indicated that the various levels of technical competencies were statistically significant from respondents who received or did not receive preliminary online training prior to teaching online courses. In addition, the results from this study implied that preliminary online training was not needed prior to teaching online courses (from two out of three categories); however, other factors may have played a role on the advanced levels of competencies based on one or more of the following: (a) years of teaching DE courses, (b) number of DE courses taught, (c) respondent’s age, and (d) level of education. A Chi-Square Test was conducted to determine the relationship between the listed categorical factors. The results indicated that based on the levels of technical proficiency, there was a significant difference between the listed categorical factors which may have played a role in the development of online instruction.
Factors Contributing to the Development of Distance Education through Preliminary Online Training and Identifying Various Levels of Technical Competencies by Online Instructors within the University of North Carolina System

by
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A dissertation submitted to the Graduate Faculty of North Carolina State University in partial fulfillment of the requirements for the Degree of Doctor of Education

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DEDICATION

This dissertation is dedicated to all who have prayed, supported, inquired, assisted, and encouraged me throughout this journey. Most importantly, I would like to dedicate this entire project to two wonderful people who left this world too soon, my dear, loving, and remarkable mother, the late Mrs. Gloria Mae Tillman and my handsome, loving, and humorous nephew, the late Mr. Alex Marcus Tillman. I miss you both and love you dearly. I would also like to dedicate this effort to the greatest father in the world, Mr. Ernest Robert Tillman. Thank you for your continued love, support, and presence in my life.
Makia Rahnella Tillman was born on November 22\textsuperscript{nd} in Miami, FL to the greatest parents in the world, Mr. Ernest Robert Tillman and the late Mrs. Gloria Mae Tillman. Makia attended Miami Senior High, Miami, FL where she was accepted into the Teaching Magnet Program. From this experience, Makia began anticipating teaching as a career. After graduating from Miami-Dade Community College with a major in Education, she pursued a Bachelors of Arts in Education with a minor in American Sign Language at the University of South Florida in Tampa, FL. While at USF, Makia participated in the following organizations/programs: (a) American Sign Language Club (served as Vice President from 1998-1999), (b) SCATT- SunCoast Area Teacher Training Program, (c) Kappa Delta Pi International Honor Society in Education, (d) National Residence Hall Honorary (NRHH), and (e) Sigma Lambda Gamma National Sorority, Inc.

Upon completion of the BA degree, Makia moved back to Miami and began working as a \textit{Temporary Instructor}. During this time, she applied at Florida Atlantic University in Boca Raton, FL where she was accepted and received a Master of Arts in Education with a major in Educational Technology and Research. She had the experience of enrolling in many programming courses where she studied Visual Basic, C++, HTML, amongst other programming languages. From this experience, Makia began focusing on computer
programming and web design which led her to a new world on teaching and instruction.

After graduating with a MA degree, Makia began working in her second common field as a Job Coach/ Communications Assistant for a non-profit organization. In this position, she was able to assist deaf and hard of hearing individuals with employment, serve as an interpreter, a job developer/coach, and employment specialist. In addition, Makia was influenced by a former professor, Dr. Marta Cruz-Janzen to participate & present a paper entitled, *Race & Gender in the US Media* at the Gender & Class National Conference in New Orleans, LA. Dr. Cruz-Janzen also encouraged Makia to pursue a terminal degree. She [Makia] applied to North Carolina State University and was accepted in the Spring of 2004. While at NC State University, Makia was a research-technology graduate assistant for the African American Cultural Center where she excelled in her marketing and web design skills. Afterwards, she continued utilizing those skills in her current position as an administrative support specialist. In this position, Makia maintains the unit’s website, coordinates new employee orientation, designs online surveys/ evaluations, coordinates meetings, conferences, and workshops and manages the learning management system for North Carolina Cooperative Extension. While working in this position, Makia was able to successfully pass her dissertation defense on Thursday, July 2, 2009.

Her short and long-term commitments are geared towards obtaining a faculty position and eventually excelling to the highest rank office at a college or university, becoming a well-renown author, and pursuing her dream of becoming an entrepreneur.
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First, I would like to give thanks, praise, honor, and glory to the great “I AM THAT I AM.” The King of Kings and Lords of Lords; the only wise God—who is my Saviour! I would like to take this opportunity to thank GOD for HIS goodness, HER mercy, and ITS kindness. This journey would have been impossible if it was not for YOU. Throughout this journey, I was able to lean not to my own understanding, but in all my ways I had to acknowledge YOU—for YOU are the source of my life, so thank you once again.

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If I missed anyone who has helped me along the way, please charge it to my head and not my heart. I want to thank all who have inspired, inquired, supported, encouraged, and prayed for my journey to completion. I am forever grateful for each of your love and kindness towards me. Thank you all for everything. My peace I shall leave with you all. Amen.
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Chapter 1: Introduction to the Study

Background of Problem

Distance education (DE) has emerged as an increasingly important component of higher education (National Center for Education Statistics [NCES], 1998). As the world shifts from the Industrial Revolution into the Knowledge Revolution, higher education as a major societal resource is sought to an extent never before witnessed (Oblinger & Verville, 1998). Many institutions support DE programs that provide students with an alternative way of learning. The definition of DE has been refined and redefined over the years (Maguire, 2005). As seen in the evolution of Moore's (1990) DE definitions, DE is described as “all 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 or instructors” (p. xv). Later, Moore and Kearsley (1996) refined the definition to specify that learning is still planned, but also includes “organizational and administrative arrangements” (p. 2). Other definitions indicated that DE is teaching and learning that occurs asynchronously – the learner(s) and instructor separated by time and space – using a variety of technical media to support the teaching and learning (Keegan, 1996; Eastmond, 1998; Locatis & Weisburg, 1997). The United States Distance Learning Association (1998) summarized distance education as the acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance.
Survey results released by the United States Education Department Press (USEDP, 1999), reported that American colleges expanded dramatically during the online education takeoff of the late 1990s– with more colleges offering additional DE courses and more students taking them (Kiernan, 2003). Between 1995 and 1998, the percentage of higher education institutions offering courses outside the traditional classroom increased by one-third, from 33% to 44% (USEDP). During the academic year of 1997-98, 79% of public four-year institutions offered DE classes specifically. In addition, DE course offerings and enrollment nearly doubled between the academic years 1994-95 and 1997-98. The fastest growth has been in courses provided over the Internet, jumping from 28% of institutions in 1995 to 60% in 1998 (USEDP).

NCES (1998) estimated an increased enrollment for credited DE courses at 2.9 million in the 2000-01 academic year, up from 1.3 million in 1997-98. This enrollment statistic counted individual enrollments for each course; for example, a student who enrolled in three courses was counted three times (Kiernan, 2003). The USEDP (1999) survey found that public institutions offered DE courses more frequently than did private institutions. Ninety percent of public two-year institutions offered DE courses, compared with 16% of private two-year colleges. Eighty-nine percent of public four-year colleges offered the courses, compared with 40% of private four-year institutions (Kiernan).

The prevalence of DE courses required university faculty to face new challenges and make new decisions in the areas of course management and design, delivery method, student communication media, creation of an engaging learning environment, assessment, and use of
new technologies (Kosak, Manning, Dobson, Rogerson, Cotnam, Colaric, et al., 2004). Additionally, faculty need to have some understanding of pedagogy as it relates to distance instruction. It is imperative for online instructors to know how to convert traditional lectures into interactive lessons, which in turn, will encourage students to be active participants (Meyan, Lian, & Tange, 1997). Many educators find themselves considering the role of online instructors as distance learning through online courses increase. Instructors may realize that online instruction is similar yet different from face-to-face learning, requiring new or different skills, and strategies for effective online direction (Heuer & King, 2004). DE faculty must be willing and able to develop new methodologies of teaching that redistribute power, role, and responsibility within the learning community (De Simone, 2006). They must not only develop the necessary competencies to do their work, but must develop a clear understanding of their redefined roles and responsibilities to ensure the success of learning activities carried out at a distance (De Simone).

Northrup (1998) argued that additional training on new instructional techniques and strategies for promoting interactivity and providing adequate and timely feedback might promote a DE environment more conducive to learning. DE teachers need to extend their learning beyond how they will use the technology. Moreover, they need to understand how technology enables and affects their pedagogy and should be given the time to digest and accommodate this new knowledge. As DE increases in popularity, teachers need to be prepared for new distance teaching assignments (De Simone, 2006).
According to Levy (2003), faculty members are faced with a number of new situations when teaching an online class as opposed to a traditional class that includes the following:

1. the administration or management of online courses;
2. the course layout and design;
3. the best delivery method for the content, such as text, graphics, audio, or video;
4. the various communication methods that the students will use (i.e. email, discussion boards, and chat room);
5. ways to increase and maintain student involvement;
6. appropriate student assessments for online learning;
7. and a working knowledge of all the technologies being implemented in the online course.

Faculty members need a solid structure of support on which to rely when implementing online curriculum change. It is vital that this support be continuous from the planning stage through implementation (Kosak, et al., 2004). Collison, Elbaum, Haavind, & Tinker (2000) expressed that “the sage on the stage is replaced with the guide on the side approach wherein the teacher, while an expert, facilitates dialogue so that students learn from each other as much as from her” (p. 208, 211). Many practitioners have noted this shift in emphasis from presentation of content to facilitation of learners and learning (Collis, deBoer, & VanderVeen, 2001).
Faculty Preparedness

The challenge to higher education systems is to provide increased access to educational opportunities, often with no additional resources. One way for higher education to meet this challenge is by incorporating technology-based DE, which allows for the immediate expansion of educational access and is capable of maintaining cost effectiveness in the long term (Twigg & Oblinger, 1996). Ansah & Johnson (2003) expressed that this is a well-embraced solution except for the omission of one key component: the complexity of adequately preparing the individuals who are directly impacted by such an educational change (i.e., the university administrators, instructional faculty and the students themselves).

Palloff and Pratt (2000) noted that the instructor must be trained not only to use technology, but also to shift the way in which they organize and deliver material. Valentine (2002) indicated that misuse of technology could also be a problem for the instructor. This problem may arise from lack of training, instructor's attitudes, or hardware problems. Faculty should learn how to use technology, but not completely rely on the technologies. Instead, they should be able to identify and recognize the strength and weakness of technologies, and select the most appropriate delivery mechanism for their lessons (Gunawardena, 1990).

Competencies for DE faculty

A specific set of skills or competencies is needed to teach in an online environment (Smith, 2005). “Competency means a condition or quality of being competent[sic]; ability[sic]; fitness[sic]; legal capability, power, or jurisdiction” (Guralnik, 1984, p. 289). Kerka (1998) opined that competence “is individualized, emphasizes outcomes (what
individuals know and can do), and allows flexible pathways for achieving the outcomes – making as clear as possible what is to be achieved and the standards for measuring achievement” (p. 2). The purpose of obtaining various technical competencies is to assure that technical aspects of the online courses are running smoothly and student barriers due to technical components are quickly overcome. As a result, the instructor's actions will help make the technology moderately translucent to the student (Southern University Baton Rouge [SUBR], 2007).

As the number of instructors taking part in online education grew from the early adopter phase into acceptance by the masses, many qualified instructors still had no formal education in the methods of online instruction or facilitation (Varvel, 2007). Additionally, those with training do not have any supplementary training or experience in this area. In order to extend the educational experience beyond the limitations of both time and space, while maintaining interactivity and high quality instruction, effective use of the Internet subdued many perceived limitations of the medium (Varvel).

Statement of the Problem

Instructors who received little or no DE training (prior to teaching their first online course) led them to be under prepared, frustrated, isolated, and disillusioned (Dooley, 1995; Gehlauf, Shatz, & Frye, 1991). Furthermore, the majority of faculty have little knowledge about DE, what it entails, and how it is successfully taught (Moore & Kearsley, 1996). Because of the change in structure, teaching online courses requires methods of instructional delivery that are different from the strategies and approaches commonly used in a traditional
classroom setting (Northrup, 1998; Moore & Kearsley, 1996). Much of the focus in the DE literature centered on the learner and learning, almost to the exclusion of the teacher and teaching, which led instructors of DE suspended in virtual space (De Simone, 2006).

While receiving DE training, instructors need to know what qualifications they must acquire in order to design and deliver effective online instruction (Yang & Cornelious, 2005). First, instructors need to upgrade their technical skills in order to keep abreast of technological developments (Volery, 2000). Second, they need to know how to operate the learning platform, troubleshoot with problems online learners may encounter, and design interactive activities and course syllabi (Cuellar, 2002). For this reason, faculty receiving DE training before actually delivering online courses is very crucial (Yang & Cornelious).

**Purpose of the Study**

The purpose of this study was to determine whether preliminary online training is beneficial to online instructors prior to teaching online courses and whether their levels of technical competencies are affected due to the preliminary training. Other factors may have contributed to the intensified levels of technical competencies (i.e. the number of years teaching online courses, level of degree, etc.), which may influence the knowledge of individuals prior to teaching online courses. The researcher focused primarily on the technological roles and skills needed for online instructors for this study.

Smith (2005) identified competencies instructors need prior, during, and after teaching online courses. The researcher focused on the skills needed prior to teaching online courses, since this study’s primary purpose was to recognize instructor’s increased level of
competencies and compare it to those who had received DE training prior to teaching online courses.

More specifically, this study will provide a better understanding of several factors that may cause faculty to be unprepared to teach online courses, which may include the following:

1. lack of training;
2. lack of various learning management systems;
3. not enough time to prepare;
4. and more work, less time, etc.).

Significance of the Study

The significance of this study was to identify the technical competency levels and determine the extent to which DE training meets the need of online instructors. Since studies have shown that certain types of training are essential to teach online courses, it is important to provide online instructors with appropriate DE training. Varvel (2007) expressed that many qualified instructors have no formal training in the methods of instruction or facilitation. Those that may have this training may not have additional training or experience in the field of distance or online education. Northrup (1998), Moore & Kearsley (1996) noted that teaching online courses require methodologies for instructional delivery that are different from teaching in traditional settings. Instructors teaching in these [traditional] settings may not feel comfortable teaching online, and if put in this situation without prior DE training, instructors may feel frustrated, isolated, and disillusioned (Dooley, 1995; Gehlauf, Shatz, &
Frye, 1991). Furthermore, online instructors need to prepare a list of skills or competencies to assist with their development of being a competent instructor (Varvel, 2007). “As communication and information technologies evolve, the roles and competencies necessary to utilize such technologies for instruction are effected” [sic] (Williams, 2000, p. 5). This study focused primarily on the technical competencies compiled from experts in the field.

Research Questions

1. Is DE training provided? If so, was there a difference between the levels of technical competencies from individuals who received or did not receive training prior to teaching online courses?

2. Why is it important for online instructors to have technical support post DE training?

3. What types of technical proficiencies and assistance were acquired post DE training?

4. Do online instructors feel that DE training was beneficial to their teaching needs? If so, what were the factors contributing to this response?

Assumptions of the Study

1. Participants may have limited knowledge of basic Learning Management Systems (LMS) or Course Management Systems (CMS).

2. Each of the fifteen higher education institutions within the University of North Carolina (UNC) System provides a DE program.

3. The sample of online instructors within the UNC system was a representative of the population for online instructors at four-year higher education public institutions.
4. The names and emails retrieved from the DE representative and institution’s website were current and reliable.

5. Participants completed the online survey honestly and professionally.

Limitations of the Study

The following condition was recognized as a limitation:

1. The sample for this study was a selection of instructors who are currently teaching online or hybrid courses at one of the 15 higher education institutions within the UNC system.

Definition of Terms

**Advance**: To accelerate the growth or progress of; to rise to a higher rank (Merriam-Webster Online Dictionary, 2009).

**Asynchronous**: A type of communication that occurs with a time delay between steps in the dialog, allowing participants to respond at their own convenience (http://www.aln.aln.org/alnWeb/aln.htm).

**Beginner**: One that begins something; an inexperienced person (Merriam-Webster Online Dictionary, 2009).

**Blended Course/ Hybrid**: A course that combines online and face to face delivery.

**Competence**: Effectively and efficiently accomplishing a task [instruction] in a given context [digital distance education] using appropriate knowledge, skills, attitudes, and abilities that have adjusted and developed with time and needs (Varvel, 2007).
**Course Management Software (CMS):** A web-based system that allows for the addition, deployment, and tracking of learning content used for training purposes (Cyber Media Creations, 2005). For the purpose of this study, this term will be used interchangeably with LMS.

**Distance Education (DE):** The delivery of instruction administered using communication technologies through a type of learning management system in an asynchronous environment where the learner and instructor are not in a face-to-face setting. DE delivery methods include, but are not limited to videoconferencing, telecourse, broadcast, and CD Rom. For the purpose of this study, online education, and DE will be used interchangeably.

**Distance Educator:** One who teaches courses in an asynchronous environment using communication technologies through a type of LMS or CMS. For the purpose of this study, distance educator, online educator, online instructor, and online faculty will be used interchangeably.

**Distance Learning:** Term often used synonymously with distance education, not strictly correctly since distance education includes teaching as well as learning (Global Distance Education Net, 2003). For the purpose of this study, distance learning and distance education will not be used interchangeably.

**Effectiveness:** Research suggests that the effectiveness of distance learning is based on preparation, the instructor’s understanding of students’ needs, and an understanding of the target population (Omoregie, 1997).
**Electronic Learning (eLearning):** The process of sharing information and creating knowledge using an electronic medium. eLearning enables massive advances in technology such as the Internet, LMS, and CDs to create interactive materials that increase productivity through increased knowledge retention (Cyber Media Creations, 2005).

**HTML:** A HyperText Markup Language that is used to create documents on the World Wide Web incorporating text, graphics, sound, video, and hyperlinks.

**Intermediate:** Being or occurring at the middle place, stage, or degree, or between extremes (Merriam-Webster Online Dictionary, 2009).

**Learning Management System (LMS):** A web-based system that allows for the addition, deployment and tracking of learning content used for training purposes. Typically, a LMS includes functionality for course catalogs (search/browse functionality), launching courses, registering new students, tracking current/completed student progress, and assessments (Cyber Media Creations, 2005). For the purpose of this study, this term will be used interchangeably with CMS.

**Online Education:** Credit-granting courses or education training delivered primarily via the Internet to students at remote locations, including their homes (U.S. News & World Report, 2007).

**Online Learning:** An umbrella term used to describe any education or training that occur online (Cyber Media Creations, 2005).

**Synchronous:** A type of two-way communication that occurs with virtually no time delay, that allows participants’ to respond in real time (http://www.aln.aln.org/alnWeb/aln.htm).
Technical Access: The right to use technical equipment and software for the given medium and the course (Varvel, 2007).

Technical Assistance: Knowledge to aid students with technology provided in the course (Varvel, 2007).

Technical Proficiencies: Knowledge and ability to use computer programs that are typically required in online education to improve learning/teaching, personal productivity, and information management (Varvel, 2007).

Technology: A broad description is: (1) human innovation in action that involves the generation of knowledge and processes to develop systems that solve problems and extend human capabilities; (2) the innovation, change, or modification of the natural environment to satisfy perceived human needs and wants (International Technology Education Association [ITEA], 2000). For the purpose of this study, the word technology will specifically describe computer technology and communications technology.

Summary

DE has emerged and become a great resource tool for education, learning, and teaching. Factors contributing to instructors’ reluctance to teaching online include: (a) lack of web-based knowledge, (b) fear of switching roles, (c) issues with funds, and (d) lack of the necessary competency skills attained to effectively teach online courses. These factors may reflect the limited training offered or provided at several institutions. In any event, some faculty are being shifted into these roles without prior DE training. This study will show whether preliminary online training is provided to instructors prior to teaching an online
course, and whether instructors are taking advantage of this training. In addition, this study will identify the increased levels of technical competencies based on the three technical categories (e.g. technical access, technical proficiencies, and technical assistance).
Origination of Distance Education

DE originated in the early 1700s to teach writing by mailing students self-instructional texts prepared by a tutor (Holmberg, 1989). In 1680, the Penny Post was established in London by William Dockura (Shanahan, E. & Shanahan, R., 2006) and then incorporated in Great Britain by Isaac Pitman in 1840 (Picciano, 2001). In the 1830s, Sweden, Germany, and Great Britain were known to have correspondence courses. This process included sending a letter with instructions for the cost of a penny. The Penny Post was considered to be one of the most remarkable programs in Great Britain (Picciano). By the mid-nineteenth century, the development of the postal system in the first programs of DE appeared.

In the early 1900s, many American university-level DE programs were designed or revised where significant technological advancements occurred in print and communications technology. The aforementioned technologies added greatly to the ability of DE practitioners to reach their students (Fishman, 2003). Innovations such as high-speed presses, copying equipment, telegraphs, and telephones brought about the annihilation of the space-time-economic boundaries that had traditionally constrained the opportunity to learn. Without such innovations in print technology, many university DE programs that were (primarily based in written correspondence) would not have been possible (Fishman).

Many DE developments took place in different parts of the world until the early years of the twentieth century when distance instructional programs began to provide for primary
and secondary education (Picciano, 2001). With the introduction of new media other than the written word, some universities who offered correspondence instruction made use of the radio to supplement their programs during the 1920s. Later on, with the introduction of television and video, this process developed tremendously; whereas, many universities used television (i.e., Columbia Broadcasting System [CBS] and National Broadcasting Company [NBC]) in distance learning as a method of instruction. However, being private and commercial in nature, these television companies provided limited support. In the 1970s, Public Broadcasting Services [PBS] contributed in the development of DE and still does today (Picciano).

The majority of university extension programs continued to rely extensively, largely, and exclusively on print-and-postal information transfer from inception in the late 1870s through the 1970s and 80s. Some continue to do so today (Fishman, 2003). Twentieth century technological advancements opened up the possibility of conducting DE courses without writing or even reading as the telephone, radio, and television became commonplace in universities and in homes (Fishman). Imbedded in DE's reliance upon technology is the resultant tension that exists between various technologies and their influence on how DE is conceived and carried out, and DE course pedagogy. Because each technology, from the most basic to the most advanced, carries with it assumptions, conditions, and limitations as well as benefits, it is necessary to examine ways in which technologies influence the development and carrying out of DE courses (Fishman). As DE courses are developed and carried out by an unprecedented number of university-level educators, it is time to re-
examine the long history of DE. This re-examination will provide ways in which revolutionary developments, such as virtual classroom and e-mail collaborations have more in common conceptually with early iterations of DE than might be supposed (Fishman). The DE re-examination represents an attempt to identify some of those commonalities, with respect to both ways in which DE technology has functioned in particular historical contexts and to their significance to the field of DE in a more global sense. It is hoped that through such investigations, this process will better shape DE courses to take advantage of the functionalities of new technologies without losing the benefits of DE that have traditionally drawn students and teachers to it (Fishman).

Because technology is the means by which interaction is affected in DE, technological advancements that promise innovative means by which to communicate are often greeted, at least initially, with eager anticipation (Pittman, 1987). Although history has shown that this enthusiasm is not always warranted or long-lived, traditionally educational technology is put forth as an approach to solving America's educational ills, particularly those associated with DE (Fishman, 2003). The technologies that engender the most optimistic expectations often fall far short of meeting them, in what Pittman has labeled a predictable cycle in which innovation is followed by heightened expectations followed by disappointing results. Because of the increasing variety and prevalence of communicative technologies that can be used to teach writing via DE, determining why efforts to integrate technology with DE so often fall short of the objectives is among the most pressing concerns for those involved in developing and conducting DE writing courses today (Fishman).
The latter half of the twentieth century marked a period in which DE programs began to enjoy significant gains in status, as measured by numbers of students enrolled, percentages of universities offering DE courses, and acceptance of DE programs (MacKenzie, Christensen, and Rigby, 1968). As perceptions of DE became more positive, DE proponents approached their work with renewed vigor in what some DE scholars termed the era of enthusiasm (Keerix & Andrews, 1991).

New technologies such as cable, fiber optics, and satellite communications appeared in the 1970s and 1980s that contributed to hours of television services reaching people who needed this education via distance (Picciano, 2001). By the 1990s, DE had emerged to the World Wide Web, electronic mail, and group software. The increased enrollment by millions of students became visible for programs ranging from K-12 to higher education (Hmaidan, 2001).

DE described the interactive transmission of academic content from a central teaching point to electronically connected remote sites (LeBaron & Tellos, 1998). Its delivery methods became very popular in curriculum and instruction at various colleges and universities (Major & Levenburg, 1997). Keegan (1990) defined the following key characteristics of this field as:

1. The separation of the teacher from the learner(s),
2. The use of technical media, and
3. The influence of an educational organization.

Gayol (1999) added the following key attributes:
1. The emphasis on the design of educational materials, and

2. The central role conferred to learners in the educational process.

The lack of immediacy between instructor and student, such as the design of materials and organization of the teaching or learning process has a profound impact in educational transactions (Moore & Kearsley, 2005). Nevertheless, technology wizardry by itself will not produce desired learning outcomes. Creating and implementing successful learning systems require a thoughtful blend of educational philosophies, new technology, and solid instructional design (Major & Levenburg, 1997).

The number of students who used online learning technology substantially increased from an estimated 2.3 million students in 2005 to 3.2 million in 2006; universities reported that online learning is critical to long-term strategies (Allen & Seaman, 2006). Palloff and Pratt (2001) reported that almost 90% of institutions with enrollments of 10,000 or more offered some form of Web-based education. Hosie and Schibeci (2005) noted that education and global learning is its own mega trend. Predictions abound regarding the virtual university of the world without any national boundaries (Moe & Blodget, 2000, and Taylor, 2001).

There should be no doubt that online learning is vital to all disciplines involved in education in the 21st century (Ternus, Palmer, & Faulk, 2007).

**Competency Levels of Faculty**

What does it mean to be competent? Varvel (2007) expressed to be competent is the juxtaposition of this knowledge with the application of that knowledge in a teaching practice. In other words, a competent individual is “one who effectively and efficiently accomplishes a
task [instructs] in a given context [digital distance education] using appropriate knowledge, skills, attitudes, and abilities that have adjusted and developed with time and needs” (p.3, ¶ 2)

In order to design and deliver effective online instruction, instructors need to know what qualifications are needed to accomplish this task. Most importantly, they need to upgrade their technical skills in order to keep abreast of technological developments (Volery, 2000), and know how to design interactive activities and course syllabi, operate the learning platform, and troubleshoot problems online learners may encounter (Cuellar, 2002). Therefore, faculty receiving training before actually delivering online courses is crucial. The competency approach suggested that a minimum level of performance is acceptable rather than setting a higher bar or striving for a “standard of excellence” (Kerka, 1998, p. 5). However, what is intended here is an integrated or holistic approach; whereas, one that “sees competence as a complex combination of knowledge, attitudes, skills, and values displayed in the context of task performance” (p. 6). Instructors need to know which technology to choose for their course delivery (Palloff & Pratt, 2001), and be able to translate content from the traditional setting to online delivery (Moore, Winograd, & Lange, 2001).

A compilation of detailed competencies were identified by experts in the field (Thach & Murphy, 1995 & Varvel, 2007). According to Thach & Murphy, output is a product, service, condition, and/or information resulting from performance roles; competency is an area of knowledge or skills critical to production of outputs. Table 2.1 depicts the nine competencies, including the roles and skills (chosen by the researcher) relevant for online instructors.
<table>
<thead>
<tr>
<th>Competency/ Roles and Skills</th>
<th>Output Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative</td>
<td>Familiar with institutional setting, the legal setting, general institutionalized ethics</td>
</tr>
<tr>
<td>Personal</td>
<td>Involves the overall physical and mental abilities of the instructor and the instructor’s intrapersonal cognitive domain</td>
</tr>
<tr>
<td>Technological</td>
<td>Technology independent of pedagogy</td>
</tr>
<tr>
<td>Pedagogical</td>
<td>Involves the design and implementation of instruction</td>
</tr>
<tr>
<td>Social</td>
<td>Provides value to social functions (community of practice)</td>
</tr>
<tr>
<td>Planning Skills</td>
<td>Be clear and well organized</td>
</tr>
<tr>
<td>Collaboration/ Teamwork Skills</td>
<td>Work with instructors to design courses</td>
</tr>
<tr>
<td>Managerial Skills</td>
<td>Manage/supervise distance learning staff and operations</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>Provide tools and evaluation instruments</td>
</tr>
</tbody>
</table>
Varvel (2007) compiled a total of 251 competencies for instruction; whereas, Thach and Murphy (1995) identified the top ten competencies of distance education professionals within the United States and Canada that described the importance of both communication and technical skills.

Faculty Involvement and DE Training

The NCES (1998) indicated that about 60% of higher education institutions provided training opportunities for DE faculty. Of the 60% providing special training, about one-fourth required faculty to have training in distance learning technology, 13% required training in curriculum development, and 17% in teaching methods for distance learning (NCES). The NCES did not report the depth or extent of the training provided, which is an important consideration in the issue of instructor preparedness.

Many researchers have reported the importance of faculty training (McKenzie, Mims, Bennett, & Waugh, 2000, and Levy, 2003). The question is what kind of training will qualify instructors to deliver online courses. The instructor must be trained to use the designated software, manage online courses, integrate web sources, and interact with students through the web (Ko & Rossen, 1998). Some online facilitation skills, such as giving positive or negative feedback, encouraging students to become actively involved in online learning, and dealing with disruptive students, could be offered in training programs to prepare qualified online instructors (Hitch & Hirsch, 2001). This training is best offered online, since it provides the instructors the same learning experiences as their students (Hitch & Hirsch, and Ko & Rossen).
Reciprocally, renewed enthusiasm for DE led to increased experimentation with concurrent developments in the delivery of courses, often with greater reliance on technology (Fishman, 2003). The partnership between DE and technology signaled one of the most identifiable changes in DE since its inception: the beginning of an era in which college-level instruction began to take place without its participants ever meeting in a classroom, and relying entirely upon correspondence-style instruction (Fishman). DE requires technology to bridge the gap between instructor and learner; in doing so, the developments of technology may necessarily affect what is possible and practiced in DE.

Institutional support for DE faculty is essential and should promote motivation and satisfy the needs of faculty (Bower, 2001). Regardless of how innovative faculty can be, they may have concerns towards teaching. Their development must begin and end with an emphasis upon the enhancement of teaching effectiveness (Harrsch, 2000). Professional development programs must offer faculty tangible benefits before they embrace new approaches (Harrsch). If technology integration is to be a success, faculty and staff development programs must target individual skill and knowledge, and address contextual factors such as organizational policies and institutional support structures (Edmonds, 1999). Perhaps most importantly, faculty must understand that the use of technologies is a guide to enhance their effectiveness as teachers, and that the integration of technologies is an opportunity to improve instruction (McLean, 2005).
Quality of Online Instruction

The attitudes of the administration and instructor carry the most weight to the quality of instruction (Valentine, 2002). A study by Inman & Kerwin (1999) showed that instructors had conflicting attitudes about teaching distance education. The majority of online instructors rated the quality of the course as only equal or lower quality than other classes taught; in any event, they were willing to teach another online course (Inman & Kerwin). Often times it appears that administration believed that technology itself would improve the quality of the class (Valentine). Palloff and Pratt (2000) reminded us that “technology does not teach students; effective teachers do” (p. 4). Additionally, Valentine remarked that the issue is not technology itself, but the design usage and delivery of courses. The quality of instruction is affected by instructors not designing their lessons to take advantage of the technology available. Research suggests that the effectiveness of distance learning is based on preparation, the instructor’s understanding of students' needs, and an understanding of the target population (Omoregie, 1997). Sherritt (1996) found in her survey of higher education administrators that many of the decision makers viewed distance programs as second rate, a “necessary but deficient form of education” (p. 2). She denoted that this attitude was also found in academic departments that “had no strong mandates to adjust their curriculum and instruction to fit distance learning beyond cursory cooperation” (p. 2). If the administration and instructors are lacking in true commitment, it is bound to have a negative influence on the entire distance learning experience (Valentine).
Pedagogical Training

An online classroom provides the opportunity to establish a community of learners, but the techniques required to facilitate the development of such a community are very different from those that work in the traditional face-to-face classroom (Palloff & Pratt, 2000). Techniques that are effective in the traditional classroom are not necessarily effective in an online environment (White & Weight, 2000). Faculty who are experienced and successful in traditional classrooms may not intuitively make the transition to the online environment (Harasim, 1990). They need professional development in order to learn what works and what does not work online. Faculty have no time to reinvent the wheel, but do recognize the sooner they learn effective pedagogical techniques for online environments, the more likely their students are to succeed. That is, faculty may not particularly choose to learn by experience. (Pankowski, 2004).

Faculty Perceptions

College administrators increasingly pressure faculty to participate in distance learning and other technology related endeavors. Most faculty, however, have not responded as quickly and enthusiastically as administrators would like (Bower, 2001). The perceived quality of the content and its value to instruction are also of concern to faculty (Olcott & Wright, 1995). For example, McKinnon (1998) indicated that even at Florida Gulf Coast University, a university “built as a testing ground for Internet-based instruction”, faculty expressed serious concerns and reservations regarding the effectiveness of distance learning (p. 14c). UCLA’s (Higher Education Research Institute [HERI], 1999) found that two-thirds
of college and university faculty find it challenging to keep abreast of information technology.

Several challenges and barriers identified by researchers for online learning are the change of roles and responsibilities for instructors (Zheng & Smaldino, 2003; Muirhead, 2000), use of technology (Valentine, 2002; Palloff & Pratt, 2000; Berge, 1998; Volery, 2000), interaction with students and the changes in interpersonal relations (Bower, 2001), and academic dishonesty of online learners (Muirhead). O'Quinn & Corry (2002) delineated several factors that may deter faculty from teaching online including a lack of professional prestige, delivery method used, change in faculty role, and lack of monetary support.

For a variety of reasons, faculty (individually or as a whole) resisted efforts to force them into distance learning and as a result, they sought the guidance of union representatives (Bower, 2001). While individual faculty members had individual reasons to oppose participating in the latest wave of DE, there were several reasons why faculty in general resisted it. Specifically, they expressed concern for the adequacy of institutional support, the change in interpersonal relations, and quality of DE (Bower). Even with the growth of DE offerings and enrollments, many faculty members were still hesitant to teach online. In fact, 50% of faculty in a (National Education Association [NEA]) survey conveyed negative or uncertain feelings towards distance learning (2000). While the amount of research focused on the faculty and administrators’ perceptions of distance education, there is a need to focus on faculty attitudes and specific factors (i.e. motivation and inhibition) affecting participation in the online environment (Dillon & Walsh, 1992). Faculty are accustomed to being the experts
(Bower); thus, fear of appearing incompetent may cause faculty to resist involvement in any activity for which they have not had the proper training, including appearing on camera or conducting class via computer. Faculty may feel they have not been provided adequate DE training or experience to competently manage teaching distance learning courses (Bower).

**New Roles for Online Instructors**

Online education is widely accepted as student-centered education, while traditional education is considered as professor-centered education (Yang & Cornelius, 2005). The shift from a traditional setting to an online environment caused the instructor's role to become more facilitator rather than lecturer. Instructors have many issues concerning online education (Yang & Cornelius). Their primary concern is the shift in their roles and responsibilities, and adaptation to the change (Kettner-Polley, 1999). The shift in instruction created a role for the instructor to: (a) select and filter information for student consideration, (b) provide thought-provoking questions, and (c) facilitate well-considered discussion (Kettner-Polley).

According to Ascough (2002), the role of instructor in an online learning environment is more of a facilitator or moderator due to less control of the class environment. He noted that because most instructors were more likely to have been trained in traditional instruction, it is a foreign practice for them to plan interactive strategies in a course delivery, and adjust their change in role from leading speaker to that of facilitator. Volery (2000) suggested the academic role for instructors be shifted because the level of interaction has changed in online delivery.
Facing the Challenge

Muirhead (2000) identified challenges faculty encounter while teaching online courses. The list is as follows: (a) increasing frustration with the reliability of computer technology, (b) working with multiple versions of a software package, (c) providing technology support to students using multiple operating systems, and (d) the absence of mature integrated content development tools. Since the role of instructors in online courses is now to facilitate, mentor, and coach, instructors need to adjust their attitudes towards technology and new teaching styles to meet the challenge (Volery, 2000).

Deubel (2003) argued that the instructor's attitude, motivation, and true commitment affect much of the quality of online instruction. High quality online instruction encourages discovery, integration, application, and practices. Instructors need to discover students' learning preferences, integrate technology tools, apply appropriate instructional techniques, put them all into practice, and generate the most suitable method of learning for individuals. Students are likely to experience positive learning outcomes when their instructors hold positive attitudes toward online delivery of course content (Deubel). Factors contributing to positive attitudes may include the following: (a) instructor's prior experience teaching online, (b) intellectual change, (c) monetary support or promotion/tenure, (d) availability of online courseware, (e) improved training and facilities, (f) feedback from students, and (g) flexibility of teaching schedule (Volery, 2000). To become an effective online instructor, Deubel suggested that instructors: (a) read literature about online learning environments; (b)
obtain the training needed to use required technology, and (c) seek assistance from experienced instructors when needed.

Summary

Providing faculty with appropriate types of DE training may assist with the development in preparing to teach online courses effectively. Certain factors may hinder faculty in learning how to use various technology software; however, with appropriate DE training and continuous practice from the instructors, the transition from face-to-face teaching to online teaching should take place more smoothly. Also, the various levels of technical competencies may contribute to the effectiveness of online instructors. Researchers expressed the need for online instructors to be competent in their technical abilities. This study focused only on the technological competencies online instructors should attain throughout the duration of their experience as an online instructor. In addition to being technology competent, online instructors need some form of preliminary training prior to teaching online courses. Previous research outlined the need for DE training and the effects on the development of DE. Also, research expressed both (DE training and being technology literate) are essential when teaching online courses.
Chapter 3: Methodology

Design of the Study

This study was conducted to examine the need for DE training, identify online instructors’ technical competency levels, determine whether the increased levels of technical competencies resulted from DE training prior to teaching online courses, and identify whether other factors contributed to the increased levels of competencies based on their technical proficiencies.

A survey was used to collect data (Appendix G). Surveys are used extensively for both descriptive and explanatory purposes, and among all approaches to social research, surveys offer the most effective means of social description. Surveys address a much broader range of research topics than experiments (Simon, 1978). Babbie (2001) explained that surveys may be used for descriptive, explanatory, and exploratory purposes and are the most widely used method for collecting data in the social sciences; especially in sociology and political science (Bradburn & Sudman, 1988). They are predominantly used in studies that have individual people as the unit of analysis. Researchers are increasingly using the web to administer surveys (Gall, Gall, & Borg, 2003).

Quantitative data was collected from a population of online instructors within the UNC System. Varvel (2007) established five competencies for online instructors: (a) administrative roles, (b) personal roles and abilities, (c) technological roles and abilities, (d) pedagogical roles and abilities, and (e) social category. For this study, the researcher will use
only technological roles and abilities, which are categorized into the following three areas (Varvel).

1. Technical Access
2. Technical Proficiencies
3. Technical Assistance

Categorical groups were compared at 95% confidence level and $p=0.05$ (Agresti & Finlay, 1997).

Pilot Study

Pilot studies are developed to try-out data collection methods and other procedures (Gall, Gall, & Borg, 2003). This pilot study was conducted to verify the validity of the study and the reliability of the instrument. Furthermore, this study was designed to determine whether preliminary training was received prior to teaching an online course, identify the technical competency levels, and obtain feedback (from pilot participants) on the designed instrument. The instrument was examined to ensure cohesiveness, accuracy, and comprehension. This process identified problems with the possibility of solving them more easily than when the main study is underway (Gall, Gall, & Borg).

Three- item analyses were conducted for the following categories: (a) technical access, (b) technical proficiencies, and (b) technical assistance. The first analysis conducted was based on six questions from the online survey (technical access) with a Cronbach’s Alpha of .71. The second analysis was based on thirteen questions (technical proficiency) with a Cronbach’s Alpha of .93, and the final analysis was based on three questions
(technical assistance) with a Cronbach’s Alpha of .78. According to (Nunnally, 1978), a 0.7 and above is acceptable. Of the 30 individuals who were notified to participant (via email), 11 completed the online survey (a response rate of approximately 36%) with their additional comments and suggestions. One individual denied participation; one email was undeliverable; and 17 individuals did not respond. Of the 11 responses, 73% expressed receiving DE training prior to teaching their first online course, all of whom expressed using WebCT Vista/Blackboard as their primary LMS. The estimated average of individuals who received DE training prior to teaching online was 0.74 with a margin of error of plus or minus 0.28. The results indicated that the individuals had a basic understanding of the technical proficiencies. With the amount of information needed to teach online courses, it is evident that some type of training is needed.

Implementation and Validity

Names of online instructors were retrieved by either the DE representative from one of the 15 higher education institutions within the UNC System or the institution’s website. These names were inserted into the statistical software, SPSS 16 where 30 participants were randomly selected to participate in the pilot study (Krejcie & Morgan, 1970). An email was sent to selected participants that detailed their anticipated participation in the study, the importance of the study, and the need for their participation (Dillman, 2007). Included in the email was a link to the online survey with explicit instructions for participants to make suggestions after each question and provide additional comments if necessary. The comments would assist with the validity of the study, in an effort to provide a more robust and reliable
instrument. The respondents did not indicate any identified problems, comments, or suggestions. However, the researcher detected changes needed for the main study (i.e. structure and rearrangement of questions, and modification of words and sentence organization) and made the changes accordingly.

Methods of the DE Study

Population and Sampling Procedure

The population of the study included 1,143 instructors currently teaching online-hybrid courses within the UNC system. The institutions within the UNC system were chosen to provide an overview of online instructors across the state of North Carolina, and to obtain findings relative to prospective faculty-instructors who may be interested in teaching online classes. Because of the cost reduction and paper elimination of an online survey, the researcher surveyed the entire population of online instructors.

Procedure

Instrumentation

The instrument was an online web-based survey, which was constructed using the College of Agriculture and Life Sciences (CALS) Survey Builder, a web-based software developed by CALS at North Carolina State University (NCSU). Questions were based on current literature, a detailed structure according to Dillman (2007), and adapted from a previous dissertation instrument (Abdulla, 2004). The instrument was categorized into three sections: (a) technical access, (b) technical proficiencies, and (c) technical assistance outlined by (Varvel, 2007). Competencies from experts in the field (i.e., Varvel, 2007; Smith, 2005,
and Thach & Murphy, 1995) were identified and used to design the instrument for this study. Each research question was formulated based on the three categories. Initially, when participants received an email link to the online survey, a consent form was attached to the email (Appendix C) for individuals to [electronically] sign the form and return it to the researcher. After the main study was conducted, a few individuals expressed a confidentiality concern, which led to a modification and re-implementation of the study. The researcher then designed an online page (Appendix D) for participants to electronically sign or initial. Upon clicking the submit button, participants were automatically re-directed to the main study which, was a 35-item online survey. Dillman (2007) recommended keeping surveys or questionnaires short and easy. In order to improve response rates, one must design respondent-friendly questionnaires, with carefully organized questions in easy-to-answer formats (Dillman, Sinclair, & Clark, 1993).

Advantages and Disadvantages of Online Surveys/Questionnaires

The Internet provides ready access across the geographic boundaries and time zones (Schmidt, 1997). Tuten, Urban, and Bosnjak (2002), expressed that there are many advantages of collecting survey data via the Internet. Internet surveys are inexpensive due to the elimination of postage printing, and data entry; it is a vast improvement in response speed over traditional mail. Zhang (1999) summarized the advantages of Internet-based surveys compared to mail surveys as follows: (a) lower cost in sending questionnaires and coding data in the Internet-based surveys, (b) usually shorter response time in the Internet-based surveys, (c) wider coverage area (worldwide) with a click of a mouse, (d) anonymity,
especially when dealing with sensitive topics (e) possibility of increased participation with the aid of *dynamic/interactive survey process*, and (f) reduction of errors in coding and transcription. On the contrary, Zhang listed four potential problems unique to Internet-based surveys: (a) biased sample and biased return, (b) variation and difficulty in reporting response rate, (c) impersonalized survey request, and (d) more technical expertise required for survey researchers. Internet-based surveys are still under development and are being enhanced; their full potential appears not yet realized. Internet-based surveys provide great opportunities for researchers; however, pose many challenges to them as well. In spite of the disadvantages, Internet surveys represent an exciting alternative new method for researchers (Abdulla, 2004).

*Reliability*

Reliability is the extent to which other researchers would arrive at similar results if they studied the same case using exactly the same procedures as the original researcher (Gall, Gall, & Borg, 2003). Since some of the questions were adapted from a previous dissertation, and the majority was grouped in categories to measure the same concept, the reliability of the instrument was estimated through internal consistency. An item analyses were conducted based on each of the categories, which are shown in Table 3.1.
Table 3.1

Cronbach's Alpha for Instrument Questions based on Individual Categories

<table>
<thead>
<tr>
<th>Competencies</th>
<th>Instrument Questions</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Access</td>
<td>10-14, &amp; 18</td>
<td>0.71</td>
</tr>
<tr>
<td>Technical Proficiencies</td>
<td>20-32</td>
<td>0.93</td>
</tr>
<tr>
<td>Technical Assistance</td>
<td>33-35</td>
<td>0.78</td>
</tr>
</tbody>
</table>

Cronbach's Alpha is a numerical coefficient of reliability (Santos, 1999).

Computation of alpha is based on the reliability of a test relative to other tests with the same number of items and measuring the same construct of interest (Hatcher, 1994).

Data Collection Method

In this cross-sectional study, online instructors from the 15 higher education institutions within the UNC system (Appendix A) were notified and asked to participate in this study. According to Dillman (2007), a one to three contact is recommended; therefore, a three-week turnaround was requested for the respondents to complete the survey. A pre-notice email (Appendix B) was sent one week before the main study was conducted. At the end of the second week, the first email reminder (Appendix E) was sent to those who did not complete the survey. As the participants returned their consent forms, thank you emails were sent respectively. During this time, the researcher adapted the delivery of the consent form; instead, designed a web page (Appendix D) that allowed participants to [electronically] sign or initial the consent without the hassle of returning it as an attachment (via email) and being
concerned about anonymity. The third notification was a follow up email (Appendix F). Dillman (2007) expressed when sending the final notification, the correspondence should not be the same as previous notifications. One should change the overall design and wording of the text. He indicated “this message is one of the strongest forms of personalization, communicating to respondents that they are indeed receiving individual attention. It reinforced messages contained in three previous contacts that the respondent is important to the success of the survey” (p. 181).

Data Analysis

Descriptive statistics were used to summarize the responses from the online survey. Comparisons between means were tested, along with other statistical calculations (i.e. t-test). The mean scores were analyzed to determine if RQ1 was supported by research and whether training was received prior to teaching online courses. Additionally, the various levels of technical competencies were identified and compared to individuals who had received training prior to teaching an online course. The closed-ended questions were analyzed in SPSS. All of the statistical tests were set at the .05 level of significance. A composite analysis was used for all three categories (i.e. technical access, technical proficiencies, and technical assistance) that grouped all responses from the following categories, which greatly assisted with the analysis. Some questions (# 1-5, 7-19, and 33-35) on the instrument were categorized as interval data, and others (# 6 and 20-32) were categorized as ordinal. Mean scores of individuals who received training were computed and a one-sample t-test was used to compare the mean scores of technical competencies by gender, years of teaching DE
courses, and number of DE courses taught. For the statements in the survey with Likert Scale responses, the assigned weights were designed to establish normally distributed scores based on the collected responses. The original raw data from the survey was collected as follows: 1 = Strongly Disagree, 2 = Disagree, 3 = Undecided, 4 = Agree, and 5 = Strongly Agree. Question #17 was reverse scaled to show a higher mean that indicated a stronger agreement among instructors who felt their DE trainer provided adequate information for instructors to teach their first online course. Additionally, this particular test was compared with the critical point (mid-point) established which is 3 = Undecided for Likert Scale questions.
Chapter 4: Findings

Population Description

The purpose of this study was to determine whether preliminary online training is needed prior to teaching online courses and whether the various levels of technical competencies have an effect on instruction.

The entire population was invited to participate in this study. Each name was retrieved from either the DE program representative from the higher education institution or institutions’ website. There were a total of 1,143 online instructors. A total of 298 (26%) completed the online survey. The data retrieved was archived in the CALS survey web builder program database, exported to an Excel spreadsheet, and then imported to SPSS for data analysis.

Respondents were asked to report DE courses taught throughout their duration of online teaching (Figure 4.1).

![Figure 4.1 Number of DE courses taught.](image-url)
Of the 298 respondents, two (<1%) chose not to respond, 28 (9%) reported teaching (0-1) courses, 63 (21%) taught (2-3) courses, 41 (14%) taught (4-5) courses, 33 (11%) taught (6-7) courses, and 131 (44%) taught (8 or more) courses. Because of the varied categories listed above, there is no way to determine the exact number of courses for the eight or more category. The distinctions between individuals who received or did not receive DE training prior to teaching online courses were compared to the number of DE courses taught (Figure 4.2).

![Graph](image.png)

**Figure 4.2.** DE training received compared to the number of DE courses taught.

Of the five categories provided, only one signifies a difference between the number of participants who received or did not receive training. Although, the numbers were the same for individuals teaching eight or more classes, more individuals received training prior to
teaching online courses that taught between two and three DE courses than those who did not receive training prior to teaching online courses.

The numbers indicated on each bar specifies the exact number of individuals who responded to the question asking for the number of years each individual taught online courses throughout their duration as an online instructor (Figure 4.3).

Figure 4.3 indicates the number of years teaching online courses from respondents who received or did not receive DE training prior to teaching online courses. Furthermore, there was greater number of responses from individuals who received training that taught between four and five courses than those who did not.

![Figure 4.3 DE Training Received Compared to Number of Years Taught Online Courses.](image)

Of the five categories, a total of four had greater responses from individuals who received training than those who did not. A conglomeration of responses from individuals
who received training prior to teaching online courses and those who taught between the following categories (4-5), (6-7), and (8+) were calculated. From the following categories, a total of 115 (39%) received training in comparison to 83 (28%) who did not receive training.

The overall responses of years teaching online courses were recorded (Figure 4.4).

![Figure 4.4 Number of years teaching online courses.](image)

Of the 298 respondents, one (3%) chose not to respond, 26 (9%) reported teaching online courses for (0-1) year, 72 (24%) for (2-3) years, 80 (27%) for (4-5) years, 53 (18%) for (6-7) years and 66 (22%) for (8 or more) years. According to the figure, the majority (51%) of the combined number of years taught was between two and five years. The number of years teaching online courses and the number of DE courses taught is very much essential for individuals teaching online courses, particularly to monitor their levels of technical
competencies and identify whether the number of years and courses taught have an effect with online teaching.

Similarly, other demographic questions were asked, such as, age, gender, and level of education. The selections were increments of ten, starting with age 20. Of the categories presented, majority (57%) were fifty or over. A total of 22% fell between the ages of 40-49 and (20%) were between the ages of 30-39. Only 1% reported being between the ages of 20-29 and (7%) chose not to respond. Additionally, a total of 127 males (43%) and 171 females (57%) reported for the gender category. Lastly, the number of respondents who had earned a doctorate degree was unsurprisingly higher (63%) than any other category. Other categories consisted of earning a 4-year degree (1%), one graduate degree (17%), some post-graduate school (10%), and some post-doc experience (9%).

Research Questions

Research Question 1 (RQ1): Was DE training provided? If so, was there a difference between the levels of technical competencies from individuals who received or did not receive training prior to teaching online courses?

The pie chart depiction below (Figure 4.5) graphed the percentage of online instructors who received training.
Figure 4.5 Respondents that received DE training.

From the 298 respondents that completed the online survey, 165 (55%) reported they had received training prior to teaching online courses. A composite analysis was conducted for each technical competency category (Table 3.1); the categories were based on the orientation of the questions in the instrument (Appendix I). The measures of central tendency (mean, median, and mode) were conducted for each of the composite variables (see Table 4.1). Table 4.2 summarizes the overall levels of technical competencies for individuals who received or did not receive training prior to teaching online courses.
Table 4.1

Summary Statistics for Composite Variables

<table>
<thead>
<tr>
<th></th>
<th>Technical Access</th>
<th>Technical Proficiency</th>
<th>Technical Assistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Valid</td>
<td>291</td>
<td>297</td>
<td>295</td>
</tr>
<tr>
<td>N Missing</td>
<td>7</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Mean</td>
<td>38.18</td>
<td>29.59</td>
<td>10.80</td>
</tr>
<tr>
<td>Median</td>
<td>40</td>
<td>30</td>
<td>11</td>
</tr>
<tr>
<td>Mode</td>
<td>40</td>
<td>29.00(^a)</td>
<td>12</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>8.05</td>
<td>6.49</td>
<td>2.72</td>
</tr>
</tbody>
</table>

\(^a\) Multiple modes exist. The smallest value is shown

Each section of the technical competencies was analyzed and a comparison analysis was conducted for individuals who did or did not receive training prior to teaching online courses. There was a greater number of responses from individuals who had received training in all three categories. According to the following table (Table 4.2), the mean scores from the technical access category implied that individuals who received training prior to teaching online courses had a greater advantage of obtaining access to technical resources than those who did not receive training; however, there was only a 8% difference between individuals who did or did not receive training prior to teaching online courses. Since the mean scores from the other two categories technical proficiency and assistance were approximately equal,
one can conclude that technical assistance and proficiency were obtained whether training was received or not. In addition, individuals who received training obtained the level of technical proficiency that is efficient enough to teach online courses.

Table 4.2

DE Training and Composite Variables:

<table>
<thead>
<tr>
<th></th>
<th>DE Training</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Access</td>
<td>Yes</td>
<td>165</td>
<td>41.50</td>
<td>5.84</td>
<td>0.45</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>124</td>
<td>33.73</td>
<td>8.51</td>
<td>0.76</td>
</tr>
<tr>
<td>Technical Proficiency</td>
<td>Yes</td>
<td>165</td>
<td>29.41</td>
<td>6.53</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>130</td>
<td>29.74</td>
<td>6.45</td>
<td>0.57</td>
</tr>
<tr>
<td>Technical Assistance</td>
<td>Yes</td>
<td>165</td>
<td>10.81</td>
<td>2.84</td>
<td>0.22</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>128</td>
<td>10.81</td>
<td>2.57</td>
<td>0.23</td>
</tr>
</tbody>
</table>

Table 4.3 provides an expanded illustration of collected responses and meaningful statistical data to illustrate the differences between the mean scores of the two groups (i.e. individuals who received training prior to teaching online courses and individuals who did not receive training prior to teaching online courses) for each competency category. The Levene's Test for Equality of Variances was used to test the homogeneity of variances prior to the mean comparison test and a pairwise Student t-test was used to compare the means of each category. The test hypothesis is as follows:
$H_0$: The means of the two groups are not significantly different.

$H_a$: The means of the two groups are significantly different.
<table>
<thead>
<tr>
<th>Composite Variables</th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Technical Access</td>
<td>Equal variances assumed</td>
<td>12.77</td>
</tr>
<tr>
<td>Technical Proficiency</td>
<td>Equal variances assumed</td>
<td>0.04</td>
</tr>
<tr>
<td>Technical Assistance</td>
<td>Equal variances assumed</td>
<td>1.37</td>
</tr>
</tbody>
</table>
The above table indicates that the two variances were significantly different, \((F = 12.77; df = 1, 287; p < .001)\) for technical access; however, for technical proficiency \((F = .04; df = 1, 293; p = .84)\) and technical assistance \((F = 1.37; df = 1, 291; p = .24)\) depict that the two variances were not significantly different. Pairwise t-test were carried accordingly; in addition to, unequal-variances t-test for mean comparison of technical access \((t = 8.74; df = 206.25; p = 0)\), and equal-variances t-test for technical proficiency \((t = -0.44; df = 293; p = 0.66)\) and technical assistance \((t = -0.00; df = 291; p = 0.99)\). One can conclude that those who received training prior to teaching online courses acquired the knowledge needed to assist learners with their technical needs. In the remaining two categories (technical proficiencies and technical assistance), there is no difference in their mean scores for individuals who had received training and those who did not.

A one-way ANOVA was conducted to compare the means for each composite analysis of individuals who received or did not receive training. As shown in Table 4.2, there is difference between the mean scores from those who received training (Mean=41.50) and those who did not (Mean=33.70) in the technical access category. For technical proficiency and technical assistance, the mean scores were the same.
Table 4.4

Analysis of Variance for Technical Composite Variables

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>$F$</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Between groups</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Access</td>
<td>4</td>
<td>.895</td>
<td>233.52</td>
<td>58.38</td>
<td>.467</td>
</tr>
<tr>
<td>Technical Proficiency</td>
<td>4</td>
<td>5.720</td>
<td>900.30</td>
<td>225.07</td>
<td>.000</td>
</tr>
<tr>
<td>Technical Assistance</td>
<td>4</td>
<td>2.496</td>
<td>72.48</td>
<td>18.12</td>
<td>.043</td>
</tr>
<tr>
<td><strong>Within groups</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Access</td>
<td>284</td>
<td></td>
<td>18518.38</td>
<td>65.21</td>
<td></td>
</tr>
<tr>
<td>Technical Proficiency</td>
<td>290</td>
<td></td>
<td>11411.15</td>
<td>39.35</td>
<td></td>
</tr>
<tr>
<td>Technical Assistance</td>
<td>288</td>
<td></td>
<td>2090.98</td>
<td>7.26</td>
<td></td>
</tr>
</tbody>
</table>

From the same ANOVA output, between groups F-tests were run for each category and within groups were analyzed (Table 4.4). Based on technical proficiency ($F = 5.72$;
The means between groups were statistically significant, which exemplifies that those who received training maintained higher levels of technical proficiency than those who did not receive training. *Technical access* \((F = .895; df = 4, 288; p = .467)\), means between groups were not statistically significant and finally, the test for *technical assistance* \((F = 2.49; df = 4, 288; p = .043)\) showed the means between groups were statistically significant which exemplifies that those who received training received more technical assistance than those who did not receive training prior to teaching online courses.

Research Question 2 (RQ2) stated: Why is it important for online instructors to have technical support post DE training?

Varvel (2007) expressed the importance for online instructors to have some knowledge of technology support to provide for their students/learners. “When a program does not have a technology support person or department, even if the instructor does not have the required technical knowledge to directly provide assistance to the students, s/he should be willing and able to direct students towards an answer to their problem” (p. 19). This section falls under the *technical assistance* category that is illustrated in Tables 4.5-4.7. The illustrations summarized whether online instructors received technical support during training and as a result, whether or not knowledge was transferred to their online experience. The respondents answered Likert scale questions with either *Strongly Agree, Agree, Undecided, Disagree or Strongly Disagree* in reference to providing students with technology support.
According to the following table (Table 4.5), a total of 227 (76.10%) either agreed or strongly agreed that technology assistance was provided to their students. This means that the instructors had appropriate knowledge to assist students with their technical needs. Some of the typical technology issues may include, but are not limited to, troubleshooting technical systems (e.g. learning management systems), accessing various course tools and online services, amongst others. Table 4.6 reflects their perception of how instructors assisted students with their basic technical issues.

### Table 4.5

**Assisted Students with Technical Support**

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>14</td>
<td>4.70</td>
<td>4.80</td>
<td>4.80</td>
</tr>
<tr>
<td>Disagree</td>
<td>34</td>
<td>11.40</td>
<td>11.60</td>
<td>16.30</td>
</tr>
<tr>
<td>Undecided</td>
<td>19</td>
<td>6.40</td>
<td>6.50</td>
<td>22.80</td>
</tr>
<tr>
<td>Agree</td>
<td>153</td>
<td>51.30</td>
<td>52.00</td>
<td>74.80</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>74</td>
<td>24.80</td>
<td>25.20</td>
<td>100.00</td>
</tr>
<tr>
<td>Total</td>
<td>294</td>
<td>98.70</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>4</td>
<td>1.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>298</td>
<td>100.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.6
Assisted Students with Basic Technical Issues

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>9</td>
<td>3.00</td>
<td>3.10</td>
<td>3.10</td>
</tr>
<tr>
<td>Disagree</td>
<td>26</td>
<td>8.70</td>
<td>8.80</td>
<td>11.90</td>
</tr>
<tr>
<td>Undecided</td>
<td>16</td>
<td>5.40</td>
<td>5.40</td>
<td>17.30</td>
</tr>
<tr>
<td>Agree</td>
<td>154</td>
<td>51.70</td>
<td>52.40</td>
<td>69.70</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>89</td>
<td>29.90</td>
<td>30.30</td>
<td>100.00</td>
</tr>
<tr>
<td>Total</td>
<td>294</td>
<td>98.70</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>4</td>
<td>1.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>298</td>
<td>100.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A total of 243 (81.60%) instructors agreed or strongly agreed to assisting their students with basic technical issues. Varvel (2007) expressed that instructors should have a great understanding of some technical issues that arises from students while referring more difficult issues to a technical support person for that particular course or institution, or technology tutorials and/or user guides. His rationale for this is that the “students will inevitably ask the instructor some technical questions, and the ability of the instructor to answer those questions can affect the student’s perceptions of the instructor and the student’s speed with which to resolve technical issues” (p. 19). One of the other key factors addressed
was the importance of supporting students with disabilities. Instructors need to be aware that because they are teaching online courses, it doesn’t mean that their audience is homogeneous. Table 4.7 depicts their perception of how instructors’ assist individuals with disabilities.

Table 4.7

<table>
<thead>
<tr>
<th>Supported Students with Disabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
</tr>
<tr>
<td>-----------------------------</td>
</tr>
<tr>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Disagree</td>
</tr>
<tr>
<td>Undecided</td>
</tr>
<tr>
<td>Agree</td>
</tr>
<tr>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>Missing</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

A total of 119 (39.90%) instructors agreed or strongly agreed to providing assistance to learners’ with disabilities. Although this was the highest percentage of all categories, a total of 98 (32.80%) instructors disagreed or strongly disagreed to providing assistance to
learner’s with abilities. The mean scores were calculated for individuals who provided support to students with disabilities to those who received or did not receive training. These scores indicated that there was no significant different between individuals who received training \((p = 3.05)\) and those who did not receive training \((p = 3.05)\). A total of 76 (26%) was undecided.

Research Question 3 (RQ3) stated: What types of technical proficiencies and assistance were acquired post DE training?

The following table (Table 4.8) reports the level of technical proficiency and assistance based on individuals who received or did not receive online training.

<table>
<thead>
<tr>
<th>Composite Variables</th>
<th>Training</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Proficiency</td>
<td>Yes</td>
<td>165</td>
<td>29.41</td>
<td>6.53</td>
<td>0.51</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>130</td>
<td>29.74</td>
<td>6.45</td>
<td>0.57</td>
</tr>
<tr>
<td>Technical Assistance</td>
<td>Yes</td>
<td>165</td>
<td>10.81</td>
<td>2.84</td>
<td>0.22</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>128</td>
<td>10.81</td>
<td>2.57</td>
<td>0.23</td>
</tr>
</tbody>
</table>

The following questions that referenced the technical proficiency category from the online survey ranged from item numbers 20-32. These questions focused on how proficient instructors’ are as they utilize the various learning management systems from their institution. The mean scores were calculated by adding the total number of questions in each
category and multiplying that number by the possible choices. For example, the technical proficiency category has a total number of 12 questions; thus, $12 \times 3$ (the number of possible choices for each question) which is 36. Therefore, the highest mean score for this category is 36. Varvel (2007) detailed a variety of skills instructors’ need to be competent as an online instructor. Some of the skills include having experience with the following: (a) Internet tools (i.e. bulletin boards, newsgroups, to name a few), (b) computer software programs (i.e. LMS, amongst others), (c) web browsing software, (d) managing computer operating systems, just to name a few. From the table (Table 4.8), there was no significant difference between the mean scores of the various technical proficiency levels from instructors who received ($p = 29.41$) or did not receiving training ($p = 29.74$) prior to teaching online courses. Although the number for instructors who received training was higher ($N=165$) than those who did not ($N=130$), the mean scores determined the significance on whether training had an effect on individuals technical competency level which in this case, it did not. Individuals were asked to rate their level of experience for the various technical proficiencies provided. There may have been contributing factors (i.e. age, level of education, number of years taught online courses, and number of DE courses taught) that could have affected their ratings and those factors are considered for the purpose of this study. The data supports that level of technical proficiency will not change as much whether or not training was received prior to teaching online courses. Although the levels of technical proficiency did not change, Varvel (2007) included that “if the instructor cannot use the software, then the instructor simply cannot effectively instruct in an environment that requires such knowledge” (p. 16). Additionally,
the table displays that there was no significant difference between the mean scores of instructors’ who provided technical assistance to their students whether training was received \((p=10.81)\) or not \((p=10.81)\) prior to teaching online courses. There were only a total of three questions referencing this particular category which was outlined by Varvel (2007). Particularly, the mean scores were approximately equal.

A total of 12 questions from the instrument (questions # 20-32) requested for the respondents to identify their level of experience (advanced, intermediate, and beginner) with various technology tools. The following 12 tables will display frequencies of each variable that falls in the technical proficiency category. Additionally, the table compares the various levels of technology to the number of individuals who received or did not receive training prior to teaching online courses.

The following table (Table 4.9) compares the various levels of technical experience with Internet tools to individuals who received training.
Table 4.9

DE Training Received Compared to Level of Experience with Internet Tools

<table>
<thead>
<tr>
<th>Level of technical experience</th>
<th>Beginner</th>
<th>Intermediate</th>
<th>Advanced</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>31</td>
<td>80</td>
<td>53</td>
<td>164</td>
</tr>
<tr>
<td>No</td>
<td>18</td>
<td>63</td>
<td>49</td>
<td>130</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td>143</td>
<td>102</td>
<td>294</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DE Training Received</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>63.30%</td>
<td>36.70%</td>
<td>100.00%</td>
</tr>
<tr>
<td>No</td>
<td>55.90%</td>
<td>44.10%</td>
<td>100.00%</td>
</tr>
<tr>
<td>Total</td>
<td>55.80%</td>
<td>44.20%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Individuals who received DE training prior to teaching online courses (Table 4.9) show a higher percentage rate in all three categories. Internet tools include navigating bulletin boards, newsgroups, listservs, just to name a few. The following tools provide the instructor with an easier method to prepare for each course and allow the various tools to alleviate time when planning. A total of 80 individuals (55.90%) who received DE training prior to teaching online courses labeled their experience as intermediate when using this particular tool. This number was the highest between all three categories. The following table (Table 4.10) compares the level of experience with computer software programs and whether DE training was received.
Table 4.10

DE Training Received Compared to Level of Experience with Computer Software Programs

<table>
<thead>
<tr>
<th>Level of experience with computer software programs</th>
<th>DE Training Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>Yes: 38, No: 30, Total: 68</td>
</tr>
<tr>
<td></td>
<td>55.90% 44.10% 100.00%</td>
</tr>
<tr>
<td>Intermediate</td>
<td>Yes: 82, No: 56, Total: 138</td>
</tr>
<tr>
<td></td>
<td>59.40% 40.60% 100.00%</td>
</tr>
<tr>
<td>Advanced</td>
<td>Yes: 42, No: 43, Total: 85</td>
</tr>
<tr>
<td></td>
<td>49.40% 50.60% 100.00%</td>
</tr>
<tr>
<td>Total</td>
<td>Yes: 162, No: 129, Total: 291</td>
</tr>
<tr>
<td></td>
<td>55.70% 44.30% 100.00%</td>
</tr>
</tbody>
</table>

Varvel (2007) expressed that “the competent instructor is knowledgeable and has the ability to use computer programs that are typically required in online education to improve learning/teaching, personal productivity, and information management” (p. 16). Varvel’s rationale is that if the instructor is unable to utilize the software provided, than the instructor is incapable of instructing in an environment that requires such knowledge. Eighty-two (59.40%) individuals who received training labeled their experience with computer software programs as intermediate which was comparatively higher than those who did not received
training (40.60%). On the other hand, individuals who did not receiving training labeled their experience in this category as advanced which was slightly higher than those who had received training. As an instructor familiarized themselves with various software tools, learning how to use web browsing software is paramount as well (Varvel). “Such software is an absolute minimum in order to effectively navigate within the Web-based course management system (CMS) or LMS” (p. 16).

Table 4.11
DE Training Received Compared to Level of Experience with Web browsing

<table>
<thead>
<tr>
<th>Software</th>
<th>DE Training Received</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Level of various</td>
<td>Beginner</td>
</tr>
<tr>
<td>Web browsing software</td>
<td>Intermediate</td>
</tr>
<tr>
<td></td>
<td>Advanced</td>
</tr>
<tr>
<td></td>
<td>Total</td>
</tr>
</tbody>
</table>

There are many Web browsers being used to access the Internet. Such browsers as Internet Explorer (IE), Mozilla Firefox, Safari, Opera, just to name a few are the common
browsers used. This question does not specify which web browser is used or most commonly in demand; however, it focuses on whichever web browser is used by each individual. Most of the respondents (58.00%) who received training labeled their knowledge of Web browser software experience as advanced (Table 4.11). In addition to learning more about the Web browser being used, it is common to learn how to browse and search the Web. Varvel (2007) grouped this section in the Web browser software category; whereas, this study allowed the researcher to separate the categories to indicate the outcome of responses based on the individual categories.

Table 4.12
DE Training Received Compared to Level of Experience Browsing and Searching the Web

<table>
<thead>
<tr>
<th>Experience browsing and searching the Web</th>
<th>DE Training Received</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td></td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td>75.00%</td>
<td>25.00%</td>
<td>100.00%</td>
</tr>
<tr>
<td>Intermediate</td>
<td></td>
<td>42</td>
<td>32</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td>56.80%</td>
<td>43.20%</td>
<td>100.00%</td>
</tr>
<tr>
<td>Advanced</td>
<td></td>
<td>120</td>
<td>97</td>
<td>217</td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td>55.30%</td>
<td>44.70%</td>
<td>100.00%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>165</td>
<td>130</td>
<td>295</td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td>55.90%</td>
<td>44.10%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
As an online instructor, browsing and searching the Web for instructional materials may influence the instructor’s teaching abilities. The Web can be used to search for ideas and resources that is available for online instruction and learning. In addition to learning how to search and browse the Web, understanding how to use the various tools within the Web or computer is essential for online instructors as well. It may appear simple; however, learning how to successfully print from a Web browser is useful for online instructors.

Table 4.13

| DE Training Received Compared to Level of Experience Printing from a Web Browser |
|---------------------------------|--------|--------|--------|
| Experience                      | Yes    | No     | Total  |
| printing from a web browser     |        |        |        |
| Beginner                        | 9      | 4      | 13     |
|                                 | 69.20% | 30.80% | 100.00%|
| Intermediate                    | 42     | 41     | 83     |
|                                 | 50.60% | 49.40% | 100.00%|
| Advanced                        | 114    | 85     | 199    |
|                                 | 57.30% | 42.70% | 100.00%|
| Total                           | 165    | 130    | 295    |
|                                 | 55.90% | 44.10% | 100.00%|

An unsurprisingly percentage (57.30%) of respondents who received training labeled their experience of printing from a web browser at the advanced level (Table 4.13).

Respondents who received training prior to teaching online courses dominated this category.
at all three levels. There were other tools Varvel (2007) listed as necessary tools to know as an online instructor. Learning how to change settings (i.e. font size, security settings, passwords, to name a few) and troubleshoot typical issues within the browser can be very useful and resourceful as an online instructor. Table 4.14 displays the level of experience with changing settings within a browser.

Table 4.14

<table>
<thead>
<tr>
<th>DE Training Received</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Beginner</td>
<td>19</td>
</tr>
<tr>
<td>Intermediate</td>
<td>59</td>
</tr>
<tr>
<td>Advanced</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>164</td>
</tr>
<tr>
<td></td>
<td>56.20%</td>
</tr>
<tr>
<td></td>
<td>59.40%</td>
</tr>
<tr>
<td></td>
<td>56.20%</td>
</tr>
<tr>
<td></td>
<td>55.50%</td>
</tr>
<tr>
<td></td>
<td>56.20%</td>
</tr>
</tbody>
</table>

As reported in the following table (Table 4.14), eighty-six (55.50%) was the highest number for individuals who received training which labeled their experience of changing settings within a browser as being advanced. Varvel (2007) wrapped up this category with having experience troubleshooting typical issues within the web browser (Table 4.15).
Table 4.15

<table>
<thead>
<tr>
<th>Experience troubleshooting typical issues that may arise with browsers</th>
<th>DE Training Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Beginner</td>
<td>37</td>
</tr>
<tr>
<td>Intermediate</td>
<td>83</td>
</tr>
<tr>
<td>Advanced</td>
<td>44</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>164</strong></td>
</tr>
</tbody>
</table>

Varvel (2007) expressed that “a competent instructor can adequately perform various functions within Web browsing software” (p. 17). Table 4.14 displays two categories that are significantly higher (beginner and intermediate) which totals 59.10% for individuals who received training and in the same categories, the percentage of individuals who did not receive training was 40.80%. In some cases, troubleshooting may not be at the top of the list when instructing online courses; however, it can be a needed tool in certain situations. In addition to learning various web browser software, one may need to learn to use of HTML codes for designing courses, or possibly repairing or modifying pages on the course website.
Varvel’s rationale is that “web-based instruction will eventually require the instructor to utilize at least a basic understanding of HTML” (p. 17).

Table 4.16

<table>
<thead>
<tr>
<th>Level of HTML</th>
<th>DE Training Received</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Beginner</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>59.50%</td>
</tr>
<tr>
<td>Intermediate</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>53.00%</td>
</tr>
<tr>
<td>Advanced</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>52.90%</td>
</tr>
<tr>
<td>Total</td>
<td>164</td>
</tr>
<tr>
<td></td>
<td>55.80%</td>
</tr>
</tbody>
</table>

The following indicates the majority of instructors who received training labeled their level of experience using HTML as beginner. A total of one hundred and eighty-eight (63.00%) indicated that Blackboard was the main software used to teach online courses. This particular software allows the user to design their course using tools that are already provided. Varvel (2007) included that “if the instructor cannot use the course management system with at least a basic level of knowledge, then it will be difficult to effectively organize information and communicate with the students within the system among other
needed functions from the instructor” (p. 17). In addition to learning the basic features of the LMS, learning how to modify or edit information is essential. Varvel’s rationale is that information may change throughout the duration of any course and because of these unexpected changes, instructors may need to modify or edit their information accordingly.

Table 4.17

DE Training Received Compared to the Level of Experience Modifying Content within the LMS

<table>
<thead>
<tr>
<th>Level of modifying content within the learning management system</th>
<th>DE Training Received</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>Yes</td>
<td>23</td>
<td>25</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
<td>100.00%</td>
</tr>
<tr>
<td>Intermediate</td>
<td>Yes</td>
<td>72</td>
<td>53</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
<td>100.00%</td>
</tr>
<tr>
<td>Advanced</td>
<td>Yes</td>
<td>68</td>
<td>51</td>
<td>119</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
<td>100.00%</td>
</tr>
<tr>
<td>Total</td>
<td>Yes</td>
<td>163</td>
<td>129</td>
<td>292</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
<td>100.00%</td>
</tr>
</tbody>
</table>

The following table (Table 4.17) compares the level of experience for modifying content within the LMS to individuals who received or did not receive training prior to teaching online courses. When viewing the percentage of each category, there was not a wide
range difference between the two categories. The mean scores for both groups were calculated and there was no significant difference between individuals who received \( (p = 2.27) \) or did not receive training \( (p = 2.20) \).

Varvel (2007) identified the following competency as being “important.” He included that learning how to manage all students’ activities is very important in order to ensure that students are on track to learning which will enable them to access their own progress in the course (see Table 4.18).

Table 4.18

DE Training Received Compared to the Level of Experience Managing Students’ Activities within the LMS

<table>
<thead>
<tr>
<th>DE Training Received</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of managing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beginner</td>
<td>20</td>
<td>16</td>
<td>36</td>
</tr>
<tr>
<td>Intermediate</td>
<td>52</td>
<td>39</td>
<td>91</td>
</tr>
<tr>
<td>Advanced</td>
<td>93</td>
<td>73</td>
<td>166</td>
</tr>
<tr>
<td>Total</td>
<td>165</td>
<td>128</td>
<td>293</td>
</tr>
<tr>
<td></td>
<td>56.30%</td>
<td>43.70%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
Managing student’s activities with the LMS refers to (1) placing students within groups, (2) entering student grades, (3) providing feedback for assignments, (4) uploading announcements and instructions at its properly location, just to name a few. Table 4.18 indicates that a total of ninety-three (56.00%) who received training labeled themselves as being advanced to managing students’ activities within the LMS. The mean scores indicate that there is no significant difference between individuals who received training ($p=2.44$) and those who did not ($p=2.44$).

As an online instructor, the LMS or CMS is not the only method of communication needed to teach online courses. Some instructors may use other synchronous (chat rooms, Elluminate, just to name a few) or asynchronous (LMS or CMS-discussion boards, email, amongst others) software to communicate with their students. Table 4.19 provides instructors’ level of experience managing these communicative programs.
Table 4.19

DE Training Received Compared to the Level of Experience Managing Asynchronous and Synchronous Communication Programs

<table>
<thead>
<tr>
<th>Level of managing asynchronous and synchronous communication programs</th>
<th>DE Training Received</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Beginner</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>53.60%</td>
</tr>
<tr>
<td>Intermediate</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>55.90%</td>
</tr>
<tr>
<td>Advanced</td>
<td>96</td>
</tr>
<tr>
<td></td>
<td>56.10%</td>
</tr>
<tr>
<td>Total</td>
<td>163</td>
</tr>
<tr>
<td></td>
<td>55.80%</td>
</tr>
</tbody>
</table>

A total of 96 (56.10%) individuals who received training labeled themselves as being advanced in managing asynchronous and synchronous communication programs. The mean scores for both groups found that there was no significant difference between individuals who received training ($p=2.49$) than those who did not ($p=2.48$) when managing these communicative programs.

The importance of managing computer operating systems is considered a ‘core’ competency, according to Varvel (2007). Managing computer operating systems includes updating or maintaining security updates, virus scanning software, and other software
updates which are necessary for online instruction. Varvel’s rationale states that “because of the need to maintain a secure system that does not jeopardize the CMS or the computer systems of the students, this is a core requirement” —particularly for the MVCR program (p. 18).

Table 4.20

<table>
<thead>
<tr>
<th>Level of managing computer operating systems</th>
<th>DE Training Received Compared to the Level of Managing Computer Operating Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DE Training Received</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Beginner</td>
<td>37</td>
</tr>
<tr>
<td>Intermediate</td>
<td>87</td>
</tr>
<tr>
<td>Advanced</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td>164</td>
</tr>
</tbody>
</table>

Individuals who received training dominated all categories (via percentage); however, the mean scores indicates that there is no significant difference between individuals who received training (\( p = 2.01 \)) and those who did not (\( p = 2.13 \)) when managing computer operating systems. Other software and hardware programs are important to manage (Table 4.20) for online instructors teaching certain courses (i.e. Mathematics, Statistics, just to name
a few). Often times these courses may use various software (i.e. SPSS, SAS, amongst others) to assist both the learners and instructor with learning and instruction.

Table 4.21

DE Training Received Compared to the Level of Experience Using Computer Programs

<table>
<thead>
<tr>
<th>DE Training Received</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>25</td>
<td>17</td>
<td>42</td>
</tr>
<tr>
<td>Intermediate</td>
<td>84</td>
<td>67</td>
<td>151</td>
</tr>
<tr>
<td>Advanced</td>
<td>55</td>
<td>41</td>
<td>96</td>
</tr>
<tr>
<td>Total</td>
<td>164</td>
<td>125</td>
<td>289</td>
</tr>
</tbody>
</table>

There was a total of 84 (55.60%) individuals who received training which labeled themselves as being ‘intermediate’ with experience utilizing computer programs and hardware. The mean scores for both groups found that there was no significant difference between individuals who received training ($p = 2.18$) than those who did not ($p = 2.19$) when utilizing these programs. In addition to the mean scores being calculated from individuals who did or did not received preliminary online training, individual comparisons in each category for technical proficiencies were analyzed (Table 4.22).
<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet Tools</td>
<td>2.18</td>
<td>2</td>
<td>0.69</td>
</tr>
<tr>
<td>Software Program</td>
<td>2.06</td>
<td>2</td>
<td>0.72</td>
</tr>
<tr>
<td>Web browser software</td>
<td>2.47</td>
<td>3</td>
<td>0.62</td>
</tr>
<tr>
<td>Web Knowledge</td>
<td>2.72</td>
<td>3</td>
<td>0.48</td>
</tr>
<tr>
<td>Experience printing from a web browser</td>
<td>2.63</td>
<td>3</td>
<td>0.57</td>
</tr>
<tr>
<td>Experience with changing settings</td>
<td>2.42</td>
<td>3</td>
<td>0.68</td>
</tr>
<tr>
<td>Experience troubleshooting</td>
<td>2.12</td>
<td>2</td>
<td>0.70</td>
</tr>
<tr>
<td>Level of HTML</td>
<td>1.75</td>
<td>2</td>
<td>0.74</td>
</tr>
<tr>
<td>Modifying content in LMS</td>
<td>2.25</td>
<td>2</td>
<td>0.72</td>
</tr>
<tr>
<td>Manage students' activities in LMS</td>
<td>2.45</td>
<td>3</td>
<td>0.70</td>
</tr>
<tr>
<td>Manage computer programs</td>
<td>2.49</td>
<td>3</td>
<td>0.66</td>
</tr>
<tr>
<td>Manage computer operating systems</td>
<td>2.07</td>
<td>2</td>
<td>0.69</td>
</tr>
<tr>
<td>Computer programs and hardware</td>
<td>2.19</td>
<td>2</td>
<td>0.66</td>
</tr>
</tbody>
</table>
There was no significant difference between the mean scores for each category within the technical proficiency category. The mean scores ranged from 1.75-2.72, which implies that instructors tend to have intermediate knowledge for each listed category. Consequently, there was one category (knowledge of HTML) with a mean score of 1.75, which signifies that the knowledge of understanding HTML was determined (on average) to be at the beginner’s level. Although HTML is not a required feature when designing online courses, “it will eventually require the instructor to utilize at least a basic understanding of HTML” (Varvel, 2007, p. 15).

Research Questions 4 (RQ4) stated: Do online instructors feel that DE training was beneficial to their teaching needs? If so, what were the factors contributing to this response?

The following online survey questions (15, 16 & 19) referenced questions pertaining to online instructors’ DE training experiences. Tables 4.23-4.25 provided responses to this question.
Table 4.23

Preliminary DE Training- Beneficial to Teaching Needs

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>11</td>
<td>3.70</td>
<td>4.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Disagree</td>
<td>20</td>
<td>6.70</td>
<td>7.20</td>
<td>11.20</td>
</tr>
<tr>
<td>Undecided</td>
<td>50</td>
<td>16.80</td>
<td>18.10</td>
<td>29.20</td>
</tr>
<tr>
<td>Agree</td>
<td>110</td>
<td>36.90</td>
<td>39.70</td>
<td>69.00</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>86</td>
<td>28.90</td>
<td>31.00</td>
<td>100.00</td>
</tr>
<tr>
<td>Total</td>
<td>277</td>
<td>93.00</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>21</td>
<td>7.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to the table (Table 4.23), a total of one hundred ninety-six (65.80%) agreed or strongly agreed that DE training was beneficial to their teaching needs, while thirty-one (10.40%) disagreed or strongly disagreed that DE training was beneficial to their teaching needs. Moreover, factors contributing to their needs could be the knowledge obtained post DE training which is outlined in Table 4.24.
Table 4.24

Knowledge Acquired from DE Training

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>16</td>
<td>5.4</td>
<td>5.7</td>
<td>5.7</td>
</tr>
<tr>
<td>Disagree</td>
<td>23</td>
<td>7.7</td>
<td>8.2</td>
<td>13.9</td>
</tr>
<tr>
<td>Undecided</td>
<td>52</td>
<td>17.4</td>
<td>18.6</td>
<td>32.5</td>
</tr>
<tr>
<td>Agree</td>
<td>110</td>
<td>36.9</td>
<td>39.3</td>
<td>71.8</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>79</td>
<td>26.5</td>
<td>28.2</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>280</td>
<td>94</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Missing   | 18        | 6        |

Total     | 298       | 100      |

One of the online questions (# 16) asked whether knowledge was acquired post DE training. The analysis reported (Table 4.24) a total of one hundred eighty-nine (63.40%) agreed or strongly agreed to acquiring knowledge post DE training. There is a difference between the responses of instructors who claimed to have acquired knowledge post DE training which may be a supporting factor for instructors who received preliminary training prior to teaching online courses. Another factor could be instructors’ perception on whether or not they feel DE training was effective which is outlined in Table 4.25.
### Table 4.25

DE Training & Instructors’ Perceptions to Preliminary Online Training

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>16</td>
<td>5.4</td>
<td>5.9</td>
<td>5.9</td>
</tr>
<tr>
<td>Disagree</td>
<td>25</td>
<td>8.4</td>
<td>9.2</td>
<td>15</td>
</tr>
<tr>
<td>Undecided</td>
<td>67</td>
<td>22.5</td>
<td>24.5</td>
<td>39.6</td>
</tr>
<tr>
<td>Agree</td>
<td>102</td>
<td>34.2</td>
<td>37.4</td>
<td>76.9</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>63</td>
<td>21.1</td>
<td>23.1</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>273</td>
<td>91.6</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>25</td>
<td>8.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>298</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Instructors’ perception on whether or not they feel DE training was effective has to deal with their level of understanding how to teach online courses throughout the duration of their teaching career; in addition to, their personal experiences of teaching online courses post DE training. Table 4.25 illustrated that a total of one hundred sixty-five (55.3%) agreed or strongly agreed that because DE training was received prior to teaching online courses, it was effective to their teaching needs. A very low percentage (13.8%) disagreed or strongly disagreed that DE training was effective to their teaching needs. According to the following
table, there is a significant difference between the responses of instructors’ who felt DE training was beneficial to their teaching needs than those who did not. We can conclude that training is necessary and beneficial for instructors prior to them teaching online courses.

Summary

A total of 298 (26.00%) completed the online survey. The data reported that majority of the respondents: (a) taught at least eight or more DE courses (44.00%), (b) had been teaching online courses between 2-5 years (51.00%), (c) were over the age of 50 (57.40%), (d) obtained a doctoral degree (63.00%), and (e) received DE training prior to teaching online courses (55.00%). The online survey was sectioned into three categories (i.e. technical access, technical proficiencies, and technical assistance) and a composite analysis was conducted for each category. The mean scores were analyzed to itemize the level of technical competencies between instructor’s who did or did not receive training prior to teaching online courses. There was a significant difference between the mean scores for technical access; however, there was no significant difference between the mean scores for the technical proficiency and assistance sections.
Chapter 5: Discussions and Recommendations

This chapter will discuss the findings related to the research questions and provide a brief introduction, background information, and possible solutions to the identified problems. Afterwards, further recommendations and research possibilities will conclude this chapter.

Introduction and Background Problem

Instructors who received little or no DE training (prior to teaching their first online course) led them to be under prepared, frustrated, isolated, and disillusioned (Dooley, 1995; Gehlauf, Shatz, & Frye, 1991). Furthermore, the majority of faculty have little knowledge about DE, what it entails, and how it is successfully taught (Moore & Kearsley, 1996). Because of the change in structure, teaching online courses requires methods of instructional delivery that are different from the strategies and approaches commonly used in a traditional classroom setting (Northrup, 1998; Moore & Kearsley, 1996). Much of the focus in the DE literature centered on the learner and learning, almost to the exclusion of the teacher and teaching, which led instructors of DE suspended in virtual space (De Simone, 2006).

While receiving DE training, instructors need to know what qualifications they must acquire in order to design and deliver effective online instruction (Yang & Cornelious, 2005). First, instructors need to upgrade their technical skills in order to keep abreast of technological developments (Volery, 2000). Second, they need to know how to operate the learning platform, troubleshoot with problems online learners may encounter, and design interactive activities and course syllabi (Cuellar, 2002). For this reason, faculty receiving DE training before actually delivering online courses is very crucial (Yang & Cornelious).
Purpose of the Study

The purpose of this study was to determine whether DE training was beneficial to the needs of online instructors and whether their levels of technical competencies were affected due to the preliminary training. Other factors may have contributed to the intensified levels of technical competencies (i.e. the number of years teaching online courses, level of degree, amongst others), which may influence the knowledge of individuals prior to teaching online courses. More specifically, this study will provide a better understanding of several factors that may cause faculty to be unprepared to teach online courses, which may include the following:

1. lack of training,
2. lack of various learning management systems,
3. not enough time to prepare,
4. and more work with less time.

Significance of the Study

The significance of this study was to identify the technical competency levels and determine the extent to which DE training meet the needs of online instructors. Since studies have shown that certain types of training are essential to teach online courses, it is important to provide online instructors with appropriate DE training. Varvel (2007) expressed that many qualified instructors have no formal training in the methods of instruction or facilitation. Those that may have this training may not have additional training or experience in the field of distance or online education. Northrup (1998) and Moore & Kearsley (1996)
noted that teaching online courses requires methodologies for instructional delivery that are quite different from teaching in traditional settings. Instructors teaching in these traditional settings may not feel comfortable teaching online, and if put in this situation without prior DE training, instructors may feel frustrated, isolated, and disillusioned (Dooley, 1995; Gehlafu, Shatz, & Frye, 1991). Furthermore, online instructors need to prepare a list of skills or competencies to assist with their development of being a competent instructor (Varvel, 2007). “As communication and information technologies evolve, the roles and competencies necessary to utilize such technologies for instruction are effected” [sic] (Williams, 2000 p.5). This study focused primarily on the technical competencies compiled from experts in the field.

**Research Questions**

1. Was DE training provided? If so, was there a difference between the levels of technical competencies from individuals who received or did not receive training prior to teaching online courses?
2. Why is it important for online instructors to have technical support post DE training?
3. What types of technical proficiencies and assistance were acquired post DE training?
4. Do online instructors feel that DE training was beneficial to their teaching needs? If so, what were the factors contributing to this response?
Findings and Discussion

The first research question asked if DE training was provided by the institution. The data select case was the statistical procedure used to optimize responses based on the institution and from the responses received; at least one person from each institution received DE training prior to teaching an online course. Although, 130 (44%) did not take advantage of this training, it was (indeed) offered by the institution. Part (b) to the first question asked if there was a difference in the levels of technical competencies from individuals who had received or did not receive training. Three categories (technical access, technical proficiencies, and technical assistance) were formulated based on the arrangement of the instrument and computed as a composite variable. The mean scores indicated a significant difference between the technical access levels of individuals who received preliminary online training (Mean=41.50) than who did not receive preliminary online training (Mean=33.73) prior to teaching online courses. This signifies that individuals who received preliminary online training prior to teaching online courses had a greater advantage of obtaining access to technical resources than those who did not receive preliminary online training. Often times when introduced to new material, individuals may not feel comfortable using certain tools—particularly in the online environment. Based on the results, preliminary online training assisted instructors with the necessary knowledge to acquire technical access that is needed in the online environment. Technical access includes, but is not limited to, having (a) Internet access, (b) an operable computer, (c) access to a learning management system, (d) necessary information to assist those with disabilities, (e) access to needed information to assist
students with their online experience, (f) online training opportunities, (g) adequate resources for online instruction, just to name a few. It is necessary for online instructors to have some type of technical access throughout their duration of teaching online courses. This would assist greatly in their individual development of an online instructor.

The second research question asked the importance of obtaining knowledge through technical support. Varvel (2007) expressed the importance for online instructors to have some knowledge of technical support to provide for their students-learners. He also noted that when a DE program does not have a technology support person to assist with the learner’s needs and/or concerns, the online instructor lack some form of responsibility. They [instructors] should have some form of information to assist with solving the needs of the learners whenever needed. This section falls under the technical assistance category that is illustrated in the previous chapter (Tables 4.5-4.7). The respondents answered Likert scale questions (based on three questions) with Strongly Agree, Agree, Undecided, Disagree, or Strongly Disagree in reference to providing students with technical support. The mean scores were analyzed based on three questions from the online instrument. The first question asked if instructors assisted learners with technology support. There were more instructors (n=165) who received preliminary online training that assisted students with technical support than those who did not receive training (n=127); however, the mean scores for both groups (Mean=3.82) were the same. These findings suggest that the instructor would be able to provide technical support to students whether or not preliminary online training was received prior to teaching online courses. The second question asked if instructors had sufficient
knowledge to assist learners with basic technical issues, while referring more difficult issues to the technical support person. There were more instructors (n=164) who received preliminary online training that had the basic knowledge to assist learners with basic technical issues than those who did not receive training (n=128); however, the mean scores for both groups (Mean=3.99) were the same. These findings suggest that the instructor would be able to provide the necessary information concerning basic technical issues to students whether or not preliminary online training was received prior to teaching online courses. The last question asked if instructors provided basic assistance for learners with disabilities. There were more instructors (n=164) who received preliminary online training that assisted students with technical support than those who did not receive training (n=127); however, the mean scores for both groups (Mean=3.05) were the same. These findings suggest that the instructor would be able to provide basic assistance for learners with disabilities whether or not preliminary online training was received prior to teaching online courses.

The third research question asked about the type of technical proficiencies and assistance received during training. The following technical competencies were sectioned in this category where the respondents rated their level of knowledge:

1. Internet Tools (i.e. bulletin boards, newsgroups, etc.)

2. Computer Software Programs

3. Web browsers

4. Troubleshooting

5. HTML
6. LMS
7. Computer Operating Systems
8. Computer Hardware

Varvel (2007) noted that a competent instructor is knowledgeable about the technology used in an online environment and can make effective use of those technologies. “If the instructor does not have easy access, it will show in a reduced ability to effectively instruct” (Varvel, p. 16).

Most of the listed (e.g., technical access, technical proficiency, and technical assistance) competencies were an amalgamation of skills from experts in the field, technology organizations, and higher education institutions. Individuals responded to the survey questions with an option of choosing beginner, intermediate, or advanced. The questions pertained to their personal level or experience with the various technologies and software. When viewing the varied categories, the mean scores for the majority of the competencies fell between Mean=2.0-3.0. From this outcome, majority of the respondents either answered being at the intermediate or advanced level. Varvel (2007) provided two types of online instructors, one who is competent and one who is exemplary. “Core competencies are marked as a competent instructor and competencies beyond the core are marked as an exemplary instructor” (p. 11). For this study, individuals who chose having intermediate skills in the various categories were considered competent and those who chose having advanced skills in various categories were considered exemplary. In addition, the
terminology of the various levels (i.e. beginner, intermediate, advanced) was used in this study based on each individualized definition.

The final research question asked if DE training was beneficial to their teaching needs. If so, were there factors contributing to this response? Online survey questions 15, 16, & 19 pertained to their DE training experiences. Tables 4.23-4.25 displayed responses to this question. Sixty-five percent (n=196) of respondents agreed or strongly agreed that DE training was beneficial to their teaching needs, 63% (n=189) agreed or strongly agreed that knowledge was acquired post DE training, and 55% (n=165) agreed or strongly agreed that their training experience prepared them to be an effective online instructor. An independent sample t-test was conducted to analyze the responses of individuals who selected agreed or strongly agreed to the survey questions (15, 16, & 19) and compared to individuals who received or did not receive preliminary online training prior to teaching online courses. The responses indicated that there was a significant difference ($F= 42.33; df = 1, 193; p < .001$) from individuals who felt DE training was beneficial to their teaching needs in relation to those who received preliminary online training. Subsequently, the researcher interpreted that training had an effect on the instructor’s role while teaching online courses. Additionally, responses of individuals who expressed that knowledge was acquired post DE training indicated that there was no significant difference ($F= 8.124; df= 1, 187; p = .005$) between individuals who received preliminary online training. Lastly, the responses from individuals who felt that DE training provided enough information to be an effective leader found no
significant difference \((F = 4.45; df = 1, 161; p = .036)\) between individuals who received preliminary online training prior to teaching online courses.

To indicate whether there was any statistical significance between the number of DE courses taught and the elevated levels of technical proficiency, a Chi-Square Test was conducted and the number of DE courses taught was categorized in five categories with increments of 2 numbers (i.e., 0-1, 2-3, and so forth) in each category. The chi-square test indicated that there is a significant difference \(\chi^2 (4, n = 296) = 120.96, p = .000\), between the number of DE courses taught and the levels of technical competencies. The research indicates that if an instructor teaches a greater number of DE courses, their proficiency levels of using various computer software and tools will increase over a period of time.

A chi-square test was also conducted for the following categories (a) age group, (b) years of teaching online courses, and (c) levels of education which were compared to the levels of technical proficiency. The chi-square test indicated that there was a significant difference \(\chi^2 (3, n = 296) = 200.81, p = .000\), between the age groups and the elevated technical competency levels. From the following response, the number of individuals (n=171) reported to be age 50 or over. This may conclude that the maturity level of individuals may play a factor in researching other methods of instruction that is beneficial to the online environment. One may ask the question, how would the effect of the technical competency levels differ if the majority of respondents were in the 30-39 category? The next highest age level was 40-49. As for the number of years taught DE courses, the chi-square test indicated that there was a significant difference \(\chi^2 (4, n = 297) = 30.02, p = .000\),
between the number of years taught DE courses and the elevated technical competency levels. From the following response, majority of individuals (n=80) taught between 4-5 courses which was not too far from individuals (n=72) who taught between 2-3 courses. This may conclude that the more classes taught by each individual, the higher their levels of technical competencies. It would also imply that the instructor may have the necessary time to experience trial-and-error while using some of the software and tools needed for online instruction. One question one may include is how long does one need to teach in order to be self-efficient and comfortable teaching online courses—especially if training was not provided prior to teaching online courses?

The results from the level of education reported that there was a significant difference \( \chi^2(4, n=297) = 30.02, p = .000 \), between the level of education of individuals and the elevated technical competencies. Majority of individuals (n=188) earned a doctorate degree. One may conclude that the higher the level of education earned, the greater the levels of expectations are for becoming an online instructor. As one begin to conduct research and explore other sources for funding, traveling, and so forth; one may have the advantage of exploring other possibilities to ensure knowledge is obtained and provided for online instruction.

Summary

Based on the following statistical analyses conducted (i.e., frequencies, mean scores, t-test), the information provided was beneficial for all educators. This chapter highlighted information that was crucial for online learners. Preliminary training is always helpful for
novice learners or educators entering this type of field. The previous literature claims that one cannot transfer traditional materials to online; therefore, having certain levels of competencies is beneficial for individuals in the DE world. Varvel (2007) listed over 200 competencies; Smith provided over 51 and although some of those competencies overlapped, it is quite evident that the listed competencies in this study were beneficial and crucial for DE instructors. Having the technical skills is essential. The following categories: (a) technical access, (b) technical proficiencies, and (c) technical assistant have subsets, which identifies the technical abilities one should have prior to teaching online courses. Additionally, questions (10-35) were itemized in the instrument (Appendix I). From the responses and research, one can conclude that DE training is definitely needed prior to teaching online courses. Furthermore, some of the higher levels of competencies were from individuals who had received training; however, there were individuals with high levels of competencies who did not receive training. The factors included in the high levels of technical competencies were possibly contributed to age, number of DE courses taught, and number of years teaching online courses. One might conclude that the more DE courses taught and years of teaching online courses, the higher the level of technical competencies one may obtain. The responses indicated that individuals who did not receive preliminary online training who also maintained higher levels of technical competencies were possibly due to the length of time teaching DE courses and number of years teaching online courses; as a result, some may have contributed to self-teaching and exploring other resources to build knowledge of online instruction. Instead of receiving preliminary online training, one may suggest that individuals
received assistance from other co-workers, online tutorials, just to name a few in order to learn some of the technical tools and software programs.

All of the determining factors play a role in the development of distance education. Whether one receives training or not, there is an advantage of self-teaching, exploring other possibilities of learned knowledge (tutorials, and so forth), peer teaching, just to name a few. Although this study may imply that preliminary online training is not necessary, there are other factors that may influence how instructors teach and have a strong impact in the online arena. The researcher has a strong impact on preliminary training. If one is a novice instructor, training should be provided during their first year. Research has reported that some of our instructors are ill-prepared when facing online instruction. Because of the advanced technologies and software, one should opt to receive some type of preliminary online training prior to teaching online courses and should continue to receive training throughout their duration of online instruction. As technology change, we need the instructors to be well-equipped and have the knowledge and necessary tools to *competently* teach online courses.
Further Recommendations

Based on the findings in this chapter, there are a few concerns within the DE environment that would be great research possibilities. The following recommendations are suggested for further research:

1. There were many positive responses from the online instructors after the main study was conducted. Some respondents provided qualitative information they felt would have benefitted this study. A qualitative study of 15-30 individuals teaching online courses (chosen from this study) would be studied to identify barriers that may hinder instructors from teaching online courses effectively. The qualitative information received would be used to create themes and possible future research opportunities.

2. From the literature review, there were only a few higher education institutions that adapted a faculty development program primarily for online instructors. A quantitative study on faculty development programs would be conducted to possibly discover the loopholes in the programs and identify the effectiveness of those programs. This study would be conducted beyond universities within the UNC System, particularly 2-year colleges and private higher education institutions across the United States.

3. While conducting this study, there were a few more questions that could have been asked to fulfill the totality of this study. Questions such as: Did the instructor receive training before, during, or after training? What levels (undergraduate or graduate) of online instruction was taught? What are the subject areas taught? Were the instructors
classified as adjunct, assistant, associate, or full professor, etc.? These questions would have enhanced the research and possibly, had a different outcome. Another quantitative research on faculty development and DE training would be essential in the next five to ten years. Since technology changes rapidly and DE has become one of the largest forms of instruction utilized (amongst many higher education institutions), another study in a few more years would definitely benefit the development of online educators.

4. A qualitative study would be conducted to focus on first year online instructors’ perceptions of online instruction; in addition to, identifying subject areas and levels of instruction (i.e. undergraduate, graduate, etc) and determining gender difference within the various subject areas as well as levels of instruction. After reading the literature review for this study, only one author mentioned a mentoring program or having a mentor available for first year online instructors.

5. The researcher would expand this research to predominately DE higher education institutions (i.e. University of Phoenix, Kaplan University, Walden University, Strayer University Online, Capella University, just to name a few) to determine the learning outcome of individuals who study at institutions created particularly for online instruction than those who are not.

6. The last recommendation would include a research study to compare various subject matter areas of instructors’ teaching online and/or hybrid courses and their levels of technical competencies.
REFERENCES


International Technology Education Association. (2000). *Standards for technological*


MacKenzie, O., Christensen, E., & Rigby, P. (1968). Correspondence instruction in the united states: A study of what it is, how it functions, and what its potential may


Appendix A

List of Universities within the UNC System
List of Universities within the UNC System

1. Appalachian State University
2. East Carolina University
3. Elizabeth City State University
4. Fayetteville State University
5. North Carolina A&T State University
6. North Carolina Central University
7. North Carolina State University
8. UNC at Asheville
9. UNC at Chapel Hill
10. UNC at Charlotte
11. UNC at Greensboro
12. UNC at Pembroke
13. UNC at Wilmington
14. Western Carolina University
15. Winston-Salem State University

Please note: There are a total of 17 Institutions within the UNC System. One (UNC School of the Arts) does not have a DE Program and the other (NC School of Science and Mathematics) is a non-higher education institution. Thus, both institutions were not used in this study.
Appendix B

Response Rate by Institution
<table>
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<th>Institution</th>
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<th>%</th>
<th>Completed Responses</th>
<th>%</th>
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<td>2%</td>
<td>9</td>
<td>3%</td>
</tr>
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<td>East Carolina State</td>
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<td>18%</td>
<td>46</td>
<td>15%</td>
</tr>
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<td>5%</td>
<td>15</td>
<td>5%</td>
</tr>
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<td>21</td>
<td>7%</td>
</tr>
<tr>
<td>North Carolina A&amp;T State University</td>
<td>106</td>
<td>9%</td>
<td>23</td>
<td>8%</td>
</tr>
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Appendix C

Pre-notice Letter
February 3, 2009

Greetings:

My name is Makia R. Tillman and I’m currently a doctoral candidate at North Carolina State University majoring in Technology Education and minoring in Adult & Community College with an emphasis in Training and Development.

I am in the process of conducting my main study for my dissertation and am requesting your participation. In a couple of days, I will send an email with a link to an online survey (that should take no longer than twenty minutes or less) for you to complete.

The primary focus of this study is to determine whether the increase levels of technical competencies is a result of DE Training prior to teaching online courses or not. Other factors may contribute to the identified levels of competencies (i.e. the number of years teaching online courses, level of degree, etc.) which may influence the knowledge of individuals prior to teaching online courses. I have decided to study all universities within the UNC System with a DE program. Your names were provided by either a representative from your institution or retrieved from your institution’s website. This study is solely for individuals who have taught and are currently teaching online/ hybrid courses. If you have taught at least one online/hybrid course, you are qualified to take this online survey.

Your cooperation is greatly needed and appreciated.

Thank you in advance.

Best regards,

Makia R. Tillman, M.Ed.
Appendix D

IRB Approval Letter

IRB Informed Consent

Consent Form
From: Joseph Rabiaga, IRB Coordinator  
North Carolina State University  
Institutional Review Board

Date: May 28, 2008

Project Title: Distance Education: Recognizing the Competency Levels of Online Instructors During DE Training Prior to Teaching Online Courses

IRB#: 222-08-5

Dear Makan,

The research proposal named above has received administrative review and has been approved as exempt from the policy as outlined in the Code of Federal Regulations (Exemption: 46.101 b.2). Provided that the only participation of the subjects is as described in the proposal narrative, this project is exempt from further review.

NOTE:

1. This committee complies with requirements found in Title 45 part 46 of The Code of Federal Regulations. For NCSU projects, the Assurance Number is: FWA00003429.

2. Any changes to the research must be submitted and approved by the IRB prior to implementation.

3. If any unanticipated problems occur, they must be reported to the IRB office within 5 business days.

Please provide a copy of this letter to your faculty advisor.

Sincerely,

Joe Rabiaga  
NCSU IRB
North Carolina State University  
INFORMED CONSENT FORM for RESEARCH

Title of Study  
Distance Education: Recognizing the Competency Levels of Online Instructors during DE Training prior to Teaching Online Courses

Principal Investigator  
Makia R. Tillman

Faculty Sponsor (if applicable)  
Dr. Terri E. Varnado

We are asking you to participate in a research study.

The purpose of this study will focus on the technological roles of online instructor receiving training prior to teaching an online course. The article entitled, *Master Online Teacher Competencies* (Varvel, 2007), identified 247 competencies online instructors should possess while teaching online courses (Appendix A). For the purpose of this study, online instructors will provide the researcher their interpretation of the identified competency and outline the pro’s and con’s to receiving DE training prior to teaching online courses.

INFORMATION
If you agree to participate in this study, you will be asked to:

✓ Complete a thirty-five question (anonymous) online survey  
  o The survey should take approximately thirty to forty-five minutes
✓ Provide suggestions, comments, recommendations, etc. for each question  
(Pilot Study Participants ONLY)

RISKS

Potential risks and/or discomforts are not foreseeable for this study.

BENEFITS

The information submitted by the prospective individuals should provide a wealth of knowledge that is applicable and attainable for those who are teaching and/or will teach online/hybrid courses. In order to improve online education, these types of studies must be offered to receive information of the present concerns and issues in this area. The participation of each individual is definitely needed to assist with the growth and future effects of distance education.

CONFIDENTIALITY
The information in the study records will be kept strictly confidential and anonymous. Data will be stored securely in a statistical software program and will only be used for this study; in addition, the information provided by each participant will not include personal information (i.e. name, email, etc.); therefore, it will not be traced back to any participant. Again, no references will be made in oral or written reports which could link to an individual in this study.

COMPENSATION (if applicable)

A compensation will not be included with this study.

EMERGENCY MEDICAL TREATMENT (if applicable)

N/A

CONTACT

If you have questions at any time about the study or the procedures, you may contact the researcher, Makia R. Tillman, at, [919.513.0037 or 786.382.4213]. If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. David Kaber, Chair of the NCSU IRB for the Use of Human Subjects in Research Committee, Box 7514, NCSU Campus (919/515-3086) or Mr. Matthew Ronning, Assistant Vice Chancellor, Research Administration, Box 7514, NCSU Campus (919/513-2148)

PARTICIPATION

Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study before data collection is completed your data will be returned to you or destroyed at your request.

CONSENT

“I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may withdraw at any time.”

Subject's signature __________________________ Date ________________

Investigator's signature ________________________ Date ________________
Appendix E

Web Page Consent Form
Consent for DE Training and Technical Competencies Online Survey

North Carolina State University INFORMED CONSENT FORM for RESEARCH

Title of Study Distance Education: Recognizing the Competency Levels of Online Instructors during DE Training prior to Teaching Online Courses

Principal Investigator: Makia R. Tillman

Faculty Sponsor: Dr. Terri E. Varnado

We are asking you to participate in a research study. The purpose of this study will focus on the technological roles of online instructor receiving training prior to teaching an online course. The article entitled, Master Online Teacher Competencies (Varvel, 2007), identified 247 competencies online instructors should possess while teaching online courses. The primary focus of this study is to determine whether the increase levels of technical competencies is a result of DE Training prior to teaching online courses or not. Other factors may contribute to the identified levels of competencies (i.e. the number of years teaching online courses, level of degree, etc.) which may influence the knowledge of individuals prior to teaching online courses.

INFORMATION If you agree to participate in this study, you will be asked to: 1. Complete a thirty-five question (anonymous) online survey 2. The survey should take approximately fifteen to twenty minutes to complete.

RISKS Potential risks and/or discomforts are not foreseeable for this study.

BENEFITS The information submitted by the prospective individuals should provide a wealth of knowledge that is applicable and attainable for those who are teaching and/or will teach online/hybrid courses. In order to improve online education, these types of studies must be offered to receive information of the present concerns and issues in this area. The participation of each individual is definitely needed to assist with the growth and future effects of distance education.

CONFIDENTIALITY The information in the study records will be kept strictly confidential. Data will be stored securely in a statistical software program and will only be used for this study. No references will be made in oral or written reports which could link to an individual in this study.

COMPENSATION (if applicable) A compensation will not be included with this study.

EMERGENCY MEDICAL TREATMENT (if applicable) N/A
**CONTACT** If you have questions at any time about the study or the procedures, you may contact the researcher, Makia R. Tillman, at, [919.513.0037 or 786.382.4213]. If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Deb Paxton, Regulatory Compliance Administrator, Box 7514, NCSU Campus (919/515-4514) or Joe Rabiega, IRB Coordinator, Box 7514, NCSU Campus (919/515-7515).

**PARTICIPATION** Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study before data collection is completed your data will be returned to you or destroyed at your request.

**CONSENT** “I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may withdraw at any time.”

Please note: Your name or other information you provide cannot be linked to your survey responses.

1. Enter your name or initials here: (optional)

Submit
Appendix F

First Email for Main Study

Email for Main Study Revised
February 10, 2009

Greetings:

My name is Makia R. Tillman and I’m currently a doctoral candidate at North Carolina State University majoring in Technology Education and minoring in Adult & Community College with an emphasis in Training and Development.

The primary focus of this study is to determine whether the increase levels of technical competencies is a result of DE Training prior to teaching online courses or not. Other factors may contribute to the identified levels of competencies (i.e. the number of years teaching online courses, level of degree, etc.) which may influence the knowledge of individuals prior to teaching online courses. I have decided to study all universities within the UNC System with a DE program. Your names were provided by either a representative from your institution or retrieved from your institution’s website. This study is solely for individuals who have taught and are currently teaching online/ hybrid courses. If you have taught at least one online/hybrid course, you are qualified to take this online survey.

Before moving forward (if you qualify to participate), I have attached the following:

- Consent form

Please electronically sign (typing your initials or full name in the space provided) the consent form prior to participating in the online survey and send back to me at Makia_Tillman@ncsu.edu.

The online survey link is: http://ceres.cals.ncsu.edu/surveybuilder/Form.cfm?testID=6962

If possible, please complete the online survey by Tuesday, March 3, 2009.

Your cooperation is greatly needed and appreciated.

Thank you in advance.

Best regards,

Makia R. Tillman, M.Ed.
February 17, 2009

Greetings:

My name is Makia R. Tillman and I’m currently a doctoral candidate at North Carolina State University majoring in Technology Education and minoring in Adult & Community College with an emphasis in Training and Development.

The primary focus of this study is to determine whether the increase levels of technical competencies is a result of DE Training prior to teaching online courses or not. Other factors may contribute to the identified levels of competencies (i.e. the number of years teaching online courses, level of degree, etc.) which may influence the knowledge of individuals prior to teaching online courses. I have decided to study all universities within the UNC System with a DE program. Your names were provided by either a representative from your institution or retrieved from your institution’s website. This study is solely for individuals who have taught and are currently teaching online/ hybrid courses. If you have taught at least one online/hybrid course, you are qualified to take this online survey.

I have attached the following for your convenience:

- Letter requesting your assistance

The link (below) will direct you to the consent information. Upon clicking Submit, you will be re-directed to the main online survey.

http://ceres.cals.ncsu.edu/surveybuilder/Form.cfm?testID=7099

If possible, please complete the online survey by Tuesday, March 3, 2009.

Your cooperation is definitely needed and appreciated.

Thank you in advance.

Best regards,

Makia R. Tillman, M.Ed.
Appendix G

First Email Reminder
Greetings:

I am sending a friendly reminder requesting your assistance to complete an online survey. If you have already completed the survey, thank you in advance.

---

Greetings:

My name is Makia R. Tillman and I’m currently a doctoral candidate at North Carolina State University majoring in Technology Education and minoring in Adult & Community College with an emphasis in Training and Development.

The primary focus of this study is to determine whether the increase levels of technical competencies is a result of DE Training prior to teaching online courses or not. Other factors may contribute to the identified levels of competencies (i.e. the number of years teaching online courses, level of degree, etc.) which may influence the knowledge of individuals prior to teaching online courses. I have decided to study all universities within the UNC System with a DE program. Your names were provided by either a representative from your institution or retrieved from your institution’s website. This study is solely for individuals who have taught and are currently teaching online/ hybrid courses. If you have taught at least one online/hybrid course, you are qualified to take this online survey.

I have attached the following for your convenience:

- Letter requesting your assistance

The link (below) will direct you to the consent information. Upon clicking Submit, you will be re-directed to the main online survey.

[http://ceres.cals.ncsu.edu/surveybuilder/Form.cfm?testID=7099](http://ceres.cals.ncsu.edu/surveybuilder/Form.cfm?testID=7099)

If possible, please complete the online survey by **Tuesday, March 3, 2009**.

Your cooperation is definitely needed and appreciated. Thank you in advance.

Best regards,

*Makia R. Tillman, M.Ed.*
Appendix H

Final Email Notification
To [Name of Higher Education Institution] Online Faculty:

This email is a sincere request of you to assistance with my study. If you have taught a(n) online/ hybrid course, please take a few minutes to complete this online survey.

The link (below) will direct you to the consent information. Upon clicking the 'Submit' button, you will be directed to the survey.

http://ceres.cals.ncsu.edu/surveybuilder/Form.cfm?testID=7099

If possible, please complete by **Tuesday, March 3, 2009.** This survey should take no more than 15 minutes to complete.

***Please note: If you have already taken the online survey and received this notice twice, disregard this email. Thank you for your participation***

Your cooperation is needed and appreciated.

Thank you in advance.

Best regards,

Makia R. Tillman, M.Ed.

--
Makia R. Tillman, M.Ed. :)  
Administrative Support Specialist  
North Carolina Cooperative Extension  
Personal and Organizational Development  
NC State University  
College of Agriculture and Life Sciences  
Box 7569/320 Ricks Hall  
Raleigh, NC 27695-7569, USA

Phone: (919) 513-0036  
Fax:   (919) 513-1242  
Email: Makia_Tillman@ncsu.edu
Appendix I

Online Survey for Main Study
Distance Education (DE): Recognizing the Levels of Competencies through DE Training

Please fill in the blank by clicking the appropriate box. Only one answer per option should be selected; unless, otherwise indicated!

Your responses are anonymous.

Please note: The time frame for the following questions is within a course of a year (preferably Fall and Spring semesters).

1. Have you received DE training prior to teaching your first online course?
   - [ ] Yes
   - [ ] No

2. How many DE courses have you taught at your employer (including this semester)?
   - [ ] 0-1
   - [ ] 2-3
   - [ ] 4-5
   - [ ] 6-7
   - [ ] 8+

3. How long (in years) have you taught online/hybrid courses?
   - [ ] 0-1
   - [ ] 2-3
   - [ ] 4-5
   - [ ] 6-7
   - [ ] 8+

4. What is your gender?
   - [ ] Male
   - [ ] Female

5. What is your age group?
   - [ ] Under 20
6. What is the highest level of education you have completed?
   - Some college
   - 4-year degree
   - Some graduate school
   - One graduate degree
   - Some post-graduate school
   - Doctorate degree
   - Some post-doc work

7. Please provide your current employer
   - Appalachian State University
   - East Carolina University
   - Elizabeth City State University
   - Fayetteville State University
   - North Carolina A&T State University
   - North Carolina Central University
   - North Carolina State University
   - UNC at Asheville
   - UNC at Chapel Hill
   - UNC at Charlotte
   - UNC at Greensboro
   - UNC at Pembroke
   - UNC at Wilmington
   - Western Carolina University
   - Winston-Salem State University
8. What was the average DE training class size for most of your training?
   - 1-9
   - 10-19
   - 20-29
   - 30+
   - Does not apply

9. Which Learning Management System (LMS) best describes what was used during your training?
   - Blackboard
   - Web CT /Vista
   - Moodle
   - Desire2Learn
   - Other

<table>
<thead>
<tr>
<th>Please select the best choice to the following questions as it relates to your DE training experiences prior to teaching online courses.</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Undecided</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. I have taken advantage of the DE trainings offered at my institution.</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>11. Accessibility to a computer is standard for each individual.</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>12. Having access to the Internet is normal for my institution.</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>13. Having access to (at least) one of the learning management systems is normal for my institution.</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>14. Having access to information for those with disabilities was adequately covered in this training.</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>15. The DE training received was beneficial to my teaching needs.</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>☑</td>
<td>☑</td>
</tr>
</tbody>
</table>
16. I acquired adequate knowledge to effectively teach online courses.

<table>
<thead>
<tr>
<th>Beginner</th>
<th>Intermediate</th>
<th>Advanced</th>
</tr>
</thead>
</table>

17. My DE training instructor did not provide enough information for me to begin my first online course.

<table>
<thead>
<tr>
<th>Beginner</th>
<th>Intermediate</th>
<th>Advanced</th>
</tr>
</thead>
</table>

18. My employer provides enough resources for me to become a better online instructor.

<table>
<thead>
<tr>
<th>Beginner</th>
<th>Intermediate</th>
<th>Advanced</th>
</tr>
</thead>
</table>

19. My DE training experience provided me enough information to be an effective online instructor.

<table>
<thead>
<tr>
<th>Beginner</th>
<th>Intermediate</th>
<th>Advanced</th>
</tr>
</thead>
</table>

For questions (20-32), please respond to each question as it relates to your level of expertise.

20. Level of technical experience with Internet "tools" (Bulletin Boards, Newsgroups, Electronic lists, etc.)
   - Beginner
   - Intermediate
   - Advanced

21. Level of experience with computer software programs (i.e. LMS, etc.) specifically for online education?
   - Beginner
   - Intermediate
   - Advanced

22. Level of various Web browsing software (i.e. Internet Explorer, Mozilla Firefox, Safari, Opera, etc.)
   - Beginner
   - Intermediate
   - Advanced

23. Experience browsing and searching the Web.
   - Beginner
   - Intermediate
24. Experience printing from a web browser.
   - Beginner
   - Intermediate
   - Advanced

25. Experience of changing settings (i.e. security, font size, etc.) within a browser.
   - Beginner
   - Intermediate
   - Advanced

26. Experience troubleshooting typical issues that may arise with browsers.
   - Beginner
   - Intermediate
   - Advanced

27. Level of HTML
   - Beginner
   - Intermediate
   - Advanced

28. Level of modifying content within the Learning Management System.
   - Beginner
   - Intermediate
   - Advanced

29. Level of managing students' activities within the Learning Management System (i.e. place students within groups, enter student grades, provide feedback for assignments, upload announcements and instructions at its proper location, etc.)
   - Beginner
   - Intermediate
   - Advanced
30. Level of managing asynchronous and synchronous communication programs (i.e. emails, etc.)
   - Beginner
   - Intermediate
   - Advanced

31. Level of managing computer operating systems (security updates, virus scanning software, etc.)
   - Beginner
   - Intermediate
   - Advanced

32. Level of other computer programs and hardware as required by the course being taught.
   - Beginner
   - Intermediate
   - Advanced

Please respond to the following statements pertaining to the "technical assistance" you have received during DE training. As an online instructor, I have ____________

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Undecided</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>33. assisted students with technology support.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34. a strong enough understanding of technology that I am able to assist students with basic technical issues while referring more difficult issues to the technical support person.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35. provided basic assistance in the use of technology to support the needs of learners with disabilities.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>