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Factors Associated with Successful High School Distance Education Programs.

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Factors Associated With Successful High School

Distance Education Programs

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A dissertation

presented to

the faculty of the Department of Educational Leadership and Policy Analysis

East Tennessee State University

In partial fulfillment

of the requirements for the degree

Doctor of Education

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by

Kathy Murphy

May 2005

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Dr. Nancy Dishner, Chair
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Dr. Elizabeth Ralston
Dr. Terry Tollefson
Dr. Russell West

Keywords: Online Education, Online Learning, Internet Use, Successful Practices, E-Learning,

CyberSchool, Face-to-Face

ABSTRACT

Factors Associated With Successful High School

Distance Education Programs

by

Kathy Murphy

The purposes of this research project were to identify the extent to which online courses are

available to high school students in Tennessee, to describe the characteristics of current online

programs, to identify barriers to the implementation of online courses in school systems that are

not currently offering such programs, and to offer recommendations that could facilitate

implementation of these programs. The research went in two directions. A study of past and

current online educational programs was completed in order to learn the nature of successful

programs across the country. Then, a survey was constructed and sent to appropriate technology

personnel in Tennessee schools to evaluate both their current online programs and to determine

those needed in the state.

There are only two school systems in Tennessee that allow students to earn online credits to be

used towards high school graduation. One is a larger school system and the other is a medium

sized school system; both are in the eastern region of the state. One survey respondent summed

it up by saying:

> I really think the State Department of Education should step up and provide some
> direction. Florida has a vanguard program; I'd like to see the same type of program
> implemented in Tennessee. If individual school districts are left to design their own
> programs, then there is going to be a lot of duplicated effort, a wide range of
> implementation strategies, and varying degrees of quality. That's likely to breed
> confusion and disillusionment.

DEDICATION

This research project is dedicated to the memory of my mother,

Virginia Lauderdale Smith.

Without her monetary and moral support and also her encouragement, I would never have begun

on this journey. I know you are looking down with a smile on your face as I walk across that

stage. I miss you every day!

To my dad,

Lamar Smith.

Thank you for continuing to encourage me to complete this project.

Finally to my children,

Keri and Micah.

Thank you for your love, support, and encouragement.

Your love and support has kept me on the right track to achieve this educational goal.

I love you all!

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 Also, I give a great big thank you to my committee, Dr. Glenn Bettis, Dr. Elizabeth Ralston, Dr. Terrence Tollefson, Dr. Nancy Dishner, and Dr. Russell West. Thank you for your patience and guidance throughout this process. Dr. Tollefson, thank you for stepping in at the last minute.

I am extremely grateful to Dr. Dishner for stepping up to chair my committee after the untimely death of Dr. West. Thank you, Dr. Dishner for all you have done!

Finally, a very special thank you goes to Dr. Susan Twaddle and Jeanette Schlaeger. Your help with statistics, grammar, and your moral support have helped me to move on with this project. Thank you!

CONTENTS

Chapter	Page

LIST OF TABLES

CHAPTER 1

INTRODUCTION

In recent years, the virtual explosion in the number of people having computers and Internet service brought about possibilities in communication and education that were not envisioned a generation ago. The popularity of the Internet increased the number of homes, schools, and businesses with computers that had Internet connections. In turn, widespread access to the Internet in homes increased the opportunities that arose with distance education. The availability of various types of computers and Internet services allowed parents, students, and employees to take courses using their computers with an Internet hookup.

Distance education, distance learning, e-learning, and online learning/education are terms used synonymously to describe alternative methods of educating the public using the Internet. In a PBS glossary, distance education was defined as, "The concept of a student and instructor separated by time and distance using technology to complete instruction" ("ABC's of Distance Learning," 2001, p. 2). Although the terms distance education and distance learning are fairly new, they cover a variety of past and present educational innovations some of which have been successful whereas others have failed.

The earliest type of distance education began with correspondence courses dating as far back as the 1700s. The 1800s continued with correspondence courses by offering courses that encouraged women to participate in this form of learning. In the 1900s came the radio, television, and telephone conferences. The next advances in distance education were instructional films, instructional radio, instructional television, computers, audio conferences, and teleconferences. With the invention of the Internet, educators made great strides by offering university and high school courses online (Jeffries, 2002).

Brandao (2002) of the Florida Virtual School described distance learning in this way:

Distance learning is not new, but the ways in which it is delivered today and its potential are quite different from distance learning of the past. The ready access to people and informational resources brought on by the rapid changes in communication technologies has dramatically changed our lives. The use of communications media and networks, particularly the Internet and the World Wide Web, are breaking down classroom walls and allowing students to view the world in a new way. Nowhere is this more dramatic than in the potential offered by distance learning. (p. 2)

Why have educators considered distance learning? It has broadened the curriculum as well as interests. It has been used for training or workshop opportunities; it has been used by the military, and it has been used for alternative/home school opportunities. Distance learning can take place at home or at work. An individual does not have to get out of his or her pajamas in order to go to class.

Colleges and universities were among the first to use computers and the Internet by offering individual courses. Students have completed entire college degree programs solely through online courses that were both numerous and available from a variety of sources. Most of these courses required weekly assignments on the computer as well as offline course requirements signaling that they were asynchronous in that communications did not take place simultaneously or synchronously.

The University of Phoenix was founded in 1976 and accredited in 1978 by the North Central Association of Colleges and Schools ("University of Phoenix Online FAQ's," 2001). It was one of the first accredited universities to offer complete degree programs via the Internet. The University of Phoenix grew to be the nation's largest private university, offering 100% of its degree programs online for a bachelor's degree, master's degree, or a doctoral degree. According to their website, 171,600 individuals have earned their degree since 1976 ("University of Phoenix Online FAQ's").

At the University of Phoenix, students can choose how they earn degrees. They can attend classes entirely on campus, use online or distance learning courses, or use a combination of both, called FlexNet®. Students using FlexNet courses meet on campus the first and last

weeks of class. During the weeks between, students work in learning teams to complete their course requirements. For the online courses, students are required to sign on at least five times a week and post comments twice a week to meet partial course requirements (University of Phoenix Online, 2002; "University of Phoenix Online FAQ's," 2001)

The University of Phoenix advertises extensively on TV, radio, and through traditional mail. The university online program has been 100% online, including registration, ordering books, and interacting with other students and teachers. Students can complete their programs quicker by taking one class every five to six weeks. By completing their coursework in this manner, students can earn up to 27 credits per year. Student testimonials on their website included a mother with three children, a professional who was looking for an MBA with an international focus, and two different professionals who traveled a majority of the time and needed a nontraditional program that allowed them to participate from anywhere in the world (University of Phoenix Online, 2002).

Numerous other colleges and universities offer online courses; thus, entire programs can be achieved through distance education. The *Guide to Distance Learning Programs* (2001) listed schools that offer coursework through distance education. East Tennessee State University (ETSU) in Johnson City, Tennessee, has offered courses through distance education since 1991. In 1999, 1,400 students were enrolled in distance education courses through ETSU. The Office of Distance Education at ETSU indicated that in the fall of 2004, 1,640 students were enrolled and currently there are 1,920 enrolled in the 100 undergraduate programs and/or graduate classes in several curricular areas (P. Westington, personal communication, 2005). A master's degree in business administration has been the only degree that ETSU offers entirely through distance education (*Guide to Distance Learning Programs*).

In 2004, ETSU offered over 100 courses per semester and four undergraduate degree programs that were completely online. They were general studies, interdisciplinary studies, professional studies, and leadership. Through ETSU's website, there is a support site for distance

education courses and services. Another page lists the technical requirements for students of online courses and explains requirements to successfully complete an online course. In addition, an online learning self-assessment quiz is available for prospective students to take to determine if online learning is for them (ETSU, 2004).

Purdue University in West Lafayette, Indiana, has offered some form of distance education since 1965. Purdue University is a state-supported school accredited by the North Central Association of Colleges and Schools. During the fall of 1999, there were 1,300 students enrolled in 28 distance education courses. In the 2002-2003 school year, 13,120 students were enrolled in 136 distance-learning programs and 1,708 students were enrolled in 74 credit programs. The remaining students were enrolled in noncredit courses (Purdue University, 2003).

There are many online program options for students attending Purdue University. Students can choose four graduate degree programs and one undergraduate program including the Krannert executive master's degree program, executive master's in agribusiness, weekend master's in technology, cohort doctoral program, and the veterinary technology distance learning program. All requirements for these programs are offered online and are designed specifically to meet the needs of students who are employed. Students can also choose to take courses outside of these degree areas based upon availability. A distance learning advisory board for Purdue University was created in December 1997. The membership of this board consisted of faculty and administration from all Purdue campuses. Their duty was to identify and resolve problems, identify and find resources, and promote distance learning strategies ("Guide to Distance Learning Programs," 2001; Purdue University, 2003).

Liberty University in Lynchburg, Virginia, is a Christian school accredited by both Southern Association of Colleges and Schools and Transnational Association of Christian Colleges and Schools. Online degrees can be earned for an associate's degree, bachelor's degree, and master's degree in several areas. According to William Floyd of Liberty University, there were 20 online degrees possible (W. Floyd, personal communication, 2004). Each online

degree entails some type of on-campus requirements. Liberty University offered its first distance education course in 1985 and by 1999, there were nearly 1,400 students enrolled in distance education. In 2003-2004, there were 10,774 different students who took at least one online course at Liberty University totaling 32,574 online courses taken ("Guide to Distance Learning Programs, 2001"; W. Floyd, personal communication).

In addition to the college coursework available through the Internet, the concept of distance education began to surface in public and private primary and secondary schools. Nationwide, kindergarten through grade 12 schools began offering opportunities that included high school programs and diplomas through distance education; however, kindergarten through grade 12 programs were not as widely available as the college and university opportunities. Projections indicated that the number of students taking courses through web-based learning would grow from 2.1 billion in 2001 to 33.6 billion in 2005. In 2002, there were 40,000-50,000 kindergarten through grade 12 students enrolled in distance education classes (McLester, 2002). According to McLester, "Everybody from American Express to Stanford University, Oracle to U.S. Coast Guard, is using some form of online learning to educate and train" (p. 1).

A study by the Distance Learning Resource Network (McLester, 2002) indicated that there were at least 14 states with planned virtual high schools in place. There were 15 states with schools or academies offering individual courses or entire programs on the Internet. There were a few virtual schools available that were not affiliated with a particular state, such as the Futures International High School and the All American High School. Some of the states with online programs or courses included Alaska, Nebraska, Hawaii, Utah, Oregon, Colorado, Kansas, New York, Virginia, North Carolina, Illinois, Pennsylvania, Kentucky, Michigan, Washington, California, and Florida. Florida's Virtual School's motto is "anytime, any place, any path, any pace" (McLester, p. 3). According to McLester, their mission is three-fold: to relieve overcrowded schools, to "meet the demands for high-needs courses" when staff is unavailable, and to "make honors and advanced placement classes available" for rural districts (p. 3). The

15

Florida Virtual School (2001) offers at least 60 courses online. Several of the websites for the online schools have offered their brochures through downloading from the Internet.

CompuHigh (2003), headquartered in Michigan, was noted as the world's first Online High School. CompuHigh has met compliance with the Michigan Department of Education's state regulations. Their certificate of accreditation has been posted online.

Laurel Springs School, based in Ojai, California, offers kindergarten to grade 12 curriculums for distance learning opportunities. The high school is accredited, and they offer over 60 online courses, including honors courses, that enable students to receive University of California credit. Students have the flexibility of general education requirements or college preparatory requirements (Laurel Springs School Website, 2003).

Technology in kindergarten through grade 12 is varied in the public and private sectors across the nation. Some teachers have refused to incorporate technology, whereas others are changing the ways in which they complete some of their tasks and teaching. Still others changed their whole approach to teaching in order to take full advantage of technology available in the classroom. Because young people have been brought up with computer technology, teachers and curriculum coordinators need to adapt their programs to help keep students on task in the classroom.

According to Reyes and Bradley (2000), distance learning is imperative for students in Alaska because their state is so vast, rural, and has extreme weather conditions. These elements can make getting to a specific school building difficult and sometimes even impossible. Because so much of Alaska is rural, several towns and villages do not have roads. Alaska is more than twice the size of Texas (Reyes & Bradley). The North Slope Borough School District has long been the largest school district in geographic dimension in the nation. Students travel by snow sleds, snowmobiles, or small aircraft to get to schools; this condition can make getting an education difficult (North Slope Borough School District, 2001). Distance learning is a partial solution to this problem. Some educators in Alaska developed their own distance education

programs whereas other systems use courses from the University of Nebraska, Indiana University, North Dakota University, and the American School. The Juneau Cyber School provides computers for their students' use with a minimal deposit. They also offer training workshops for interested parents (Juneau Cyber School, 2003).

Regarding Tennessee's distance education opportunities, there was a limited amount of information about the availability of kindergarten through grade 12 programs. Online programs could offer solutions to several current deficiencies in secondary education in Tennessee. Distance education could enable interested students to take courses that are currently unavailable to them. It could allow students who attend alternative schools with limited high school course opportunities to broaden their curriculum opportunities or interests. An alternative school is defined as "A school that is nontraditional especially in educational ideals, methods of teaching, or curriculum" (*American Heritage Dictionary*, 2000, p. 1). In addition, there are homeschooled students who might be willing to register for distance education classes. There are also the students who move into a new area during the middle of the school year; with the differences in traditional and block schedules, distance education might help them to stay on track with their graduation schedule. Another possibility could be for courses having a low enrollment or those for which it is hard to find staff members to teach. In this study, the focus was on high schools students using the Internet to complete high school courses or to complete entire programs.

Statement of the Problem

Technology is continuously changing and improving. Methods of achieving an education could also change because of the availability of more distance education opportunities. Which schools in Tennessee are using distance education and why are these programs successful? The purpose of this study was to identify the extent to which online courses were available to high school students in Tennessee, to describe the characteristics of current online programs, and to identify barriers to the implementation of online courses in school systems that were not offering

17

such programs at the time of the study. The significance of the study is to determine the factors that make a successful distance education program. For this study, distance education will include only web-based online courses.

Research Questions

The research questions for this study include the school system technology directors' perceptions of online high school classes. The following research questions were explored:

1. To what extent are online courses being offered in Tennessee's high schools?

2. Are there differences between school systems that offer online courses and those that do not in terms of (a) geographic regions of Tennessee, (b) size of the school systems, and (c) per-pupil expenditure?

3. Among technology directors, what are the most frequently given reasons for which students might consider taking an online course?

4. What discipline areas do technology directors believe should be available online?

5. What are the perceived barriers to the implementation of online programs?

6. Are there differences in the perceived barriers to the implementation of online programs in terms of geographic region, size of the school system, and per-pupil expenditure?

7. Among schools that are offering online courses, what are the positive characteristics of the online programs?

Definitions of Terms

1. *Asynchronous*: "Communication in which interaction between parties does not take place simultaneously" ("Glossary of Selected Distance Learning Terms," 2000, p. 1).

2. *Correspondence Course*: "Print-based coursework that is completed by a learner at home at his or her own convenience but usually within a set timeframe. All

assignments are completed independently" (Center for Lifelong Learning Glossary, 2000, p. 1).

3. *Credit course*: "A class with specified learning goals which the student is required to meet in order to pass the course and that may be applied toward the fulfillment of degree requirements at a college or university" (Center for Lifelong Learning Glossary, p. 1).

4. *Degree program*: "An organized sequence of classes that leads to the awarding of a college degree at the undergraduate or graduate level" (Center for Lifelong Learning Glossary, p. 1).

5. *Distance Education*: "The concept of a student and instructor, separated by time and distance, using technology to complete instruction" ("ABC's of Distance Learning," 2001, p. 2).

6. *Internet*: "A world-wide network of interconnections which allows computer users to exchange electronic mail and access host computers at a distance, including host computers providing sites on the Web (Center for Lifelong Learning Glossary, p. 1).

7. *Internet Courses*: "Students participate in the class by using the Internet for all or part of the coursework. The instructor posts the class work on a Web page. Communication between students and instructors occurs by mail" ("Glossary of Selected Distance Learning Terms," p. 6).

8. *Multimedia*: "Systems that support the interactive use of text, audio, still images, video, and graphics. Each of these elements must be converted in some way from analog form to digital form before they can be used in a computer application" ("Glossary of Selected Distance Learning Terms," p. 8).

9. *Online Education*. "The separation of teachers and learners which distinguishes it from face-to-face education; the influence of an educational organization which distinguishes it from self-study and private tutoring; the use of a computer network to

present or distribute some educational content; the provision of two-way

communication via a computer network so that students may benefit from

communication with each other, teachers, and staff" (Paulsen, 2003, p. 1)

10. *Real Time*: "An application in which information is received and immediately

    responded to without any time delay" ("Glossary of Selected Distance Learning

    Terms," p. 8).

11. *Synchronous*: "A type of two-way communication that occurs with virtually no time

    delay, allowing participants to respond in real time" ("Glossary of Selected Distance

    Learning Terms," p. 9).

12. *Teleconference*: "Simultaneous conference to multiple sites distributed via audio"

    ("Glossary of Selected Distance Learning Terms," p. 9).

13. *Virtual School*. "An educational organization that offers kindergarten through grade

    12 courses through Internet or Web-based methods (Clark, 2001, n. p.).

Limitations

This study was limited to the state of Tennessee focusing on technology directors'

perceptions of online high school classes. Some of the technology directors were not willing to

participate. Many had multiple responsibilities and the survey might have reached them at a very

busy time of the school year. New personnel might have taken over during the school year and

perhaps did not feel confident in responding. Surveys were distributed by email addresses.

Limitations existed if the email addresses were not current on state web sites.

Distance education can include telecourses, video courses, Internet, or a combination of

all of the above. For the purpose of this study, distance education included only web-based

online courses. Classes that used web enhancements were not included. Therefore, the results of

this study may not be a true representation of distance education in Tennessee.

Overview of the Study

Chapter 1 presented an introduction, the statement of the problem, research questions, definitions of terms used in the study, and the limitations pertaining to the study. Chapter 2 presents the findings from the review of literature, including the history of distance education along with the advantages and disadvantages of distance education. Chapter 3 focuses on the methods and procedures portion of the study to determine the barriers associated with the development of successful distance education programs at the high school level. Chapter 4 presents the findings evaluated from the study. Chapter 5 contains a summary, findings from the research questions, conclusions, and recommendations for further research and to improve practice.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

Both students and school systems have different challenges in the fast-paced and diverse world of today. For this reason, students attending public schools in the United States need choices in how they earn their high school diplomas. Also, school systems need to find new and innovative ways to continue educating students. Administrators are facing a tremendous range of problems--such as growing enrollments, teacher shortages, overcrowded buildings, and decaying facilities--and limited finances with which to resolve them. The Internet can be used to address these educational problems. In the new millennium, millions of people are using the Internet; and half of them are in the United States. There is hope that the Internet will "center learning around the student instead of the classroom, focus on the strengths and needs of individual learners, and make lifelong learning a practical reality" (Web-Based Education Commission, 2000, p. iii). In addition, the Internet helps "empower every student and elevate each individual to new levels of intellectual capacity and skill" (p. 7).

The Web-Based Education Commission (2000) gave the following example showing that the Internet can be used successfully in public schools. In West Virginia, a school superintendent, Martha Dean, wanted her students to achieve beyond their basic education of reading, writing, and arithmetic. She chose a program, NETSchools, funded by Congress and e-rate funds that gave every student and teacher a laptop with infrared ports throughout the school. After only six months, students' test scores were up, and over 80% of the students were accessing the Internet daily. Dean stated, "Students who lack access to technology and the Web will become the second-class citizens of the future" (Web-Based Education Commission, p. 12).

McLester (2002) reported that Nora Matell, a senior from a remote area of California, took seven courses online. She maintained that an AP Statistics class created by Apex was the best of all seven of the online courses she had taken because it included "teacher email, chat, phone access, and an on-site mentor" (p. 7). Nora also stated that two of the biggest challenges in completing online courses were self-motivation and the ability to keep to a schedule. Nora recommended that students not procrastinate but instead work ahead. Nora noted that virtual schools should provide a mentor, include a community partner, and provide a phone line staffed so questions could be answered (McLester).

As noted by McLester (2002), a teacher who took a leave of absence in order to teach AP classes as an online instructor found that there were both positives and negatives in teaching online courses. McLester reported that the positives stated by the teacher included:

1. Life was more relaxed;

2. time was flexible; and

3. pay was good because it was per student. (p. 8)

McLester said the teacher gave negatives for teaching online courses including:

1. Participants missed their colleagues;

2. more hours were put in per course;

3. teachers missed the close relationship with parents and students; and

4. they had less job security. (p. 9)

Florida Virtual School has had one of the most successful online programs. As reported in Symonds (2003), the November 2003 issue of *Business Week Online* listed Florida Virtual School as being one of The Web Smart 50. Symonds (2003) reported that the Florida Virtual School, an internet-based public school, is seven years old and is the nation's largest statewide public online high school. It is accredited by the Commission on International and Trans-Regional Accreditation and Southern Association of Colleges and Schools. According to Symonds (2003), there are 150 certified teachers offering 75 courses including advanced

placement courses. Teachers who develop proven online courses are willing to license them to other school systems. The state of Florida fully funds the Florida Virtual School with an estimated cost of $8 million. All middle- and high-school students can attend Florida Virtual School free of charge (Symonds, 2003).

In the 2003-2004 school year, Florida Virtual School's enrollment was approximately 18,000. According to data on their web site, 61% of their students were female and 39% were male. The enrollment broken down by race showed that 70% of the population was White, nonHispanic; 11% was Hispanic; 8% was Black; and 4% was Asian. Of the students enrolled, 73% were public school students whereas 20% were homeschoolers. The Florida Virtual School students who took the national AP exams exceeded the national passing rate by nearly 9% (Florida Virtual School Website, 2001; Symonds, 2003).

What is Distance Education/Distance Learning?

A form of distance education has been around since the 1700s with the creation of correspondence courses. Many groups of educators have developed their own definition of distance education/distant learning. There is no real agreement as to the exact definition of distance learning. According to Gilbert (2001), the U.S. Department of Education noted:

> Distance learning is the acquisition of knowledge and skills through mediated information and instruction. Distance learning encompasses all technologies and supports the pursuit of life long learning for all. Distance learning is used in all areas of education, continuing education, corporate training, military and government training, and telemedicine. (p. 17)

Chute, Thompson, and Hancock (1999), in their glossary in *The McGraw-Hill Handbook of Distance Learning*, said the term distance learning was defined as "a system and a process of connecting learners with distributed learning resources" (p. 220).

Laws (2000) gave the definition, "Distance education, also known as distance learning, is simply learning from a distance, usually from home, or from a conveniently located off-campus site" (p. 2). Moore and Kearsley (1996) defined distance learning as:

Distance education is planned learning that normally occurs in a different place from teaching and as a result requires special techniques of course design, special instructional techniques, special methods of communication by electronic and other technology, as well as special organizational and administrative arrangement. (p. 2)

The California Distance Learning Project (2000) used the following definition:

Distance Learning (DL) is an instructional delivery system that connects learners with educational resources. DL provides educational access to learners not enrolled in educational institutions and can augment the learning opportunities of current students. The implementation of DL is a process that uses available resources and will evolve to incorporate emerging technologies. (p. 1)

In an online forum, students were asked to distinguish between distance education and distance learning. One person took the definitions of learning and education from an online dictionary and proposed an explanation to determine the difference between distance learning and distance education. This individual stated:

Learning can be thought of as the skills, knowledge, and abilities we gain along the way (present). Education can be thought of as what we have got when we have gained these skills, knowledge, and abilities (past). We are currently learning and when we are finished, we will have an education. In education, the END is always the same; the MEANS may be different. (C. Hall, personal communication, 2002)

History of Distance Education

Aspects of distance education can be traced all the way back to the early 1700s, when it was known as correspondence study (Jeffries, 2002). The history of distance learning can be divided into four generations.

First Generation of Distance Education

The first generation could be described as using correspondence/independent study. In 1840, the earliest known use of correspondence study was in Great Britain when Isaac Pittman taught shorthand using the "Penny Post" a name derived because at that time it cost a penny to mail a document in the United Kingdom ("A Brief History," 2002; Moore & Kearsley, 1996).

Correspondence/independent study occurred when a student completed the work alone on his or her own time schedule. The student registered for the class, was given the assignments along with the materials, and he or she completed the assignments. When the student completed all the work, it was mailed back to the instructor to be graded.

During the first distance education generation, the Chautauqua Institute in New York awarded degrees using correspondence/independent study courses. In addition, the International Correspondence School offered courses in mining safety for miners and railroad workers. According to Moore and Kearsley (1996), "ICS is the largest commercial provider of home study programs in the United States" (p. 21).

Women were not excluded. As noted by McIsaac and Gunawardena (2001), in the late 1800s, Anna Eliot Tichnor established a school, the Society to Encourage Studies at Home, intended to support women in home studies by providing materials, tutoring, and counseling. Tichnor offered 24 different courses in history, science, art, literature, French, and German. At one time, there were 1,000 students enrolled (McIsaac & Gunawardena). Over 7,000 students were enrolled at the school during its 24 years of operations (Moore & Kearsley, 1996).

Laws (2000) described that William Rainey Harper was ridiculed in the 1890s because of his correspondence course in Hebrew. Critics considered the course as an inferior education and as being of poor quality. Harper began teaching his Hebrew course by correspondence because he had numerous requests for the class. After success with this course, he taught at Chautauqua University in New York and organized the School of Languages ("Historical Overview of Distance Education," 2000; Moore & Kearsley, 1996).

Second Generation of Distance Education

There were two major developments during the second generation of distance education that occurred in the 1970s. The first was the Articulated Instructional Media (AIM), funded by the Carnegie Corporation during the 1960s. Charles Wedemeyer was the director of the project.

He combined various communication media, including study guides, radio, television, and recorded audio taped telephone conferences. The AIM project marked the first time that educational instruction was given through a variety of media (Moore & Kearsley, 1996).

Also in the 1960s and 1970s, the British government wanted a nationwide university through which students could obtain a full curriculum. The British Open University was designed and has since served as a model for similar programs (Moore & Kearsley, 1996). The use of technology supplemented print-based instruction by using well-designed courses that were closely monitored and successfully delivered to over 100,000 students (McIsaac & Gunawardena, 2001). The British Open University assigned a tutor to each student, tutoring both over the telephone and through group sessions ("Historical Overview of Distance Education," 2000).

The use of radio as a medium in the development of distance education has been traced back to 1917 when the University of Wisconsin began its broadcasts. Receivers were scarce because of their high costs; therefore, teachers used the radio only occasionally. In addition, during this generation, educational film was used to supplement the printed materials (Hunter, 1998).

Third Generation of Distance Education

The third-generation medium in the evolution of distance learning was broadcast media (radio and television). The use of radio as an educational delivery system proved to be a failure in the United States. There was little interest among university faculty and administrators. On the other hand, television courses were specifically developed for educational purposes with printed materials supplementing them. Educational television stations began to appear with the first in Texas in 1953 (Hunter, 1998).

As television sets began to appear by the millions in households during the mid 1900s, educational television became a new and prolific industry. There were over 400 programs

developed on a variety of subjects including hygiene and identifying constellations. After World War II, many commercial stations began creating educational programming. The Ford Foundation provided millions of dollars in grants for educational broadcasting.

Public schools and universities began using closed circuit TV to teach classes, and Instructional Television Fixed Service used microwaves to broadcast engineering courses. Based on the campus of the University of Kentucky, the first cable TV operation was required to provide an educational channel that has since evolved into the Learning Channel.

Audio conferencing was another method of broadcast medium that used public telephone lines. It did not require speakers and microphones and allowed distant groups to be connected. Educational Telephone Network, the oldest and largest provider of audio conferencing, was developed at the University of Wisconsin as an outcome of the AIM project. Eventually this network provided over 100 programs to 200 locations each week. In a method with two or more sites connected, the cost of the digital bridge was $4,000 per port; and the conferencing system was $1,500, plus long distance charges. The advantages included real time communications, equipment that was easy to use, and a moderate capital investment. The disadvantages of this method were the lack of a video and the telephone line charges that were expensive (Williams, Paprock, & Covington, 1999).

One-way video/two-way audio used a video and audio signal that originated from a television station. Two-way audio/two-way video made audio and video available at both locations. In picture phone teleconferences, phone lines sent both audio and video signals. With this type of conferencing, there was a video delay with normal audio. Interactive video conferencing allowed teachers to teach a class traditionally while concurrently instructing a distance group. This was usually a cost-effective way to deliver instructional materials. Teachers in kindergarten through grade 12 programs have used videos as a timesaving way to present information ("Historical Overview of Distance Education," 2000).

Satellites emerged in the 1960s. One satellite could offer telephone circuits or a television channel. In 2003, there were several satellites in orbit serving most countries of the world. In the 1990s, Direct Broadcast Satellite allowed individuals or institutions to receive programs directly. An individual could be in one location and visually communicate with a group in another location. Cable television and satellite transmissions have offered alternative methods for delivering instructional television. Cable companies could pick up the satellite transmissions and broadcast them on public access television ("Historical Overview of Distance Education," 2000). The cost for each satellite downlink was $1,000 to $10,000; subscription fees were $2,000 to $10,000; and cable installation was $18,000 to $25,000. The advantages included high-quality video, a variety of course availability, simplicity of use, and no geographical restrictions. The disadvantages included additional maintenance fees, curricula and scheduling decided by the provider, and the absence of two-way communications (Williams et al., 1999).

Individuals from each of the first three distance learning generations anticipated that their educational innovations would revolutionize education. Instructional films and radio appeared but they did not have the widespread success in the school systems. Then, there was television; however, World War II delayed its emergence and when it finally appeared in schools, there was very little difference in achievement. The failures of each generation's innovations were at least in part the result of the high cost of the equipment, poor reception in this early technology, scheduling difficulties, and both skepticism and insecurity in many teachers--both in the usefulness of the programs and in the teachers' abilities to operate the equipment.

Fourth Generation of Distance Education

The fourth generation began in the 1990s. Because of increases in the speed of equipment and the abundance of computer technology, distance education is becoming

29

acceptable with educators in both public schools and post-secondary schools. A variety of media can now be used in the delivery of coursework ("A Brief History," 2002).

Variations of Online High Schools

Five distinct types of online high schools have been found in the review of literature. Each has merits and weaknesses and, ultimately, variations of these are just around the corner.

State Established Online Schools

The first of these variations was the state-established school such as the Florida Virtual School the oldest state-established school in the nation. According to Clark (2001), it offers its courses to schools around the country. Most fees related to the online school were covered by the state (Clark).

Consortium

A consortium results when groups of public schools combine to offer courses not only to their own students but also to those in other schools as well. The Virtual High School (VHS) consortium has operated as a cooperative of 43 high schools in 13 states. Each cooperative donated at least 20% of a single teacher's time (Chaika, 1999; "Virtual High School: Case Studies," 2003). Created in 1994, this consortium developed courses that supplemented the high school's curriculum. VHS was originally funded with a five-year grant and received matching funds from each school in the consortium as long as the grant lasted. The first courses were offered in 1997 (Clark, 2001).

American Distance Education Consortium (ADEC) is a non-profit distance education consortium composed of state universities and land grant colleges that joined forces to promote and provide "high quality, economical distance education programs and services to diverse audiences through the most appropriate information technologies available" (Poley, 2003, n. p.).

Locally Established Schools

The third variation occurred when a local school district established its own online courses either to supplement the curriculum for regularly enrolled students or to provide alternative programs that help to reach the home school population. The Web Academy in Fayetteville, North Carolina, is an example of this variety of online schools. The Web Academy first offered classes in 1997 with six students. In 2002, 502 students were enrolled in over 80 available courses (Banov, 2002). Houston Independent School District (2005) in Houston, Texas, is an example of a locally established program. HISD was founded in 1923 and is currently the largest public school system in Texas and the seventh largest school system in the United States. It has provided middle- and high-school curriculums to 205,000 students in 300 different sites (Clark, 2001; Houston Independent School District).

Charter Schools

A charter school can be established online subject to the charter laws of the individual state. Charter schools may be either public or private; however, they may be exempt from public schools' rules and regulations (Clark, 2001). Choice 2000 Online High School, an accredited California charter school, offers online curriculum for grades 7 through 12. Choice 2000 Online High School has been recognized as "the first totally public online school in the United States of America" ("Virtual High School: Case Studies," 2003, p. 1). Choice 2000 differs from other online programs by offering only synchronous courses (Vail, 2001). All coursework meets standards using asynchronous and synchronous methods (Elbaum & Tinker, 1997; Vail, 2001). Basehor-Linwood Virtual Charter School, a public charter school in Kansas, was founded in 1998 to provide opportunities for homeschooled students in both the elementary and secondary levels ("Virtual High School: Case Studies").

For-Profit Providers

The fifth variation of online schools is the for-profit schools such as Apex, Jones Knowledge, and Class.com. Apex is an e-learning company based in Bellevue, Washington. Jones Knowledge is based in Colorado and Class.com is based in Nebraska. These companies have offered courses, teacher training, platform design, and other services for online opportunities. There are numerous others who offer these services, including K-12.com and Sylvan Learning Centers (Vail, 2001, 2002).

<center>*Advantages of Online Education*</center>

Meeting the Needs of Older Learners

According to the California Distance Learning Project (2000), distance learning students generally are older with jobs and families. Because of all their responsibilities, they need to coordinate their schedules to allow for careers, children, household chores, spouses, and homework. They seek degrees to broaden their education, or pursue career advancement opportunities. Because they are older and more settled than most traditional high school students, they may have more self-confidence than younger students have, giving them that extra desire to excel (California Distance Learning Project).

Reaching a Wider Student Audience

Distance Education has allowed educators to reach a wider student audience and meet the needs of students unable to attend classes on campus (California Distance Learning Project, 2000). In an interview with a distance education consumer who was working on his master's in Library and Information Science, the major advantages cited were the ability to attend class while eating dinner and wearing comfortable clothes. In addition, he did not have to drive to Knoxville, Tennessee, for all of his classes, thus, saving time (a minimum of three hours,

<center>32</center>

roundtrip), money, and additional mileage on his vehicle (L. Morgan, personal communication, 2001).

Flexibility in Scheduling

As reported by Owston (1997), distance (online) education can be accessed either at synchronous or asynchronous times. With asynchronous courses, students can access the lessons and complete their assignments at any time of the day or night regardless of when other students log on to the computer. With a synchronous class, everyone, including students and teachers join in at the same "real-time" (Vail, 2002). This creates a challenge to get everyone together at the same time and to facilitate all students. For a synchronous setting to be successful, it has been recommended that there be only a small group online at the same time. In addition, time zones need to be considered and guidelines need to be established in advance (Palloff & Pratt, 1999). There have been students who preferred each type--asynchronous and synchronous-- for the organization of the online course. Classes could be taught using a combination of both synchronous and asynchronous--some days students might need to log on to have a "real-time" conversation and other days they might only log on when it is convenient or whenever they wanted to log on (Vail, 2002).

Symonds (2001) gave two examples of the benefits of online classes. In the first example given, a flight attendant had to quit college in the 1960s. Later, she earned her bachelor's degree while traveling for her job. She took her laptop and completed her assignments while traveling. Another example was a dentist who wanted to earn a law degree. He enrolled in Kaplan's Concord Law Program. This eliminated a 12-hour commute during the week; therefore, he studied during the times he would have been traveling (Symonds, 2001).

Achievement

        Students learn best in an online setting when they can learn at their own paces, in their own environments, and at the times of day during which they perform best. In a study reported in Blumenthal (1996), a group of 500 fourth and sixth graders in urban areas covering all regions of the United States were divided into two groups--one group had Internet access and the other group did not use the Internet. Their assignment was a project related to civil rights. When the projects were graded, it was determined that the students with Internet access received higher scores on all graded categories of their projects than students without Internet access (Blumenthal).

        In a study by Schulman and Sims (1999) comparing undergraduate students enrolled in five online classes with students in the same classes using a traditional format, the students participated in a test-retest method. Both groups tested higher on the posttest than they did on the first test. In comparing the groups, Schulman and Sims found the online group scored significantly higher than the traditional group.

        According to Schulman and Sims (1999), a professor at California State University at Northridge divided his statistics class in half. One half of the class met in a traditional classroom setting; the other half of the class did everything online (received assignments, held discussions with classmates, and met with the professor online). The online group met for two classes as an orientation session for the virtual class. Everyone met together for the midterm and final exams. The professor found that the online students achieved 20% higher scores than the traditional students did on the midterm and final exams ("Online Students Fare Better," 1997).

        Schacter (1999), along with the Milken Exchange, analyzed studies to determine the impact of educational technology on students' achievement. One study included students in West Virginia, another study included a national sample of fourth- and eighth-grade students, and a third study included newer educational technologies to which students had access. The

result of Schacter's analysis was that students showed positive gains in achievement on researcher constructed tests, standardized tests, and national tests.

Disadvantages of Online Education

Quality

There has been a controversy between traditional and online courses as to whether a student learned more in traditional courses or through online courses. During the 20th Century, there were controversies about correspondence courses having less quality than traditional courses. According to Heerema and Rogers (2001), institutions refused to accept degrees from the Open University because of the tradeoff between quality and quantity. When institutions were confronted with this problem, they chose quantity; that decision led to dissatisfaction with the program. Technology has allowed both quality and quantity to be achieved together (Heerema & Rogers). Gilbert (2001) reported that the U.S. Office of Technology Assessment and the University of Phoenix have determined that distance learners had as much or better success than traditional students in their coursework and on tests.

Whitlock (2001) has investigated the components of a well-designed online course for the past several years. During his investigations, he questioned participants about the design of online courses. Following are the top 10 items that occurred repeatedly as determined by Whitlock:

1. Clearly specified objectives,

2. attractive presentation,

3. clear signposting,

4. ease of use,

5. appropriate language,

6. modular structure,

7. variety of questions and problems,

8. feedback on progress,

9. testing (diagnostic and achievement), and

10. logical sequence (p. 188).

In a study by Stephens (2002), it was determined that over 87% percent of the teachers responding said students would not learn the same amount of material in an online course. With positive public relations and by showing both teachers and the public in general the good results from these studies, educators might address any negativity that teachers and others express.

Lack of Computer Literacy Skills

Computer literacy has been a major problem. Some students have displayed a fear of using the computer and they might have to take extra classes to help them become more comfortable with computer systems. In an interview with an online consumer, it was found that there are schools that have required students to attend computer literacy workshops prior to taking online coursework (L. Morgan, personal communication, 2001). In addition, the experiences students have received in their online courses might improve their computer skills. On the other hand, not all teachers have been comfortable with computers. A few teachers have said that they were comfortable where they were in their professional life and did not view adding computer skills as being important. There have been some new requirements for today's college of education graduates pertaining to computer skills.

Student Support

A support system should be in place for computer problems that may arise. There should be a minimum of two support staff members available to answer questions or problems such as a helpdesk. When problems arise, there should be no more than a four-hour turnaround time in successfully correcting the problem. Frequently Asked Questions (FAQ's) that can be found on

web sites can be a helpful addition and could eliminate the need for additional support staff (Distance Learning Resource Network, 1998; Galusha, 1997).

Other institutional support that has not always been available included career advice, counseling support, enrollment procedures, fee payment procedures, and library access (Australian National Training Authority, 2002; Spodick, 1996). Chute et al. (1999) found that students needed convenient access to guidance personnel and personal support such as registration, counseling, technical support, and library services. Students have also needed access to personnel to assist them in study and research skills such as time management, learning how to learn skills, and how to access information from the web. Even though a student was a distance learner, he or she still wanted to be informed with timely school news and information (Australian National Training Authority).

Feedback

According to Galusha (1997), one concern of distant students was the lack of feedback and the scarcity of contact with the teacher that made some students feel alienated and isolated. This could have been a perceived lack of contact the student had; however, it was very real for the student. Students valued timely feedback and were motivated if they had frequent contact with the instructor. Learners also benefited from small learning groups. These small groups helped support and encourage members in the group. Teachers and facilitators also needed to give prompt feedback on assignments (California Distance Learning Project, 2000).

Buchanan, (2000) suggested that there were strategies an instructor should follow in an online course. One of these strategies was to respond to the class at least once daily, which should eliminate criticisms about feedback from arising. Another strategy was to have one day a week when there were no communications required by either the student or the teacher.

Ethical Issues

One of the long-standing issues for students has been an understanding of both what plagiarism is and what the copyright laws cover. Students need to be educated about what is or is not legal or ethical according to the copyright laws. According to Joliffe, Ritter, and Stevens (2001), a copyright is simply a way to protect an author's work. In 1790, the first United States copyright act was passed. This act protected an author for a period of 14 years, plus, an additional 14 years was possible. In 1831, the number of years of copyright protection was changed to 28 years. It was changed again in 1972 to protect an author during the author's lifetime and 70 years after his or her death. Information is copyrighted even if the documentation does not indicate that it is copyrighted. Joliffe et al. clarified, "The key to copyright matters is quite simple. Assume everything is either copyrighted or copyrightable and ask permission before you use the materials" (p. 308).

Another issue has been the validity of information available on the Internet. If a student uses the Internet, the student must go through a process to determine if an Internet web site is legitimate. There is a multitude of information available on the Internet and anyone can post information to Internet web sites. In addition, the correct way to cite references from the Internet has continued to change because standards are still being set.

Cheating has been another ethical issue. Christopher (2004) stated that in a *Who's Who Among American High School Students* report, 80% of students indicated that they had cheated on an exam. This is an increase of 10% over the same question asked 15 years earlier. Students said they did not feel that cheating is a problem. Punishment for cheating is not very severe. Many times, teachers simply give a lower grade for an assignment (Christopher).

Accreditation

Accreditation is a voluntary process in which educational institutions submit their programs and credentials to regional evaluating organizations. These groups' approval

guarantees that certain minimum standards are met by all accredited institutions (Western Cooperative, 1999).

Distance education students should be concerned about accreditation because it is important that their courses be recognized and accepted by employers, colleges, and universities. Without accreditation, courses may not be accepted as transfer credits. Some questions to ask institutional leaders include: Are you regionally accredited? Which region gave you the accreditation? Then follow up and verify the accreditation (Western Cooperative, 1999).

To determine if a school is accredited or has a quality reputation, one can check with the regional accrediting agency or with any specialized accrediting agency by consulting the Council of Higher Education with the United States Department of Education to determine if an accrediting agency is legitimate (Peterson's Distance Learning Advice, 2003).

Costs

The costs have been high for implementing an online program. Oregon's Cyberschool estimated the cost to be $5,000 per course developed. The Concord Consortium's Virtual High School Project indicated it costs about $3,500 to train a teacher. In addition to these costs, there needs to be technical support staff and one course manager available to answer all questions (Distance Learning Resource Network, 1998). Creating a FAQ page will create an up-front cost; however, it should save money down the road by answering questions that are asked frequently.

When setting up a program, managing the cost has been extremely important. Costs to be considered include the hardware and software, the method of transmitting the materials, repairing and updating equipment, the infrastructure, technological and personnel support, personnel, and miscellaneous expenses.

Planning

Extensive planning and formative evaluation must be completed in order for distance education instruction to be successful. According to the California Distance Learning Project 2000, teachers must be prepared with a "well-designed syllabus" (p. 2) and course outlines, as well as be trained on the technological equipment. Owston and Wideman (2001) from York University compared two studies on distance education. In the first study, only one teacher was involved in the planning stage and he was not in favor of the project's continuation. However, the project continued and the other teachers involved did not feel successful nor did they think that the material was beneficial for their students. The teachers needed hands-on experience with the program and said that they should have been included in the planning stage. In the second study, several teachers participated in the initial planning and were positive about the program. This group had less teacher support; but, because they stated it was a good program, they spent more time on their own to learn the system. The recommendations of Owston and Wideman were to have teachers' support of the program and ensure that teachers were involved during the planning stage. In addition, teachers must accept the material as being beneficial to their students and their students should realize successes early in the implementation process.

Planning is extremely important, as noted above, in the design of an online class. According to Saba (2001), a five-step model, ADDIE, has been developed to ensure quality of distance learning. Following the steps listed below in ADDIE can give online course implementation a jumpstart toward being a success. The steps in ADDIE are these:

A	Analyze the needs of the learner,
D	Design instruction based on learner needs,
D	Develop instructional materials,
I	Implement instructional sessions, and
E	Evaluate the results systematically. (n. p.)

It was recommended (Williams et al., 1999) that a teacher should begin preparing for a course six weeks prior to its beginning and preparing for communications by setting up the bulletin boards. Two weeks prior to the course's beginning, the teacher should: (a) send students

a packet of information including names, numbers, and email addresses of the other students; (b) explain the distance learning environment, including how the class will work; (c) send disks related to the text; and (d) send students a short self-biography. Two or three days before the class, the instructor should send students another communication reminding them of the objectives and goals of the course. Finally, at the first class meeting, the teacher must get the students involved immediately by setting examples of what is expected (Williams et al.).

Technology Equipment

According to the California Distance Learning Project (2000), there are many advantages to using computers. With appropriate software, the computer can provide interactive individualized learning and give immediate feedback. Computers could be used as a multimedia tool by integrating graphics, sound, video, and audio components (California Distance Learning Project).

On the other hand, there have been disadvantages to using computers as reported by the California Distance Learning Project (2000). One disadvantage reported is that there are people who are uncomfortable with computers. Another disadvantage is that technology is continually changing; this usually leads to increased costs because the equipment has to be updated. Also, students must enjoy computers and be motivated to use them if they are going to be successful (California Distance Learning Project).

The Distance Learning Resource Network (1998) suggested that students should buy the fastest computers they could afford that met or exceeded the needs of the class. Other recommendations were that the size of memory and hard drive requirements in the computer be doubled. The instructor should be involved in deciding technical arrangements. In addition, the teacher would find it helpful to most of the students if the assignments were varied through the offering of a combination of synchronous, video based, asynchronous, and small group assignments (Distance Learning Resource Network).

Breaking Down Barriers

Short (2000) shared five steps to eliminate or at least minimize problems in setting up a distance education program. The first step was "developing and implementing a computer skills assessment tool that is a "self-report inventory" (p. 56). Based on students' responses, some students need to take additional computer courses to work independently on their computer skills. The second step was requiring minimum computer hardware and configuring every student's CPU with required plug-ins and software" (p. 56). Students were given a list of the hardware (the lowest cost package available) and software they needed for their computer systems to run more efficiently. The third step was "developing a student manual" (p. 56). The manual was developed for the distance education students because, if they had problems, they had no one to turn to immediately for assistance. The fourth step was "providing computer skills practice during orientation classes" (p. 56). One program required students to attend a two-day computer orientation class. During the orientation, student activities included team building, family activities, and time management techniques as well as becoming familiar with how the computers and software programs worked. In an interview with an online student, he indicated that he had to attend a three-day orientation prior to the beginning of his program (L. Morgan, personal communication, 2003).

The fifth and final step according to Short (2000) was "maintaining a telephone help line" (p. 56). The help line was a toll free line available in the evenings and weekends to assist students who had encountered problems with the software. A frequently asked question (FAQ) section, helping to solve problems as they arise, should be available to online students. This five-step approach has been used and deemed successful in several courses. Short stated, "The five-step approach to eliminate online problems before they happen has been successful for our small-scale online degree program. The key to success is thoughtful planning" (p. 56).

According to Palloff and Pratt (1999), there are six keys to success in distance learning. The first was honesty between the instructor and the students in the online course. Without

honesty, the students might not feel comfortable about posting messages truthfully. The second key to success was responsiveness. For success to occur, students need to respond to one another because that is when the most effective learning occurs. The third key was relevance. To make relevant comments, the student has to be studying the appropriate materials. In addition, learning that is relevant to the student's educational and career goals should enhance the student's motivation tremendously. The fourth key to the success of distance learning was respect. Everyone in the course should be treated with respect. This topic should be negotiated from the beginning. The fifth key was openness, which is similar to honesty; however, it includes a student's being willing to share openly without any fear of what is said in the responses of his or her peers. The sixth and final key to the success of distance learning was empowerment that allows the learner to take control of his or her own learning. The learners gain "a new view of themselves and a new sense of confidence in their abilities to interact with knowledge" (Palloff & Pratt, pp. 160-162).

Instructional Development Process

Four steps have been identified in the instructional development process according to the California Distance Learning Project (2000). The first step was the design stage. The design stage evolves as the instructor determines the need for instruction, analyzes the audience, and establishes goals and objectives. This involves looking at the distant learners' ages, backgrounds, and cultural experiences to determine their needs. The second stage was the development stage. In this stage, the course outline is developed and evaluated; the course materials are selected; and the content is organized by creating "student-relevant examples." If they are not relevant, learning could be slowed. The third stage was the evaluation process. During this process, the goals and objectives are evaluated to determine if they are being accomplished. A plan was developed to complete the evaluation that was then administered, collected, and analyzed. The final stage in the instructional development process was the

revision stage that resulted from what the evaluation stage indicated. Changes should be

anticipated and tested out on a small group of distant learners or colleagues (California Distance

Learning Project).

Assessments of Distance Education

Assessments need to be handled in a variety of methods to determine the extent of

learning that has been occurring. Teachers need to assess students differently in online courses

than in traditional courses because body language and facial expressions cannot be seen.

According to Evaluation for Distance Educators (2003), formative evaluation is:

> an ongoing process to be considered at all stages of instruction, [it]will enable the
> instructor to improve the course as he/she proceeds, facilitates course and content
> adaptation, will identify major gaps in the instructional plan or the need for minor
> adjustments. (p. 2)

Educators could use post cards, electronic mail, and/or the telephone to notify the students if

problems have arisen with the program. Students could also use post cards, electronic mail,

and/or the telephone to share their daily or weekly concerns with the instructor (Evaluation for

Distance Educators).

Another type of evaluation has been summative that evaluates the finished product and

helps to develop a plan to revise the program if necessary. In a summative evaluation, open-

ended questions are the most valuable. Questions could include asking students to list

weaknesses or strengths of the course, what can be done differently, and what should have been

taught. An interview might also be conducted with students taking the course. Some other

topics to be evaluated include the use of technology, class format, class atmosphere, course

content, assignments, tests, support services, and instructors. Data could also be collected using

quantitative evaluations by asking for yes/no responses; however, the drawback has been that

there are usually only small class sizes being evaluated (Evaluation for Distance Educators,

2003).

44

Effective Online Courses

Online courses have been effective when teachers orient students with the course and help them to navigate through the process. The teacher should provide frequent and timely feedback, respond promptly to emails, and announce dates when work is due. The email addresses of all class participants should be shared with everyone. The teacher should also encourage team building; use frequent, short exercises that lead to the end project; and assign journal writing. Teachers must be organized, personable, and available to be successful with online courses (James & Voigt, 2001).

To be as effective as possible, the University of Washington collaborated with Apex Learning to create online high school courses. The reasons for creating these courses included teacher shortages and overcrowded facilities. APEX created the online courses. It took a 15-member team eight months to finalize a course that cost approximately $100,000 to $200,000. A student's tuition at the University of Washington for an 18-week course was $475. This price included the online instruction and mentoring by a qualified and experienced teacher (National Association of State Boards of Education, 2001).

According to Gilbert (2001), there are five principles regarding distance learning that were adapted from the American Council on Education. These principals included:

1. There is no one best instructional delivery and interaction media or method.
2. A true learning community is interactive.
3. All learning environments, traditional and virtual are important.
4. A systems approach to instructional design will be modeled.
5. Technology is a tool that enables distance and distributed learning to occur. (p. 69)

To sum up what has been required to succeed, Virginia Tech used an acronym for the word SUCCESS (Gilbert, 2001). According to Gilbert, if one followed the steps listed below in SUCCESS, then his or her online courses should be successful. The steps in SUCCESS are:

<pre>
S   Start right away
U   Understand your course requirements and expectations
C   Communicate with your instructor
C   Check and follow course deadlines
E   Expect to succeed
S   Seek help if you have a question
S   Stop procrastinating. (p. 219)
</pre>

States' Programs

Florida

The Florida Virtual High School's motto is "any time, any place, any path, any pace" (Florida Virtual School Website, 2001, n. p.). Their mission has been to relieve overcrowded schools, meet demand for high-need classes or classes where staff is unavailable, and to make Honors/AP courses available for rural areas. The Florida Virtual School began in 1996 and is based in Orlando, Florida. It first began with fewer than 100 students in 1996 and in the 2001-2002 school year grew to approximately 8,200 students with the enrollment increasing to approximately 12,000 in the 2002-2003 year. Over 60 courses have been offered that meet state and national standards. Once enrolled, students are allowed 28 days to withdraw without a penalty (Brandao, 2002; Florida Virtual School Website). In 2000, $6.2 million was provided from state funds for the online courses. Students can enroll through their local schools and their courses have counted toward graduation. In 2000, there were approximately 55 full-time certified online teachers (Web-Based Education Commission, 2000).

California

California has had several virtual high schools including Choice 2000 Online High School and Laurel Springs School in Ojai, California. According to "Virtual High School: Case Studies" (2003), Choice 2000 has been classified as "the first totally public online school in the United States of America" (p. 1). Choice 2000 has served students in grades 7 through 12 as well as adults. Based in Riverside, California, Choice 2000 has been an accredited charter

school with all courses aligned with state standards. Classes use both synchronous and asynchronous instruction ("Virtual High School: Case Studies").

Laurel Springs has been a fully licensed private school for students in prekindergarten through high school. Based in Ojai, California, the curriculum has covered all subjects in a project-based curriculum. According to "Virtual High School: Case Studies" (2003), tuition at Laurel Springs includes a $300 enrollment fee and course fees range from $85-$170 per course, depending on the course. Laurel Springs is licensed in California and accredited by the National Independent Study Accreditation Council ("Virtual High School: Case Studies").

Alaska

Alaska has had several online schools. The North Slope Borough School District (2001) has been the nation's geographically largest school district stretching across the northern coast above the Arctic Circle. It covers 88,000 square miles and is about the size of Minnesota. Students that have been serviced by North Slope were in kindergarten through grade 12. Courses have been offered from the University of Nebraska, Indiana University, North Dakota University, and the American School (North Slope Borough School District).

Juneau Cyber School (2003) offers classes for Juneau, Alaska's students in grades kindergarten through 12. According to the Juneau Cyber School, tuition was $2,000 for students in grades 9 through 12 and $1,600 for students in grades kindergarten through eight. Students who are registered in the Juneau Cyber School are also provided a computer system for a minimal deposit. Staff development is available for both teachers and parents. Students registered in the Juneau Cyber School can access any services of the Juneau School District such as sports and band activities.

Kentucky

According to the Kentucky Virtual High School Website (2001), the virtual high school offers high school courses and learning opportunities to students in Kentucky. Courses include AP Exam review and professional development. Students can take practice tests, review material online, and receive instant feedback on tests (Kentucky Virtual High School Website). School districts pay $275 per half-credit per student for each semester course. Courses are offered for middle- and high-school students, who can apply through their guidance counselors. There were 300 students involved in 2000 (Web-Based Education Commission, 2000).

Pennsylvania

According to the Keystone High School Website (2002), KeystoneHighSchool.com is based in Pennsylvania and offers both online and traditional formats. The Northwest Association and The Accrediting Commission of the Distance Education and Training regionally and nationally accredited Keystone. Keystone has also been licensed by The Private Licensed Schools in the Commonwealth of Pennsylvania. Over 100,000 students have been served by Keystone since the 1970s (Keystone High School Website).

Michigan

CompuHigh (2003) has been recognized as the world's first online high school, and it has been available since 1994 in Michigan. As noted on its web site, CompuHigh offers accredited high school courses that are project-based. Mentors are available to assist students with their course material and to respond to students' communication needs within 48 hours. Private schools in Michigan have complied with the Michigan Department of Education and have been accredited by the National Private Schools Accreditation Alliance (CompuHigh).

The mission statement of the Christa McAuliffe Academy (2003) in the state of Washington has been "to make a positive difference in the lives, hopes, and dreams of people of all ages, backgrounds, abilities, and circumstances, by combining basic education, traditional family values, and innovative technology into a world-class kindergarten through grade 12 school" (p. 6). The academy has been accredited through the Northwest Association of Schools and Colleges and by the Commission on International and Transregional Accreditation. Students in grades 7 through 12 work on a core curriculum in one class at a time but might switch to a second course for some variety. Each course takes about a month to complete and a student should complete six courses in a year. The academy has followed a learning model that emphasizes instruction using computer coursework. Other features of the learning model include mentoring, group discussions and interaction, and parent involvement (Christa McAuliffe Academy).

The Future in Technology

The Internet has become a major agent for change in education--the biggest change since the printed text. Learners can work at their own pace at a time that is convenient for them (Draves, 2002). According to Draves, in 2000, the Farleigh Dickinson University was the first university to require online course in order to graduate. Also in 2000, the Toronto Public Schools first required online coursework in order to graduate. In 2001, there were approximately one million students enrolled in online courses (Draves). According to Draves, the Internet will allow people to learn more at a lower cost and with a variety of topics of interest. Draves outlines other benefits of online learning that includes allowing a student to:

1. learn during his or her peak time,

2. learn at his or her own speed,

3. focus on content areas,

4. test oneself daily, and

5. interact more with the teacher. (pp. 9-12)

Several universities served as pioneers. According to Laws (2000), one of the first American universities to make use of distance learning was in New York, after the appearance of the Open University in the United Kingdom. The new program was originally known as "Regents External Degree Program" but it changed the name to Regents College. California Western University was also one of the first to use distance learning. California Western University has changed its name to California Coast University (Laws).

The University of Phoenix Online FAQ's (2001) began in 1989 and was one of the first accredited universities to allow degree programs to be completed 100% over the Internet. The University of Phoenix Online is considered to be the "nation's leading online university" (p. 2). The North Central Association of Colleges and Schools has accredited this online university. The hardware recommended for participation was a minimum Pentium with 16 MB RAM, 1 GB hard drive, SVGA monitor, and a 28.8 KBPS modem. Students also needed Windows 9x, NT, ME, or 2000. Of the graduates of the online university, 96% were "highly satisfied with the impact made on their careers" (p. 1). The University of Phoenix Online has had an enrollment of 13,000 full-time students (Gilbert, 2001). The online university has offered 10 accredited programs (Web-Based Education Commission, 2000).

Distance education has become popular because of technological advancements and the dramatic decrease in the cost of computers. The technological advancements have greatly expanded the choices and opportunities of receiving an education. Distance education has allowed for a wider student audience, met the needs of those who cannot attend on-campus classes, and linked students from a variety of backgrounds. Students have been able to complete their studies without losing part of their salary and training for students in rural areas can be provided (California Distance Learning Project, 2000). Other features of distance education have been that it is available round the clock, offers flexibility, is self-pacing, and is cost

50

effective (McLester, 2002). At the same time, distance learners need to be self-motivated, disciplined, and comfortable using technology. The National Association of State Boards of Education (2001) study group concluded, "E-learning will improve American education in valuable ways and should be universally implemented as soon as possible" (n. p.).

CD ROMs have been the most prominent items in emerging technology used for education. The amount of text that can be stored on the medium has increased at a tremendous rate. Also, full-motion video can now be recorded and distributed (McIsaac & Gunawardena, 2001).

The Personal Digital Assistant (PDA) has a screen that can interpret what is written on a small screen with a stylus. PDAs can convert what is written into text, can allow messages to be sent and received via cellular telephones, can allow for voice messages to be sent and received using data with a user's desktop, and are convenient audio and data storage units for small amounts of information. Devices that were once separate are now merging into devices to allow the "users to communicate seamlessly with each other, control home and office environments, and access most of the world's information, anytime, anyplace" (McIsaac & Gunawardena, 2001, n. p.).

Virtual Reality (VR) has combined the power of computer-generated graphics with a computer's ability to monitor data in real time to create interactive feedback. VR participants wear visors that project the image and they react to what is seen. Medical students can wear a VR visor and perform any operation on a computer-generated "patient" and immediately see their results. Pilots can practice flying with more realism. Both students and professionals have used VR (McIsaac & Gunawardena, 2001).

Video Servers/Digital Videos are large hard drives that can play back digitized video signals. Servers of this type have already been used at the Holocaust Museum in Washington, DC. Visitors can randomly access up to 35 hours of documentary film from 25 different touch

51

screens. With greater bandwidth in the future, this information could be accessed from any

desktop (McIsaac & Gunawardena, 2001).

Personal computers have been evolving. People have migrated to laptops and this

portability has made it possible for anyone--including a student--to carry materials with him or

her. Further miniaturization and increased power have made possible the control of everything

from cooking to telecommunications. This, in turn, has led to more student empowerment and

learner control (McIsaac & Gunawardena, 2001). Students can use technology to register,

download course materials, and access video and audio materials. The students can

communicate with both the teacher and other students by email ("Historical Overview of

Distance Education," 2000).

Summary

Distance education has been more readily available at the college and university level

than for kindergarten through grade 12 schools. However, when I began my program in the fall

of 1999, I was unfamiliar with the term distance learning. As more and more students have been

successful with this type of education, its popularity has soared. Distance learning has also

allowed for lifelong learning to occur whether it has been in the education arena, business arena,

or a branch of the military service.

A colleague recently finalized his master's thesis on distance education. As part of his

research, he surveyed students and teachers. Over 60% of the students surveyed indicated they

would be interested in attempting online courses; however, 17% admitted they did not feel they

had the self-discipline to complete it. Over 80% of the teachers responding to the survey said

that only self-disciplined students should take online classes (Stephens, 2002).

Based on research, the most important factor in developing a course is for the teacher to

be involved in the planning of the course prior to its being created and during the implementation

process. A second important practice is to have a Frequently Asked Questions (FAQ) section to

assist in technical problems that occur. In addition, it is recommended that the minimum hardware requirement that is listed for the course should be doubled. A two- to three-day orientation for students to learn how to use their computers and the software packages, team building activities, and time management is recommended as other important factors in a successful distance education course.

It has been expected that online learning will continue to grow. According to Christopher (2004), a recent study by the National School Boards Foundation reported that 20% of students would complete part of their class work through distance learning. Enrollment is expected to continue to climb.

CHAPTER 3

METHODS AND PROCEDURES

Research Design

This study was based on quantitative measures using an Internet-based questionnaire. A questionnaire was constructed that included a section on personal demographics and experiences with distant education. Gall, Borg, and Gall (1996) indicated that a survey could be used to generalize the findings of data about characteristics, experiences, and opinions. This research study might help to determine the factors that make up a successful distance education program.

Population

The population of this study was technology directors or technology coordinators in the 136 school systems in Tennessee. A listing of the Tennessee school systems was found on the Tennessee Department of Education's web site (see Appendix D). In addition, a listing of technology coordinators, along with their email addresses, was located on the Tennessee Educational Technology Association website.

Data Collection

Data were collected using an Internet survey. An email was sent to each director of technology/technology coordinator with an email address in the Tennessee school system. The email explained the purpose of the study along with the Internet address where the questionnaire was located. The survey took approximately 10 to 15 minutes to complete. Two weeks later, a second email was sent to the individuals who had not responded to the first email. One survey respondent shared a list serve address for technology directors/coordinators. I sent two emails to the list serve requesting technology directors/coordinators to respond to the survey. A fax was

54

then sent to those who had not responded at that time and I followed up with a third email (see Appendix C).

At this point, more responses were needed; therefore, telephone calls were made to the school systems that had not responded. Additional emails were sent following the phone calls. There were instances in which some school systems had neither a listing nor email addresses. In addition, changes in personnel had occurred that had not been updated on the Tennessee State Department's web site; therefore, these emails never reached the intended individual. At the end, there were 86 responses from the 136 public school systems in Tennessee with a return rate of 63%. Of these, 14 were not useable because they were kindergarten through fifth- and kindergarten through eighth-grade schools. These technology directors responded to the survey even though the survey did not pertain to them. Kindergarten through grade five and kindergarten through grade eight school surveys were not useable because this study applied to distance education in secondary schools. The useable responses yielded a return rate of 53%.

Instrumentation

The survey (see Appendix A) was divided into three areas: Part I consisted of the personal demographics information. Part II consisted of 24 questions dealing with perceivable barriers to implementing high school online education programs. In the barriers section, a Likert-type-scale indicator was used with the following values: 5 - Very Strong Barrier, 4 – Strong Barrier, 3 – Moderate Barrier, 2 – Weak Barrier, and 1 – Very Weak Barrier. Part III included short-answer questions that pertained only to high schools that offered online courses for credit at the time of the survey.

Berge completed a survey in 1999 on Barriers to Distance Learning. Berge's respondents included persons involved in higher education/community colleges, elementary, middle, and secondary education, government, corporate, and non-profit organizations. Based on his

55

previous research, he designed the survey used for this study to determine what obstacles must

be overcome for distance education to grow (Berge, 1999; Muilenburg & Berge, 2001).

Last year, Tom Wallace, an East Tennessee State University dissertation student, used

Dr. Berge's survey. Based on the questions on their surveys, I requested permission to use each

of their surveys and permission was granted from both Dr. Berge and Tom Wallace (see

Appendix B). The survey instrument for this study was a compilation of both surveys modified

to meet the needs of high schools offering online courses/education.

Validity and Reliability

Content validity was determined after approval had been granted. Prior to approval, five

local educators who did not participate in the study but who were familiar with distance

education reviewed the questionnaire. Based on their comments, the questionnaire was revised.

Data Analysis

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS).

The personal demographics on the survey instrument did not require significant testing. A null

hypothesis was determined for the research questions. The alpha level or "significance level"

was set at .05 for each significant test. The plan of the analyses was as follows:

Research Questions

1. To what extent are online courses being offered in Tennessee high schools?

To answer research question #1, a frequency table was used for the following question: Does

your school system offer online courses for high school credit?

2. Are there differences between school systems that offer online courses and those that do not in terms of (a) geographic regions of Tennessee, (b) size of the school systems, and (c) per pupil expenditure?

The following null hypotheses were tested:

$H0_1$: There are no differences among the geographic regions in terms of whether online courses are offered. $H0_1$ was analyzed using a cross-tabulated table and Chi Square.

$H0_2$: There is no difference between school systems that offer online courses and those that do not in terms of the size of the school system.

$H0_3$: There is no difference between school systems that offer online courses and those that do not in terms of per pupil expenditure.

Means, standard deviations, and the t test for independent samples were used to address $H0_2$ (school system size) and $H0_3$ (per pupil expenditure).

3. Among technology directors, what are the most frequently given reasons students might consider taking an online course?

Counts and percentages from a multiple response table were used to address this research question.

4. What discipline areas do technology directors believe should be available online?

Counts and percentages from a multiple response table were used to address this research question.

5. What are the perceived barriers to the implementation of online programs?

The means and standard deviations of each of the 24 perceived barrier questions were used to answer this research question.

6. Are there differences in the perceived barriers to the implementation of online programs in terms of geographic region, size of the school systems and per pupil expenditure?

Regarding the summary null hypotheses below, a one-way ANOVA was used to address $H0_4$.

Pearson's correlations were used to analyze $H0_5$ and $H0_6$.

$H0_4$: There are no differences among geographic regions and the perceived barriers to the implementation of online programs.

$H0_5$: There is no relationship between size of the school systems and the perceived barriers to the implementation of online programs.

$H0_6$: There is no relationship between per pupil expenditure and the perceived   barriers to the implementation of online programs.

      7.   Among schools that are offering online courses, what are the positive characteristics of the online programs?

To answer this question, a content analysis of the open-ended questions in Part III was used.

CHAPTER 4

DATA ANALYSIS

Introduction

This chapter provides a demographic profile of the technology directors/coordinators in school systems across the state of Tennessee who responded to the Barriers Affecting High School Distance Education Courses Survey (see Appendix A). Tennessee has 136 school systems listed on the Tennessee Department of Education's web site. Of the 136 school systems contacted, 86 technology directors/coordinators responded to the Barriers survey instrument resulting in a return rate of 63%. Of the 72 qualified respondents, 46 (63.9%) were male and 25 (34%) were female.

Concerning their highest educational degrees earned, 16 (22.2%) had a doctor's or specialist's degree, 26 (36.1%) had master's degrees, 21 (29.2%) had a bachelor's degree, and 9 (12.5%) marked *other*. In addition, 44 (61%) had been in education for 16 or more years while 28 (38.9%) had 15 or fewer years of experience in education. As for the years in their current positions, 28 (38.9%) reported five years or fewer, 21 (29.2%) had 6 to 10 years, 20 (27.8%) had 11 to 15 years, and 3 (4.2%) had been in their current position for over 21 years. Only 12 (17%) of the survey respondents' job responsibilities were limited only to technology director/coordinator. The remaining 83% had other, varied responsibilities in the school system. For example, several served as assistant directors, elementary supervisors, or transportation administrators in addition to their duties as a technology director/coordinator. A summary of the demographic data is presented in Table 1.

Table 1

Demographics Information

Gender	Male	63.9%
	Female	34.0%
Educational	Doctorate/Specialist	22.2%
Degrees	Masters	36.1%
	Bachelors	29.2%
	Other	12.5%
Length of Service	More than 16 years	61.0%
	Less than 15 years	38.9%
Years in current	Less than 5 years	38.9%
position	6-10 years	29.2%
	11-15 years	27.8%
	Over 20 years	4.2%
Duties	Technology Director ONLY	17.0%
	Technology AND other varied system wide duties	83.0%
Online Classes	Never	62.5%
Taken	1-2 Classes	22.2%
	More than 2 Classes	15.3%
Online Classes	Yes	12.5%
Taught	No	87.5%

Two questions on the demographic section concern the technology director/coordinator's taking online courses or having experienced teaching distance (online) education courses. Forty-five (62.5%) had never taken an online class, 16 (22.2%) had taken one or two classes, and the remaining 11 (15.3%) had taken more than two classes. Only nine (12.5%) had ever taught an

online class leaving the remaining 63 (87.5%) who reported they had never taught an online class.

Research Question #1

Research question One addressed, "To what extent are online courses being offered in Tennessee high schools?" According to the survey, there were only two school systems that allowed students to receive part of their credits from online courses. The results are shown in Table 2.

Table 2

Systems Offering Online Courses for Students

			Frequency	%
Valid	n	no	70	97.2
	y	yes	2	2.8
Total			72	100.0

The Cleveland City School System uses NovaNet for Credit Recovery at Cleveland High School for those students who have had the seat time in a course but for which the student did not receive credit. Pearson Digital Learning maintains this program. The cost is the purchase of the license and the time to load the software onto the computers. The Credit Recovery program began in the summer of 2004; this allowed five additional students to graduate with their class. So far, in 2004-2005, more than 40 students are enrolled in Credit Recovery. Currently, no fee is charged but this may change in the future.

Hamilton County also responded that it offers various high school courses online for its students. The cost for setting up an online course was set at $50,000 and the maintenance cost was $50,000. Students were charged $450 per online course. Teachers also participated in online classes for professional development credit in technology.

Research Question #2

The second research question can be broken down into two parts. The first part addressed, "Are there differences between school systems that offer online courses and those that do not in terms of geographic regions of Tennessee?" There were only two school systems responding that they offered online courses for their students. These school systems were both from the Eastern region of Tennessee in Hamilton County and Cleveland City. The results are shown in Table 3.

Table 3

School Systems Offering Online Courses by Region

			Geographic Region			Total
			1 East	2 Middle	3 West	
COURSE	N	no Count	27	25	17	69
		% within Geographic Region	93.1%	100.0%	100.0%	97.2%
	y	yes Count	2			2
		% within Geographic Region	6.9%			2.8%
Total		Count	29	25	17	71
		% within Geographic Region	100.0%	100.0%	100.0%	100.0%

The second part of Research Question Two addressed, "Are there differences between school systems that offer online courses and those that do not in terms of size of the school systems and the per-pupil expenditure?" Hamilton County and Cleveland City are the only two school systems offering online courses for their students. Hamilton County had 44,217 enrolled in their student population while Cleveland City had 4,823 in their student population. Even though there is a big difference in the size of the two school systems, the amount they spent per pupil was very close. Hamilton County spent $7,229 per pupil, while Cleveland City spent $7,102 per pupil. The average that these two school systems spent per pupil was $7,165.50. For the systems that did not offer online courses, the average per-pupil expenditure was $6,247.50. The results are shown in Table 4.

Table 4

Group Statistics

	COURSES	*N*	*M*	*SD*
Size of School System	No	69	7,920.39	18,472.37
	Yes	2	24,520.00	27,855.76
Per Pupil Expenditure	No	68	6,247.50	805.15
	Yes	2	7,165.50	89.80

Research Question #3

Research Question Three pertained to, "Among technology directors, what are the most frequently given reasons students might consider taking an online course?" The survey instrument gave five reasons that students might consider taking a high school online course. The choices were: (1) Class not offered at their school, (2) To meet graduation requirements,

(3) Unable to attend classes, (4) Cannot physically pay, and (5) Other. The participants could

choose all that applied resulting in 127 responses with 71 survey participants responding to this

question. The most frequently given reason for taking online courses was "Class not offered at

their school" (87.3%). The second most frequently given reason to take online courses was "To

meet graduation requirements" (50.7%), followed by "Unable to attend classes" (31%). The

results are presented in Table 5.

Table 5

Reasons Students Take Online Courses

For what reasons do you feel students might consider taking a high school online course?	*N*	% of Responses	% of Cases
Class not offered at their school	62	48.8	87.3
To meet graduation requirements	36	28.3	50.7
Unable to attend classes	22	17.3	31.0
Cannot physically attend	4	3.1	5.6
Other	3	2.4	4.2
Total Responses	127		

71 valid cases; 1 missing case

Research Question #4

The focus of Research Question Four was, "What discipline areas do technology

directors believe should be available online?" The survey question that addressed this question

was, "What are the discipline area(s) in which online courses should be made available?" In a

drop down menu format, 10 high school discipline subject areas were provided for survey

participants to choose any or all that applied: science, business, English, foreign languages, health science, AP courses, social studies, art, math, and other. There were 293 responses with 69 participants responding to this question. The most frequently listed discipline area was AP courses (72.5%), followed by foreign languages (65.2%), math (50.7%), sciences (49.3%), English (47.8%), business (42.0%), social studies (34.8%), health sciences (26.1%), art (18.8%) and other (17.4%). The results are shown in Table 6.

Table 6

Discipline Areas for Online Courses

Discipline areas in which online courses should be made available:	*N*	% of Responses	% of Cases
AP Courses	50	17.1	72.5
Foreign Languages	45	15.4	65.2
Math	35	11.9	50.7
Sciences	34	11.6	49.3
English	33	11.3	47.8
Business	29	9.9	42.0
Social Studies	24	8.2	34.8
Health Sciences	18	6.1	26.1
Art	13	4.4	18.8
Other	12	4.1	17.4
Total Responses	293		

69 valid cases, 3 missing cases

Research Question #5

Research Question Five addressed, "What are the perceived barriers to the implementation of online programs?" A Likert-type scale was used to evaluate the perceived barriers. The potential range of each variable was 1 to 5 with these designations: (5) very strong barrier, (4) strong barrier, (3) moderate barrier, (2) weak barrier, and (1) very weak barrier.

The barriers have been arranged according to their mean. There are four barriers that are related to faculty all of which are ranked in the top five strongest barriers: "availability of adequate staff development for preparation" (3.79), "teacher lack of computer skills" (3.56), "adequate faculty planning time" (3.57), and "increased faculty time commitment" (3.49). The average mean of all 24 barriers listed on the survey is 3.0. There were 11 barriers with a mean over 3.0 that indicated they are moderate barriers. Two of the remaining 11 barriers pertained to technology: "availability of technical support" (3.39) and "difficulty staying current with technology (3.07)." Other barriers in the top 11 with a mean over 3.0 were: "resistance to change," "convincing others that distance education is beneficial," "concern for appropriate feedback time," "transfer of credits between institutions," and "concern that online course quality is lowered." The remaining 13 barriers on the survey fell below the average mean of 3.0. The results are shown in Table 7.

Table 7

Perceived Barriers to Offering Online Courses

Barrier	*M*	*SD*	*Mdn*
Availability of adequate staff development for preparation	3.79	.96	4
Resistance to change	3.60	1.01	4
Adequate faculty planning time	3.57	1.14	4
Teacher lack of computer skills	3.56	1.14	4
Increased faculty time commitment	3.49	1.04	3
Convincing others Distance Education is beneficial	3.44	1.02	3
Availability of technical support	3.39	1.27	3
Transfer of credits between institutions	3.26	1.02	3
Concern for appropriate feedback time	3.24	1.09	3
Concern that online course quality lowered	3.10	1.03	3
Difficulty staying current with technology	3.07	1.07	3
Lack of face-to-face contact	2.86	1.07	3
Availability of guidance-counseling services	2.83	1.13	3
Amount of work required to complete coursework	2.83	1.00	3
Assignment and project pacing	2.78	.98	3
Lack of effective testing procedures	2.76	1.01	3
Availability of library services	2.72	1.14	3
Student lack of computer skills	2.61	1.24	2
Concern for legal issues	2.61	1.12	3
Student knowledge of copyright issues	2.57	1.23	3
Availability of FAQ handbook	2.54	1.08	3
Isolation due to limited interaction	2.51	.92	2
Acceptable User Policy	2.44	1.16	2
Disruptions of social organization of traditional classroom	2.43	.92	2

Research Question #6

Research Question Six related to, "Are there differences in the perceived barriers to the implementation of online programs in terms of geographic region, size of the school systems, and per-pupil expenditure?"

HO: There are no differences among the regions and a given perceived barrier to the implementation of online programs.

On each of the barriers listed below, the *p* was greater than the significance level that was preset at 05. The null hypotheses are retained on all 24 barriers. There were no significant differences among the regions and the perceptions of barriers to the implementation of online programs. The results are presented in Table 8.

Table 8

Comparison Between Tennessee Regions and Perceived Barriers

Barriers		*M*	*SD*
Student lack of computer skills	East	2.66	1.32
	Middle	2.24	.83
	West	3.06	1.53
Teacher lack of computer skills	East	3.59	1.30
	Middle	3.32	1.03
	West	3.82	1.01
Availability of technical support	East	3.32	1.25
	Middle	3.42	1.21
	West	3.35	1.41
Student knowledge of copyright issues	East	2.19	1.00
	Middle	2.54	1.06
	West	3.13	1.50
Availability of FAQ handbook	East	2.23	1.07
	Middle	2.77	.97
	West	2.69	1.20

Table 8 (continued)

Barriers		*M*	*SD*
Adequate faculty planning time'	East	3.68	1.22
	Middle	3.46	1.06
	West	3.53	1.18
Availability of adequate staff development	East	3.85	.97
	Middle	3.68	.99
	West	3.88	.96
Availability of guidance-counseling services	East	2.79	1.03
	Middle	2.84	1.11
	West	2.94	1.39
Availability of library services	East	2.61	1.10
	Middle	2.78	1.09
	West	2.73	1.33
Concern for appropriate feedback time	East	3.38	1.01
	Middle	3.08	1.22
	West	3.18	1.07
Amount of work required to complete courses	East	2.67	.96
	Middle	2.96	1.04
	West	2.76	.90
Assignment and project pacing	East	2.52	.94
	Middle	2.92	.97
	West	2.94	1.03
Increased faculty time commitment	East	3.52	1.05
	Middle	3.33	1.09
	West	3.71	.99
Lack of face-to-face contact	East	2.62	1.01
	Middle	3.00	1.04
	West	3.13	1.19
Concern for legal issues	East	2.46	1.00
	Middle	2.79	1.06
	West	2.65	1.41

Table 8 (continued)

Barriers		*M*	*SD*
Isolation due to limited interaction	East	2.41	.93
	Middle	2.63	.71
	West	2.56	1.21
Acceptable User Policy	East	2.19	1.00
	Middle	2.50	1.02
	West	2.81	1.56
Transfer of credits between institutions	East	3.07	1.04
	Middle	3.36	.86
	West	3.41	1.23
Lack of effective testing procedures	East	2.66	.90
	Middle	2.75	.94
	West	2.94	1.30
Difficulty staying current with technology	East	3.14	.99
	Middle	2.96	1.21
	West	3.18	1.01
Disruptions of social organization of traditional classroom	East	2.15	.92
	Middle	2.64	.86
	West	2.60	.99
Convincing others Distance Education is beneficial	East	3.46	1.07
	Middle	3.40	.87
	West	3.47	1.23
Resistance to change	East	3.74	.86
	Middle	3.52	1.12
	West	3.53	1.12
Concern that online course quality lowered	East	3.17	.80
	Middle	3.04	1.00
	West	3.06	1.43

This section continues with Research Question Six that addressed, "Are there differences in the perceived barriers to the implementation of online programs in terms of geographic region, size of the school systems, and per-pupil expenditure." This section focused on the analysis for size of school and per-pupil expenditure using Pearson's correlations to examine the relationships for each of the barrier questions.

HO: There is no relationship between size of the school system and a given barrier to the implementation of online programs.

HO: There is no relationship between per-pupil expenditure and a given barrier to the implementation of online programs.

Using Pearson's correlations, there was only one null hypothesis for size and barriers to implementation that was rejected. The relationship, size of school system and concern for legal issues was negative (-.327) indicating the smaller school systems perceived this as a stronger barrier to the implementation of online programs than larger school systems did. The results are shown in Table 9.

The same barrier, concern for legal issues was also negative (-.268) in the relationship with per-pupil expenditure. This negative relationship indicated that school systems with smaller per pupil expenditure perceived this as a stronger barrier to the implementation of online programs than did a school system with larger per pupil expenditure. The results are shown in Table 9.

Table 9

Pearson Correlations Analyzing Barriers with Size of School System and Per-Pupil Expenditure

	Size of School System	Per-Pupil Expenditure
Student lack of computer skills	-.169	.022
Teacher lack of computer skills	-.019	.118
Availability of technical support	.124	.141
Student knowledge of copyright issues	-.037	-.045
Availability of FAQ handbook	-.046	-.074
Adequate faculty planning time'	-.090	-.006
Availability of adequate staff development for preparation	-.098	-.063
Availability of guidance-counseling services	-.210	-.096
Availability of library services	-.123	-.076
Concern for appropriate feedback time	-.037	.104
Amount of work required to complete coursework	-.167	-.016
Assignment and project pacing	-.047	-.064
Increased faculty time commitment	.016	-.059
Lack of face-to-face contact	-.023	-.129
Concern for legal issues	-.327 **	-.268 *
Isolation due to limited interaction	-.059	-.126
Acceptable User Policy	-.225	-.118
Transfer of credits between institutions	.198	-.099
Lack of effective testing procedures	.004	-.074
Difficulty staying current with technology	.020	-.089
Disruptions of social organization of traditional classroom	.021	-.092
Convincing others Distance Education is beneficial	-.052	-.140
Resistance to change	-.032	-.021
Concern that online course quality lowered	.007	-.191

** Correlation is significant at the 0.01 level (p < .01)
 * Correlation is significant at the 0.05 level (p<.05)

Research Question #7

Research Question Seven focused on, "Among schools that are offering online courses, what are the positive characteristics of the online programs?" Hamilton County offers various online high school courses that are maintained by teachers in the school system. Students do not require any training for the courses they take. Professional development for teachers is made available by the system. It takes over 20 hours to prepare and maintain a course. The results for Hamilton County are shown in Table 10. Union County has purchased the Plato Credit Recovery System. It intends to implement it by next semester.

Table 10

Summary of Hamilton County's Distance Education Program

Hamilton County
1. Various courses offered online.
2. Courses maintained by teachers. Twenty hours required to prepare and maintain.
3. No prior training required by students.
4. Professional development offered for teachers.

Cleveland City schools began their online program last summer. The system purchased licenses for NovaNet from Pearson Digital Learning. Students who had the seat time in a course but had not received credit for the course were allowed to use NovaNet, a credit recovery program. Cleveland City schools had five students who were able to graduate with the class of 2004 by completing this program. Because students have had good results with this program, more than 40 have signed up for NovaNet credit recovery program this year. At the current time, there are no costs for the students to use this program. The results are summarized in Table 11.

Table 11

Summary of Cleveland City's Distance Education Program

Cleveland City
1. NovaNet from Pearson Digital Learning used as a Credit Recovery program
2. Summer 2004, 5 students graduated with their class
3. At the present time, there are no fees
4. More than 40 students signed up this year

Additional Survey Results

The last few questions on the survey were open-ended questions. Only two questions were answered. The first question was, "Please list and/or explain any additional issues you feel are barriers or obstacles to the implementation of a successful distance education courses." Of those responding, 40% (17 of 42 respondents) listed funding as an additional issue. Other issues mentioned were cost of equipment, maintenance, transmission lines, tech support, start-up costs, and cost of licenses. One survey participant responded:

> It would be expensive to provide the equipment and connectivity to provide the audio and video presentations at an acceptable speed. We were interested in using this for a small (kindergarten through grade 12 school) but found the cost to be too great.

Another additional issue was lack of motivation. Concerning motivation, one survey participant responded, "Principals and staff need to encourage and promote the use of online courses and provide incentives for teachers to increase their staff development and strive for higher degree attainment." Another stated:

> I really think the state department of education should step up and provide some direction. Florida has a vanguard program; I'd like to see the same type of program implemented in Tennessee. If individual school districts are left to design their own programs, then there is going to be a lot of duplicated effort, a wide range of implementation strategies, and varying degrees of quality. That's likely to breed confusion and disillusionment.

Another comment made concerning getting a program started was, "The organization of the

program as a whole could be a barrier. If the program is not fully organized and thought

through, schools will not want to experience the difficulties that could accompany this project."

Another question to which several responses were made was, "Please list and/or explain

any issues that you feel have been barriers in the past, but you feel are no longer a barrier to

successful distance education courses." Of those responding, 40% (17 of the 42 respondents)

listed availability and dependability of technology with Internet access at appropriate speeds was

the past barrier listed most. One survey participant answered:

> Students' access to computers and the Internet. In this technology-rich world, students
> now have remarkable access to computers that they would not have had 5 to 10 years
> ago. Also, students are now very computer-literate and most students are very
> knowledgeable when it comes to maneuvering the Internet.

Another response was:

> The importance of the use of technology in our schools has not always been of great
> concern to local boards of education. However, with the passage of the *No Child Left*
> *Behind* law, technology has been made a must in our schools. Thus, boards of education
> cannot as easily push technology aside any longer.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

This chapter provides a summary of the data analyses and the results presented in Chapter 4 in this study. Survey participants were technology directors/coordinators in school systems in the state of Tennessee.

Summary

The researcher's primary purposes were to identify the extent to which online courses are available to high school students in Tennessee, to describe the characteristics of current online programs, and to identify barriers to the implementation of online courses in school systems that are not currently offering such programs.

The researcher collected data through a 42-question Internet survey that was divided into two sections: demographic data and possible barriers to high school distance education courses. There were 11 questions in the first part, demographic data. The remaining 39 questions were in the Barriers section of the survey instrument. A Likert-type scale indicator was used on these statements: 5 - very strong barrier, 4 – strong barrier, 3 – moderate barrier, 2 – weak barrier, and 1 – very weak barrier. The final two questions were open-ended and addressed additional issues not on the survey such as issues that might have been barriers in the past but for which the participants did not consider to be a barrier today.

The participants in this study were technology directors/coordinators in Tennessee school systems. Emails were sent to technology directors/coordinators requesting that they respond to the link at the bottom of the email. The researcher sent out emails several times attempting to collect completed surveys as well as faxing letters and finally phoning those systems in which

technology directors/coordinators had not responded. After all of these attempts, the researcher received 72 useable surveys.

The majority of the respondents were male (63.9%). A majority of the survey respondents (58.3%) had an advanced degree. Twenty-eight of the respondents (38.9%) had been in their current positions five years or fewer. Only 12 (17%) of the respondents had a dedicated job in which all of their responsibilities revolved entirely around technology. The remaining 83% had duties in addition to their technology responsibilities. Forty-five (62.5%) of the survey respondents had never taken an online class and 63 (87.5%) had never taught online classes.

Findings for Research Questions

Findings for Research Question #1

Research Question #1 addressed the extent to which high schools in Tennessee allow their students to use online education (distance education). According to the responses to the survey, only two school systems responded affirmatively: Cleveland City Schools and Hamilton County School. Cleveland City uses NovaNet for the purposes of credit recovery. Students must have spent the time in class but did not receive a credit for the course. At this point, the students stay after school to work on the program and earn their credits for graduation. Because of the opportunity last summer (2004), five students were able to graduate with their class. This school year (2004-05), there are over 40 students enrolled in the Credit Recovery program.

Findings for Research Question #2

Research Question #2 was, "Are there differences between school systems that offer online courses and those that do not in terms of (a) geographic regions of Tennessee, (b) size of the school systems, and (c) per-pupil expenditure?" The only two school systems offering online courses are both from the eastern region of the state: Hamilton County and Cleveland City.

Hamilton County had a student population of 44,217 whereas Cleveland City had only 4,823. The per-pupil expenditure rate of the two school systems was fairly close. Hamilton County spent $7,229 and Cleveland City spent $7,102 per pupil. The average of these two school systems was $7,265.50. The average per-pupil expenditure statewide of all school systems responding that they did not offer online courses was $6,247.50.

Findings for Research Question #3

Research Question #3 referred to reasons students might take an online course. On the survey instrument, there were five choices: (a) class not offered at their school, (b) to meet graduation requirements, (c) unable to attend classes, (d) cannot physically attend school, and (e) other. There were 127 responses on these five choices. "Class not offered at their school" had 62 responses (48.8%), "to meet graduation requirements" had 36 responses (28.3%), and "unable to attend classes" received 22 responses (17.3%).

Findings for Research Question #4

Research Question #4 was, "What discipline areas do technology directors believe should be available online?" Those responding to the online survey were given a drop down menu listing 10 high school discipline subject areas: science, business, English, foreign languages, health science, AP courses, social studies, art, math, and other. There were 293 responses because more than one subject could be chosen. The choice of AP courses had the highest percentage with 72.5%, followed by foreign languages (65.2%), math (50.7%), sciences, (49.3%), English (47.8%), and business with 42%.

Findings for Research Question #5

Research Question #5 referred to perceived barriers. The survey instrument listed 24 perceived barriers that might prevent implementation of online courses. A Likert-type scale was

used to evaluate these barriers. There were 72 participants responding to all 24 perceived barriers on the survey instrument. The perceived barriers were ordered from highest to lowest mean score with 5 meaning "very strong barrier." The highest mean score (3.79) was "availability of adequate staff development for preparing a course" and the lowest mean score (2.43) was "disruptions of social organization of traditional classroom." There were 11 with a mean score over 3.0. They were:

1. Availability of adequate staff development for preparation   3.79
2. Resistance to change   3.60
3. Adequate faculty planning time   3.57
4. Teacher lack of computer skills   3.56
5. Increased faculty time commitment   3.49
6. Convincing others Distance Education is beneficial   3.44
7. Availability of technical support   3.39
8. Transfer of credits between institutions   3.26
9. Concern for appropriate feedback time   3.24
10. Concern that online courses quality lowered   3.10
11. Difficulty staying current with technology   3.07

Findings for Research Question #6

Research Question #6 was divided into three sections. The first section pertained to a comparison of the barriers to the region of the state the respondent was from. There were 10 barriers where the mean for all regions was at least 3.0. Of those 10, one half had a combined mean near 3.5. Those five barriers and their combined mean were the following:

1. Teacher lack of computer skills   3.58
2. Resistance to change   3.60
3. Adequate faculty planning time   3.56

4. Availability of adequate staff development   3.80

5. Increased faculty time commitment   3.52

Table 9 in Chapter 4 showed the Pearson Correlations between the perceived barriers and the size of the school system and the per-pupil expenditure. For size of the school system, there was one null hypothesis rejected. The smaller school systems perceived concern for legal issues as a stronger barrier than did the larger school systems.

There was one null hypotheses rejected that correlated perceived barriers and per-pupil expenditure. The indication was that the barrier, concern for legal issues, was a stronger barrier for schools with a larger per pupil expenditure.

Findings for Research Question #7

Research Question #7 was, "Among school that are offering online courses, what are the positive characteristics of the online programs?" There were only two systems that offered online programs: Hamilton County and Cleveland City. Cleveland City has had success with increasing the number of graduates. Last summer, Cleveland City had five students who were able to graduate with their class because of the NovaNet Credit Recovery program. This year, there are more than 40 enrolled in the after school Credit Recovery program. At this time, there are no costs to the students for participating in this program.

There were two open-ended questions. One was to list additional barriers that were not listed on the survey as a barrier. Funding was listed as an additional issue by 40% of those responding to this question. This included cost of start-up, maintaining, transmission lines, technical support, and cost of the licenses. Lack of motivation was a second additional barrier listed whether it was for an individual program or a program for the entire state similar to Florida's Virtual School.

A second question asked for responses to issues that had been a barrier in the past but that were not viewed as barriers at the time the survey was completed. Forty percent responded that

the availability and dependability of technology with Internet access had improved tremendously. Respondents stated that technology had improved making it an issue that was not a barrier today.

<div align="center">*Conclusions*</div>

The purposes of this study was to identify the extent to which online courses were available to high school students in Tennessee, to describe the characteristics of current online programs, and to identify barriers to the implementation of online courses in school systems that were not offering such programs at the time of the study. Technology directors in Tennessee were surveyed using an online survey.

The results of the study were overwhelming that in Tennessee public school systems have not gotten "on board" in using online education. The results of this study indicated that only two school systems were currently using online courses for their students and one other will implement an online course next year. Cleveland City has had a good success rate with its online program that has been in place since the summer of 2004.

In reviewing the demographics section, 83% of the survey respondents indicated that their job duties included more than just the technology component. There are directors/coordinators that also serve as their school system's assistant director, elementary supervisor, and transportation director. The reason for such a large range of duties might have something to do with the size of the school system and the funding available.

Another statistic from the demographics information concerns the highest educational degree earned. There were 12.5% of the survey respondents that marked other, which indicated they have not completed a four-year degree. On the other hand, of those responding, 36.1% had a master's degree and 22.2% had a doctorate/specialist degree, resulting in over 58% of the technology directors who had advanced degrees.

Forty percent of the survey respondents indicated funding as a major reason that their system was not using online education. Funding issues include the cost of the equipment, maintenance of the equipment, cost of transmission lines, technical support, start-up costs, and the costs of software licenses. The survey results indicated that availability of technology and dependability of technology with Internet access at appropriate speeds is no longer considered a barrier in starting a distance education program.

Recommendations for Further Research

1. Repeat this survey with high school principals in Tennessee.

According to this study, the technology directors/coordinators wear many hats in their respective school systems. The principal may be more familiar with the offerings at the high school than is the technology director/coordinator. Furthermore, those school systems that either do not have a technology director/coordinator or have an individual in that capacity on a part-time basis will have principals. Every high school in the state should have input concerning the needs of secondary schools for this opportunity.

2. Repeat this survey using private schools and academies in Tennessee.

This survey focused only on public school systems in Tennessee. Private schools may have a higher percentage of students using distance learning. This would allow for a better reading of distance education offerings in all Tennessee secondary schools. It is highly possible that more private schools allow students to earn online credits for high school graduation.

3. Expand this survey to include the southern states for a regional look at which schools use distance education and the perceptions of those involved (students and teachers) with distance education.

Florida has a statewide program into which other states and school systems can buy. The Florida program has had many successes and has increased in its enrollment yearly. According to this survey, it was determined that only two school systems offered distance education

programs for their students in Tennessee. This study would allow for more knowledge of how wide spread distance education is on a regional basis.

    4. A qualitative study should be developed to investigate teachers' perceptions of distance education statewide

A qualitative study should give more insight into teachers' perceptions and allow for more input. This study focused on technology directors/coordinators who should have familiarity with online education. Teachers, on the other hand, may have varied knowledge and perceptions of distance education.

    5. This survey should be repeated to include web-enhanced courses as well as online courses.

For the purpose of this study, Distance Education included only web-based online courses. There could be many teachers who use web-enhancements with their classes. The results of this type of survey could result in a more realistic idea of the extent to which secondary schools in Tennessee are using the Internet.

Recommendations to Improve Practice

    1. Provide awareness activities so that distance learning becomes a desirable option in all high schools in the State of Tennessee.

Cleveland City has had great results with the NovaNet Credit Recovery program. The Union County respondent indicated that his system was planning to implement a similar program next year. Hamilton County offers some online courses for its county. Other than that, no other public school system in Tennessee was offering distance learning. One of the biggest obstacles, apparently is that many school systems either are not aware of these programs or do not have reliable information on their effectiveness. The state Department of Education should review programs that are available, estimate the cost to the school systems, and make recommendations to the various school systems based on the school systems' needs.

2. Require all Colleges of Education in the state of Tennessee that enroll students seeking teacher certification to take at least one course through an online program or ensure online units are covered. In addition, the certification programs should incorporate courses in designing and implementing online classes.

If sufficient numbers of future teachers have the knowledge from their own experiences, implementing the classes in the secondary schools will become easier with time because the teachers will be aware of what distance education/online courses entail.

3. Encourage college instructors in the appropriate technology fields to partner with high schools in determining what kinds of programs would best suit the needs of the students and to serve as mentors to the high school teachers.

4. The State Department of Education should prepare public service spots that publicize the availability of earning some credits through online programs. Most parents are unaware of the existence of such options. The more informed they are, the more likely they are to request these programs.

5. Long range plans need to be developed by the Tennessee Department of Education for supporting a distance education program and to fund training of faculty.

Times are changing. It is going to be necessary to adjust to those changes as they occur. As distance education continues to grow, it is vital that educators be prepared for it. Therefore, the Tennessee Department of Education needs to get involved and get ready. Adequate funding needs to be available so that faculty and staff of local school systems can get ready and be on the forefront of this coming change in education.

6. Public secondary school administrators should provide inservice programs on online education to their faculties.

As the research indicated, teachers are much more likely to work at making a new program successful if they are involved in the planning from the beginning. The school system might even consider offering the inservice to faculty members online at the teachers'

convenience so that they can understand some of the benefits. Incentives could also be used to encourage online instruction.

7. The Tennessee State Department of Education should consider setting up a Virtual School that could be used by all school systems in the state.

Florida's Virtual School has seen many successes since its beginning. A respondent to the survey stated:

> I really think the state Department of Education should step up and provide some direction. Florida has a vanguard program; I'd like to see the same type of program implemented in Tennessee. If individual school districts are left to design their own program, then there is going to be a lot of duplicated effort, a wide range of implementation strategies, and varying degrees of quality. That's likely to breed confusion and disillusionment.

It is possible that the state universities could apply for grant money with some of it earmarked for technology to develop a delivery system that would be tailored to the Tennessee high school graduation requirements. An online course program that takes into account the curriculum guides for all required units of study could be made available to every secondary school. In addition to serving students enrolled in traditional high schools, such a program would also benefit adults' education and might be of use in the remedial classes that some students must take when they enter colleges or universities. It could be of tremendous benefit to those students who must undergo long-term medical absences from school or who have extended absences for other legitimate reasons.

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APPENDICES

APPENDIX A

Survey

Barriers Affecting High School Distance Education Courses

   The following survey will take approximately 15 minutes to complete. Please answer the questions taking into consideration your experiences with distance education courses. Distance Education can include telecourses, video courses, Internet, or a combination of all. For the purpose of this study, Distance Education will include ONLY web based online courses. If you would like the survey results sent to you, please be sure to include your e-mail address below.

Demographic Data Part I

1. E-Mail Address:

2. Employer

3. Gender?　　☐ Male　　　　☐ Female

4. Please list your current job functions

5. Years of experience in education?　　| 1-5 ▼ |

6. Number of years in current position:　| 1-5 ▼ |

7. Highest Degree earned?　　| PhD/EdD ▼ |

8. How many distance education courses have you taken?　　| None ▼ |

9. How many distance education courses do you have experience teaching?　　| None ▼ |

10. Are students enrolled in your high school(s) able to take online courses for high school credit? ☐ Yes ☐ No

11. What reason do you feel students might consider taking a high school online course?
   | Class not offered at their school ▼ |

91

12. Discipline area(s) in which online courses should be made available

| Sciences | ▼ |

Part II

Directions: For questions 13-36, please rank your opinion of how the following items would be considered to be a barrier (obstacle) to implement high school distance education courses.

For this study, distance education will include ONLY entire web based online courses. Click on the drop down arrow to choose your ranking. The rankings are (5) Very strong barrier, (4) Strong barrier, (3) Moderate barrier, (2) Weak barrier, (1) Very weak barrier, and (0) Not applicable.

13. A student's lack of computer literacy skills

| 0 Not Applicable | ▼ |

14. A teacher's lack of computer literacy skills

| 0 Not Applicable | ▼ |

15. Technical support available during duration of online course for students and/or teachers

| 0 Not Applicable | ▼ |

16. A student's knowledge and usage of appropriate copyright/fair use issues

| 0 Not Applicable | ▼ |

17. Frequently Asked Questions (FAQ) section/handbook available for answering questions

| 0 Not Applicable | ▼ |

18. Adequate planning time for faculty to prepare online courses

| 0 Not Applicable | ▼ |

19. Adequate staff development/in-service available for preparing online courses

| 0 Not Applicable | ▼ |

20. Guidance services/counseling services available for online students

| 0 Not Applicable | ▼ |

21. Library services available for online students

| 0 Not Applicable | ▼ |

22. Concern for appropriate feedback time between student and teacher

| 0 Not Applicable | ▼ |

23. Amount of work required to complete the coursework

| 0 Not Applicable | ▼ |

24. Assignment/project pacing

0 Not Applicable ▼

25. Increased time commitment for faculty

0 Not Applicable ▼

26. Lack of face-to-face contact between students, teachers, and other students

0 Not Applicable ▼

27. Concern for legal issues (computer crime, hackers, software piracy and computer viruses)

0 Not Applicable ▼

28. Feeling of isolation due to limited social interactions

0 Not Applicable ▼

29. Acceptable User Policy (AUP)

0 Not Applicable ▼

30. Transferring of credits from one institution to another

0 Not Applicable ▼

31. Effective evaluation and testing procedures

0 Not Applicable ▼

32. Difficulty staying current with technological advancements

0 Not Applicable ▼

33. Disruptions of the social organization of traditional classroom

0 Not Applicable ▼

34. Convincing others that Distance Education courses are beneficial

0 Not Applicable ▼

35. Resistance to change

0 Not Applicable ▼

36. Concern that the quality of online courses are lowered

0 Not Applicable ▼

Part III

37. Does your school system offer online courses for high school credit? (Remember for the purpose of this study online courses include ONLY entire web based courses.)

    ☐   Yes (Please continue with the next question.)

    ☐   No (Skip to #51.)

38. Please describe the online courses offered by your system.

39. Who maintains the courses?

40. What time commitments are required to manage the courses?

    | 1-5   ▼ |

41. What are the advantages and/or disadvantages of this type of online course?

42. Who chooses the courses to be offered?

43. What advertising is required?

44. How is Average Daily Attendance/Average Daily Membership (ADA/ADM) affected by students enrolled in online courses?

45. What fees are charged for each course?

46. Are students from other school systems allowed to take these courses? What fee is charged?

    ◉ Yes   ☐ No

47. What type of training is provided to teachers for online courses?

48. What type of training is provided to students for online courses?

49. What were the costs involved in setting up an online courses?

50. What costs are involved in maintaining the online courses?

51. Please list and/or explain any additional issues you feel are barriers or obstacles to the implementation of a successful distance education courses

52. Please list and/or explain any issues that you feel have been barriers in the past, but you feel are no longer a barrier to successful distance education courses.

If you would like a copy of the results of this survey, please be sure that your e-mail address is included in the demographic information at the beginning of the survey.

<u>THANK YOU FOR YOUR TIME.</u>

APPENDIX B

Permission to Use Previous Surveys

Message View

3/22/2004 8:36:35 AM Eastern Standard Time

From: DTom Wallace <tbwallace@NortheastState.edu>
To: DMurphyk3@aol.com
Sent from the Internet (Details)

You do indeed have my permission to use the survey from the prospectus and dissertation entitled "Perceived Barriers to Web Enhancement by Full Time,.-Tennessee Board of Regents Faculty." You also have my permission to modify the survey as you see fit.

At 12:48 PM 3/20/2004 -0500, you wrote:
>Thank you for your help on the survey. I made a few changes based on your suggestions and resubmitted it to Dr. West. Now I have a date set on April 2 to present. Thanks again.
>
>Will you please send me a return email stating it is okay for me to use
>and revise your survey? This way I will have something in writing to show >I
have approval.
>
>Thanks again.
Kathy Murphy·

http://webmail.aol.com/frnsgview.adp?folder=SU5CTlg=:&uid=8397167

Correspondence: Technical Directors/Technical Coordinators

AOL.COM | Message View

Subj: ETSU Doctoral Survey   ;
Date: 10/2/2004 9:11:26PM Eastern Daylight Time
From: Murphyk3
To: nanneyj@alamoschool.org.   Iberry@alcoaschools.net.   jwhitley@acs.ac.
       stoutd@kl2tn.net,   grayj@bedfordk 12tn.net.   oswaltd@kl2tn.net.   Colliera@kl2tn.net.
       ColburnD@K 12tn.net.   bellb@btountkl2.org.   Wingol01@kl2tn.net
Cc: kmurphy@clevelandschools.org.   MurphykS   „;r

October 2, 2004

Dear Technology Director/Coordinator

I am Kathy Murphy,   an East Tennessee State University graduate student needing
your help to finalize requirements   for an Ed.n.   in Educational Leadership and
Policy Analysis.   My dissertation is currently titled Barriers Affecting
Successful Hi ah School Distance Education Courses.

Distance Education is available in most states   and may soon be in all public
school systems.   The purpose of this study is to identify the barriers affecting
the development of successful distance education courses/programs at the high
school level and to determine how to implement programs so that students,
parents, school administrators,   and teachers recognize thent as viable
opportunities,   which will includes advantages, disadvantages, financial   factors,
and technical support.

The survey will take you approximately 15-20 minutes.   Please go to the site
listed below, complete the survey, and then click the SUBMIT button at the bottom
of the last page.   You must click this button for'your responses to be sent to me.

http://www.iwc-usa.net/murphy/   •   .
.

Please complete the survey and submit by October 15, 2004.   Thank you for your
help in my endeavor to complete this degree.

Sincerely

SUBJECT: YOUR RESPONSE IS NEEDED BY OCTOBER 29

October 21,2004

Dear Technology Director/Coordinator

A couple of weeks ago, you received an email which requested that you respond to an online survey. This survey is an essential element in finalizing my dissertation and thus completing 6 years of work towards an Ed.D. from East Tennessee State University.

Distance/Online Education is available in most states and may soon be in all public school systems. The purpose of this study is to identify the barriers affecting the development of successful distance education courses/programs.

The survey will take you approximately 15 minutes to complete. Please go to the site listed below, complete the survey, and then click the SUBMIT button at the bottom of the last page. You must click this button for your response to be sent to me.

http://www.iwc-usa.net/murphy/

Please complete the survey and submit by October 29, 2004. Thank you for your help in my endeavor to finalize this degree. The success of my dissertation project depends on your response. Thank you for your help!

Kathy Murphy

Kathy Murphy

17 Acorn Lane NE
Cleveland, TN 37312

FAX

TO: **Tennessee Technology Directors/Coordinators**

FROM: **Kathy Murphy**

DATE: **November 9,2004**

SUBJECT: **Dissertation Survey**

I am Kathy Murphy, an East Tennessee State University graduate student needing your help to finalize requirements for an Ed.D. in Educational Leadership and Policy Analysis. Distance/Online Education is available in most states and may soon be in all public school systems. The purpose of this study is to identify the barriers affecting the development of successful distance education courses/programs.

At this point, more than forty Technology Coordinators/Directors in Tennessee have responded to previous mailings. However, ETSU requires a minimum response rate of .• 60 percent and that is approximately eighty (80) responses in all. That means I need YOUR help. If you are not a Technology Coordinator/Director for your school system, please forward this FAX to the correct person in your system. If you have not yet responded, I would be most grateful if you would take 15-20 minutes to complete the survey. Please go to the website listed below, complete the survey, and then click the SUBMIT button at the bottom of the last page. You must click this button for your responses to be sent to me.

<center>http://ww\v.iwc-usa.net/murphv</center>

Please complete the survey this week. Thank you for your assistance in my educational efforts.

Tennessee Schools' Website URLs

District Office	URL
Alamo	http://www. ccetc.org/acs/default.htm
Alcoa	h ttp : // w w w . a ! cpa school s . n et
Alvin C York Institute	http://www2.york.kl2.tn.us/
Anderson County	http://www.acorns.kl2.tn.us/
Athens	h ttp :// w w w . ath ens- 1 ea . m cm i n n . k 1 2 . tn . u s/
Bedford County	http : //www . bedf ord k 1 2tn . com
Benton County	http : //www, bcos . prg
Bledsoe County	http://WWW.BLEDSOE.K12.TN.US/
Blount County	http://www.blountkl2.org/
Bradley County	http://www.bradleyschools.org/
Bristol	http://www.btcs.org/
Campbell County	http://www.campbeil.kl2.tn.us/
Carter County	http://carter.kl2.tn.us
Cheatham County	http://cheatham.kl2tn.net/
Chester County	http://chestercountyschools.org
Claiborne County	http://www.claibornecountyschools.com
Clay County	http://www.clay-lea.kl2.tn.us/
Cleveland	http://www.clevelandschools.org
Clinton	http://www.clintonschools.org/
Cocke County	http://www.cocke.kl2.tn.us/
Coffee County	http://www.coffeecountyschools.com/
Crockett County	http : //www . ccetc . org/
Cumberland County	http ://ccschools. kl 2tn .net
Davidson County	http://www.mnps.org
DeKalb County	http://www.dekalbschools.com
Dickson County	http://www.dicksoncountyschools.org/
Dyer County	http ://www.dyercs. net
Dyersburg	http://www,dcs.kl2tn,net/dcs/index,html

Elizabethton	http ://ecschools. net/
Etowah	http://www,etowah-es.mcminn.kl2.tn.us
Fayetteville	http://www.fcsboe.org
Franklin	http://www.fssd.org/
Franklin County	http://franklincountyschools.kl2tn.net/
Gibson Co Sp Dist	http://www.gcssd.org/
Giles County	http://www.giles-lea.giles.kl2.tn.us
Grainger County	http://www.grainger.kl2.tn.us
Greene County	http://www.greene.xtn.net/~gcs/
Greeneville	http://www.gcschools.net/
Grundy County	http://volweb.utk.edu/Schools/grundyco/grundy.ir
H Rock Bruceton	http://www.hrb.kl2.tn.us
Hamblen County	http://www.hcboe.net
Hamilton County	http://www.hcde.org/
Hancock County	http://www.hancockcountyschools.com
Hardin County	http://www.hardin.kl2.tn.us/
Hawkins County	http://www.hckl2.net/
Haywood County	http://www.haywood.kl2.tn.us
Henderson County	http://www.henderson-lea.henderson.kl2.tn.us/
Henry County	http://www.henry.kl2.tn.us/
Hickman County	http://www.hickman.kl2tn.net/
Houston County	http://houston.kl2.tn.us/
Huntingdon	http://www.huntingdonschools.org
Jackson County	http://volweb.utk.edu/school/jackson/
Jefferson County	http://jc-schools.net/
Johnson City	http://www.jcschools.org
Johnson County	http://www.jocoed.kl2tn.net
Kingsport	http://www.kl2k.com
Knox County	http://www.kcs.kl2tn.net
Lake County	http://www.lake.kl2.tn.us
Lauderdale County	http://www.lced.net/
Lebanon	http://www.lssd.org
Lenoir City	http://www.lenoircityschools.corn
Lewis County	http://www.lewis.kl2.tn.us
Lexington	http ://www.caywopd .org/

Lincoln County	http://www.lcdoe.org/
Loudon County	http://kl2.Joudoncounty.org
Macon County	http://maconcountyschools.com
Madison County	http://www.jmcss.net/
Manchester	http ://www. manchestercitysch . org
Marion County	http://www.marionschools.org
Marshall County	http://www.mcs.kl2.tn.us/
Maryville	http://www.ci.maryville.tn.us/schools/
McMinn County	http://www.mcminn-lea.mcminn.kl2.tn.us/
McNairy County	http://www.mcnairy.org
Memphis	http://www.memphis-schools.kl2.tn.us/
Milan	http://www.milanssd.org/
Monroe County	http://www.monroe.kl2.tn.us
Montgomery County	http://www.cmcss.net
Morgan County	http://www.mcs.kl2tn.net/index.htm
Murfreesboro	http://www.cityschools.net/
Oak Ridge	http://www.ortn.edu/
Obion County	http://www.obioncountyschools.com
Oneida	http ://www. onejdaschools.org/
Paris	http://www.paris.kl2.tn.us/
Perry County	http://www.perryboe.com/
Polk County	http://www.polkcountyschools.com/
Putnam County	http://www.putnam.kl2.tn.us/
Rhea County	http://www.rheacounty.org
Roane County	http://www.roane-lea.roane.kl2.tn.us/
Robertson County	http://www.robcoschools.org
Rogersville	http://www.rcschool.net/
Rutherford County	http://www.rcs.kl2.tn.us/
Scott County	http://www.scottcounty.net/
Sevier County	http://www.sevier.org/
Shelby County	http://www.scs.kl2.tn.us
Smith County	http://boe.smithcounty.com/
South Carroll	http://rocketsonline.org
Stewart County	http.: //www . ste wa rtcpu n ty sch oo 1 s . n et/
Sullivan County	http://www.scde.kl2.tn.us
Sumner County	http://www.sumnerschools.org

Sweetwater	http://www.sweetwatercityschools.com
Term Sch For Deaf	http://www.tsdeaf.org
Tipton County	http://www.tiptpn-county.com/
Trenton	http://voyager.rtd^utk.edu/~trenton/
Trousdale County	http://www.tcschQols.org
Tullahoma	http://www.tullahomacityschools.net/
Unicoi County	http ://www . u n icoischools. com
Union City	http://www.union-city-hs.obiQn.kl2.tn.us/
Union County	http://www.ucps.org
Warren County	http://www.warrenschQQls.com
Washington County	http://www.wcde.org/
Wayne County	http://www.wayne-lea.wayne.kl2.tn.us/
Weakley County	http://www.weakleycountyschQols.com
Williamson County	http://www.wcs.edu
Wilson County	http://www.wcschools.com/
11 4 Listed	

http://www.k-12.state.tn.us/weblinks/showmedistricts.asp

3/30/2005

VITA

KATHY MURPHY

Personal Data: Date of Birth: November 16, 1956
                            Place of Birth: Cleveland, Tennessee

Education: Cleveland State Community College;
                               Associates Degree;
                               1976

                            University of Tennessee, Chattanooga, TN;
                               Bachelor's Degree, Business Education;
                               1978

                            University of Tennessee, Chattanooga, TN;
                               Master's Degree, Business Education;
                               1985

                            East Tennessee State University, Johnson City, Tennessee;
                               Educational Leadership and Policy Analysis, Ed. D.;
                               2005

Professional
Teaching
Experience: Business Teacher, National School of Business
                               Cleveland, Tennessee
                               1978 – 1979

                            Branch Office Assistant, Tennessee Valley Federal Land Bank
                               Cleveland, Tennessee
                               1979 - 1981

                            Business Teacher, Bradley Central High School
                               Cleveland, Tennessee
                               1981 - 1991

                            Computer Literacy Skills, Bradley Jr. High School,
                               Cleveland, Tennessee
                               1991-1993

                            Business Teacher, Cleveland High School, Cleveland, Tennessee
                               1993 - Present