THE USE OF DISTANCE LEARNING TECHNOLOGY BY ALABAMA

BUSINESS TEACHERS FOR CREDENTIALING

AND INSTRUCTION

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THE USE OF DISTANCE LEARNING TECHNOLOGY BY ALABAMA BUSINESS TEACHERS FOR CREDENTIALING AND INSTRUCTION

Christal Cummings Pritchett

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VITA

Christal Kayron (Cummings) Pritchett, daughter of Winston Kayron and Betty Jean (Letlow) Cummings, was born November 20, 1970, in Opelika, Alabama. She graduated from Auburn High School at the top of her class in 1989. She married Christopher Glenn Pritchett, son of Roy Glenn Pritchett and Linda Joyce (Epperson) McDaniel, on September 7, 1991. She has two children: Christen Elizabeth "Beth" Pritchett, born June 1, 1994, and Christopher Wynn Pritchett, born March 1, 1997. She attended Southern Union State Community College in Opelika, Alabama, for one year, then she transferred to Auburn University in September 1990, and graduated summa cum laude with a Bachelor of Science Degree in Accounting in June 1992. She graduated from Auburn University in 2001 with a Master of Education Degree in Business Education. She was employed with Colorvision as an accountant from 1992-2001. She taught as an adjunct instructor at Southern Union State Community College and as a graduate teaching assistant at Auburn University. She taught Business/Marketing Education at Smiths Station High School with the Lee County School System from 2002-2004. She began teaching in the Office Systems Management department at Alabama A & M University in 2004.

DISSERTATION ABSTRACT

THE USE OF DISTANCE LEARNING TECHNOLOGY BY ALABAMA

BUSINESS TEACHERS FOR CREDENTIALING

AND INSTRUCTION

Christal Cummings Pritchett

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This study was designed to determine the degree to which Alabama business education teachers are utilizing distance learning technology in their courses and the extent to which Alabama business education teachers are enhancing their credentials via distance education. The extent to which Alabama business educators have adequate technology, training, and support in the area of distance learning was also examined.

Data were analyzed with SPSS 12.0 using the following statistical procedures: Descriptive, Analysis of Variance (ANOVA), Pearson Product-Moment Correlation, t-test, and Chi-Square. The majority of the respondents have not taught a distance learning class. More respondents were willing to instruct a distance learning class if they received training or professional development. A majority of participants expressed a need for computer technology, equipment, and

pedagogical training. Most respondents have not participated in a distance learning program to obtain an advanced degree or credentials; however, a majority of participants did express an interest in gaining an advanced degree or certification via distance education.

A significant difference ($p \leq .05$) occurred between the extent of distance learning use by Alabama business educators in their instruction and the extent to which they received distance learning training/professional development, are willing to teach distance learning classes, perceive their degree of skill in selected areas, and perceive they have the necessary equipment to utilize distance learning instruction. No significant difference occurred between the extent of distance learning use and the extent to which they enhance their credentials via distance learning technology. A significant difference occurred between the extent that Alabama business educators would be interested in using distance learning technology in their credentialing process and the extent to which they perceive they are prepared to instruct classes utilizing distance learning technology. No significant difference occurred among the degree of skill and the highest degree earned or the highest certification level. A positive significant correlation occurred between the degree of skill and years teaching business education.

Alabama business education teachers indicated a need for additional training and professional development in order to instruct classes via distance learning technology. The preferred methods were workshops and online modules during the summer.

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Style manuals or journals: *Publication Manual of the American Psychological Association*, 2001 (Fifth Edition); Sabin, William, *The Gregg Reference Manual*, 2001 (Ninth Edition).

Computer software: *Microsoft® Word 2002 and SPSS (Statistical Package for Social Sciences) for Windows Release 12.0.*

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I. NATURE OF THE PROBLEM

Introduction and Background

> As business educators, we believe that distance learning provides access to educational resources for a larger and more diverse population of learners than in the past. In addition, it enables schools to offer courses and other educational experiences that otherwise could not be offered. Thus, we believe that business educators must continue to learn about distance learning and investigate appropriate applications for their programs (Policies Commission for Business and Economic Education Statement No. 65).

Teacher shortages, continued fiscal problems, and the desire to increase learning opportunities to as many students as possible drive the development of distance learning as a plausible solution to varied interests (Yates, 2003). Public schools are facing major problems that, according to many observers, threaten to erode the foundation of the education system. Public schools in the United States are faced with the challenge of providing

equitable, far-reaching, practical, and high-quality educational services (Minoli, 1996). The National Business Education Association believes that distance learning can address the interests of educationally neglected populations, promote individual independence, and broaden the inclusiveness of the students business education serves (PCBEE Statement No. 65).

Teacher training, along with technological knowledge and experience, must be considered key components in preparing to instruct a distance learning course. Vojtek and Vojtek (2000) state that teachers should have the knowledge, technical skills, and resources to integrate technology into any program. More importantly, according to a survey taken by Y. Wang (2000), teachers stated that they must feel comfortable with technology in order to use it. Kalny (1999) further states that newly acquired technological skills will empower tomorrow's teachers and will help to prepare students for the future.

In addition to instructing distance learning courses, business educators may be interested in enhancing their credentials utilizing distance education. Kessell (1999) found that teachers wanted access to distance learning to

complete postgraduate courses and to have professional development opportunities. As a result of his research, Kessell (2000) developed a postgraduate degree for teachers that could be completed via distance learning technology. Distance education degrees, according to Kessell (2000), meet the needs of diverse, non-traditional learners, including educators.

This study examined the degree to which Alabama business educators are utilizing distance learning technology in their courses and the extent to which Alabama business educators are enhancing their credentials via distance education. The extent to which Alabama business educators have adequate technology, training, and support in the area of distance learning was also examined.

Purpose of the Study

This study was designed to determine: (a) the degree to which Alabama business education teachers are willing to teach business education classes utilizing distance learning technology; (b) the factors that are critical in the determination of whether or not Alabama business educators teach via distance learning; (c) the degree of skill that Alabama business education teachers perceive

that they possess in selected areas; (d) the degree to which distance learning is used by Alabama business educators in their credentialing and professional development; and (e) the degree to which Alabama business educators have adequate electronic/computer technology, support, and training in the field of distance learning. The purpose of this study was to provide information that may be utilized to improve the overall effectiveness of the distance learning aspects of business education programs. The study will be valuable to administrators in planning, budgeting, and implementing electronic technology in their school systems. Colleges of education can use this study in curriculum planning to prepare business education teachers to utilize distance learning technology in the classroom.

Statement of the Problem

Because of the shortage of business education teachers and the decrease in education funding, there will be an increasing demand to teach distance learning business education courses (Minoli, 1996; PCBEE Statement No. 65; Robelen, 2002a, 2002b; Y. Wang, 2000). Due to time and distance constraints, Alabama business educators are

becoming increasingly interested in improving their credentials using distance learning technology (Glenn, 2001; Glenn, 2003; Kessell, 1999; Zirkle, 2002; Zirkle, 2003). Effective use of electronic technology in the classroom requires wise investment and use of resources; careful planning for technology implementation; and teacher training, support, and commitment (Dillon, Hengst, & Zoller, 1991; Hurst & Bradely, 1993; PCBEE Statement No. 65; Rakes, 1999; Willis, 1998; Zirkle, 2003). A critical factor in implementation is the business educator's readiness to adapt to new technology and the instructional strategies needed to use it effectively (Dillon, 1989; McKay & McGrath, 2000; PCBEE Statement No. 65; Stern, 1992; Zirkle, 2003).

The research problem of this study was to determine the extent to which Alabama business educators use distance learning technology in their courses and have the preparation, desire, and support to teach business courses via distance learning. The researcher sought to determine the extent to which Alabama business educators utilize or possess interest in using distance learning technology in their credentialing process.

Research Questions

The following research questions were designed to address the statement of the problem:

1. What is the status of distance learning use and instruction in Alabama as determined by the extent to which business educators: (a) utilize distance learning technology in their courses, (b) are willing to teach distance learning courses, (c) enhance their credentials via distance learning technology, (d) exhibit interest in using distance learning technology in their credentialing process, (e) perceive they have the necessary equipment (electronic/computer technology) to utilize distance learning instruction, and (f) receive technology support and training in the field of distance learning?
2. Is there a relationship between the extent of distance learning use by Alabama business educators in their instruction and the extent to which they: (a) received distance learning training/professional development, (b) are willing to teach distance learning classes, (c) perceive their degree of skill in selected areas, (d) perceive they have the necessary equipment (electronic/computer technology) to utilize distance

learning instruction, and (e) enhance their credentials via distance learning technology?

3. Is there a relationship between the extent that Alabama business educators would be interested in using distance learning technology in their credentialing process and the extent to which they are willing to instruct classes utilizing distance learning technology?
4. Is there a significant difference in the perceived degree of skill in selected areas among demographic groups: (a) years teaching business education, (b) highest degree, and (c) highest certification level?

Definition of Terms

Asynchronous – A type of two-way communication that occurs with a time delay, allowing participants to respond at their own convenience.

Credentialing – Enhancing certification or gaining advanced degrees.

Distance Learning – A teacher and student(s) are separated by time and/or distance, and technology is used to bridge the instructional gap.

Internet – A network of networks, sharing the same underlying network address space as well as the same domain

name space, and interconnected into a network of information.

National Business Education Association (NBEA) – The largest professional organization devoted exclusively to serving individuals and groups engaged in instruction, administration, research, and dissemination of information for and about business.

Network – A series of points connected by communication channels in different geographic locations.

Professional Development – The process of improving the instructional effectiveness of faculty through training and an enhanced institutional support structure.

Synchronous – A term that refers to communication in which interaction between the sender and the receiver is not delayed.

Telecommunication – The art and science of communication at a distance.

Videoconferencing – A meeting, instructional session, or conversation between people at different locations relying on video technology as the primary communication link.

Virtual Classroom – Educational programs that are provided by some form of electronic correspondence study that utilizes available technologies for communication.

Limitations

Limitations are the conditions beyond the control of the researcher that may place restrictions on the conclusions of the study and their applications to other situations. Limitations in this study include: (a) number of teachers responding to the survey; and (b) self-reporting survey instrument.

Delimitations

Delimitations are the boundaries beyond which the study is concerned. This study involved only Alabama business educators teaching Grades 6-12.

II. REVIEW OF LITERATURE

The review of literature will consist of the following major topics:

Introduction

Historical development of distance learning

Current developments in distance learning

Technological applications

Teacher training

Credentialing/Professional development

The future of distance learning

Summary

Introduction

The National Business Education Association (NBEA) believes that "an effective and coordinated distance learning program is a valuable component of the business education curriculum" (PCBEE Statement No. 65). The NBEA also believes that business educators should take advantage of professional development and training opportunities offered in the uses and applications of distance learning

(PCBEE Statement No. 65). Distance education is available for teachers in the areas of in-service, recertification, or matriculation in advanced degree programs. These mediums offer convenience, learning opportunities, and experience in utilizing distance learning technology for the teacher (Glenn, 2001). However, according to Minoli (1996), most classrooms lack the electronic technology such as computers, modems, and televisions to access distance learning environments.

Minoli (1996) discussed the problems facing K-12 schools. One of the challenges is education inequity. This imbalance relates to the quality of education in rural and poor communities. During the early 1990s, high courts in several states have declared the current system of funding unconstitutional. Distance learning technology has been used to address these inequities in some states. Another problem plaguing K-12 schools is the growing shortage of teachers. Distance learning technology is seen as a means of filling this void by delivering education, particularly to remote schools. The goals of an equitable and technology-rich education system require several initiatives. According to Minoli (1996) distance learning

is one tool that can contribute to the solution of the educational problems that schools face.

Mayer, Schustack, and Blanton (1999) conducted a study examining the elements students learn in an environment that is rich in technology. The study was conducted at three schools. An informal collaborative learning environment was created, composed of elementary school-aged children from low-income homes. Students learned from one another using computers as a tool. Students learned basic computer information regarding operations and technology terminology. The young learners also explored educational software that required them to follow directions to solve math problems. The results showed that students who participated in the study did better on standardized tests in the areas of comprehension, problem solving, reading, and math. The researchers stated at the end of the study that they felt that the students' academic achievement could be directly tied to the influence of technology.

Schools intending to offer distance learning courses must incorporate technology tools that promote active learning. Learning these new teaching skills is an ongoing process that needs to be addressed in order to accommodate

the needs of the teachers and the students. Research conducted by Hurst and Bradely (1993) indicated that teachers wanted more than a simplistic one-day technology training session. They wished for the quality of professional development to be an ongoing procedure, built into the overall technology program. In addition, the teachers were desirous of training that linked technology with identifiable instructional priorities previously set by their own school systems. Professional development is necessary to ensure that teachers possess the skills to integrate technology into the curriculum.

A 1998 study conducted by Market Data Retrieval showed that 61% of teachers surveyed felt they were unprepared to teach using computer technology (Conte, 1998). Adequate opportunities were not provided for these teachers to receive training in the field of educational technology. Rakes (1999) stresses the idea that teachers should be involved in training that moves them beyond basic technology skills and exposes them to professional development that successfully weaves technology into the curriculum.

Another study was conducted to discover how often teachers use the Internet as an instructional tool (Becker, 1999). The researcher involved in the study found that those teachers who engaged in the traditional form of teaching revealed that a large portion of their instruction time was spent in preparing students to take the standardized test mandated by the state. These traditional teachers utilized classroom instruction without technology. They believed that the use of technology would hinder their teaching progress and in turn would hinder student achievement on state required standardized testing. Becker (1999) believed that teachers' pedagogical beliefs were directly tied to the level of technology integration that occurred in their classrooms.

Dillon, Hengst, and Zoller (1991) investigated instructional interactive strategies used by faculty who teach via an interactive television system in Oklahoma. The Oklahoma Televised Instruction System (TIS) currently links ten transmitting institutions with over 120 classrooms at 70 locations in 36 communities. TIS is an interactive system that provides live two-way audio and one-way video communications between students and teachers.

Based on a series of surveys and follow-up interviews with participating faculty, the researchers examined strategies used, barriers to interaction, and impact of technology upon strategy selection. The research indicated that only a few instructors used interactive strategies. Those that did relied on traditional classroom strategies. They recommended increased integration of instructional telecommunications activities within faculty development programs.

Camach-Dungca (1997) examined interactive strategies in a study of telecommunication use in delivery of a staff development telecourse for exceptional children educators in Guam and Saipan. Results indicated that use of telecommunication for delivery of staff development courses was both feasible and acceptable.

The end of the twentieth century brought with it an explosion in knowledge and technology. Many experts saw this explosion as only the beginning and agreed that to be successful in this millennium, people must participate in lifelong learning constantly updating their professional skills (Stern, 1992). "Just as the education of children was the perpetuating force of the industrial society, the

education of adults will be the stimulus of the new information society" (Dillon, 1989, p. 35). The acquisition of updated knowledge is a necessity. Faculty development is critical to the success of distance education. Faculty training is most effective when it deals with the instructor's role of mentor, effective communication with students, and methods for increasing the influence of local faculty (Dillon, 1989).

New educational technologies bring new concerns about the levels and types of technical skills, training, motivation, and support needed by instructors who participate in teaching and learning in distance education (Dickey & Davis, 1998; Ritchie & Hoffman, 1997; Thach & Murphy, 1995; Willis, 1998). Davie (1996) stated it is important to investigate the skills related to a feeling of competence in computer mediated communication. Chandler (1994) indicated that distance education, interactive media, and technical skills necessary to access, manipulate, store, and retrieve information are perceived as growing in importance due to the demands of the information age. Faculty development strategies addressing skill development in computer technology is evident and

replete in the literature (Chandler, 1994; Davie, 1996; Ritchie & Hoffman, 1997; Thach & Murphy, 1995; Willis, 1998). In recent years, faculty development programs have addressed instructional improvement through skill development, enhanced support services, and institutional reward structures that reflect the challenges confronting the effective distance educator (Willis, 1998).

In the past, faculty were seldom consulted about their own needs and pedagogical values. Because of this lack of faculty input, administrators and technical managers often stumbled after the technical system was put into place (Willis, 1998). Decision makers in education, however, have begun to realize that the interest, support, and enthusiasm of the faculty are essential for a distance education program to be successful, regardless of its technological sophistication. They recognize that any overall plan must address the needs and concerns of the faculty if their commitment to innovation is to be expected; and that in order to meet the goals of a faculty development program, faculty input is essential (Dickey & Davis, 1998).

Sullivan (1999) conducted a study analyzing the training needs of New Jersey's community college faculty in regards to distance education. Whereas the Sullivan study was oriented toward community college faculty in New Jersey, this research study will be directed toward middle and secondary business educators in Alabama. In the Sullivan study, 33% of New Jersey community college faculty said they were unwilling to teach distance education courses. Sullivan found that the percentage of faculty unwilling to teach distance education courses could be decreased by 41% with training, the offer of release time, and incentives. Impediments may be changed with increased exposure to distance learning in their disciplines and letting reluctant faculty try components of distance learning in their traditional courses. Most faculty admitted they will need to know more about distance learning in the future, and they harbored no negative attitudes toward education at a distance. Incentives that encourage faculty to learn more about distance education are significant considerations in the planning of a training program. Sullivan noted that if a distance learning training program were to proceed without faculty

incentives, it might lead to a critical shortage of faculty willing to deliver distance education. The study also indicated that the three most preferred modes of distance learning professional development training are hands-on, one-on-one, and peer teaching (mentoring). However, all forms of training received favorable ratings. The above modes of training and the request by faculty to have access to resource people after training indicate the faculty's perception that the acquisition of the technical skills necessary to teach distance learning courses requires intensive, specialized, and on-going training.

The Louisiana Virtual Classroom was created in response to the Louisiana Department of Education establishing state standards for distance education. Emerging technologies were implemented to support these standards. The Louisiana Virtual Classroom was a program that included a consortium of high school teachers for developing and teaching distance learning courses. Sellers (2001) conducted a study to provide insight into fundamental pedagogical transitions for those teachers interested in teaching in this distance learning environment. The teachers in this study requested more

professional development opportunities to enhance their skills as distance learning educators in the following areas: advanced multimedia tools, converting instructional materials to an online format, technology integration, copyright issues, and additional online courses. Organizational skills and technical skills were also addressed in this study. The participants felt that these skills were essential for teaching distance learning courses, and professional development was requested in these areas.

In a study conducted by Hurst and Bradely (1993), a group of teachers stated they needed more than a day for technology training. The teachers in Hurst and Bradely's study expressed a need to have follow-up sessions conducted throughout the year. In addition, McKay and McGrath (2000) support the need for professional development by noting that "regularly scheduled workshops build teachers' technology skills and boost their confidence levels" (p. 116).

In 2000, McKay and McGrath conducted a year-long program that explored requiring teachers to receive technology training throughout the school year and during

the summer. Teachers were released on a monthly basis to collaborate in professional development opportunities. The goal of the project was not only to encourage teachers to acquire technical skills but also to explore examples of distance learning lessons before developing their own distance learning curriculum projects. This type of training was successful in providing teachers with a foundation on which to build.

Talab and Newhouse (1990) found that training influenced teacher efficacy and motivation. Training was found to be an important component of teachers' satisfaction and effectiveness in their jobs. They also claimed that teachers who saw themselves as innovators were positively related to perceived training excellence. Educators described excellent training to include the opportunity to discuss the course with the distance education instructor during training, the presence of a facilitator manual, satellite campus coordination, use of computer software related to the course, and distance education instructor-facilitator interaction during the course.

Siegel and Jennings (1998) studied the usage of distance learning in social work education. They collected data from a national survey of all accredited social work programs conducted between December 1995 and February 1996. Program directors that responded to their survey recognized that specialized and specific training was needed. Almost two-thirds of the faculty who taught via distance learning had received specialized training in distance learning delivery. According to 80% of the respondents, hands-on experience was the major method of training. According to the study, it cannot be assumed that they were immediately ready to master television, compressed video, or any other live media without significant assistance to develop instructional materials, orientation to the equipment, and coaching from experienced instructors or media specialists. Additional preparation was necessary for teachers to become comfortable with such technology. Preparation and delivery of courses utilizing distance learning technology was far different and more complex than courses prepared for traditional classroom presentation even though the subject matter was the same. Therefore, the educator must be able

to relate to students within the context of a high-tech environment (Siegel & Jennings, 1998).

Historical Development of Distance Learning

Despite the high visibility distance learning has received in the past several years, it has been around a long time and is a direct outgrowth of earlier correspondence study programs. One of the earliest recorded efforts at using distance learning technology as an aid to education was found in an advertisement in the Boston *Gazette* on March 20, 1728. Teacher Caleb Philips offered to send weekly shorthand lessons to prospective students (Mood, 1995). In 1840, Isaac Pitman of Great Britain also offered shorthand courses through the mail (Mood, 1995). Toussaint and Langenscheidt used correspondence to teach modern languages in Berlin, Germany, in 1856 (Watkins & Wright, 1991). In 1862, the Morrill Act was passed. This legislation made educational opportunities available to citizens throughout each American state, as opposed to limiting the opportunities to resident students only. As a result of the Morrill Act, land grant institutions in each state bring education to all residents (Smart, 1987). In Boston, in 1873, Anna

Ticknor provided education for women by creating the Society to Encourage Studies at Home; and in 1877, the Illinois Wesleyan University first offered planned correspondence education for adult students (Watkins & Wright, 1991).

Anna Ticknor was a pioneer of the American correspondence method. Ticknor's correspondence system was designed exclusively for women, which attempted to circumvent traditional female educational barriers through nontraditional methods. The Society to Encourage Studies at Home enrolled over 7,000 women in its university-level correspondence courses over a period of 24 years. This Society offered instruction in 24 subjects organized within six departments. The courses were primarily liberal arts subjects but included controversial science courses based on laboratory methods. Although the Society was not affiliated with a university or college, its curriculum was of equal quality and represented a full range of typical college courses. The Society emphasized a personal student/teacher relationship that was maintained through regular monthly correspondence. The Society to Encourage

Studies at Home discontinued its operations in 1897 following Anna Ticknor's death (Ticknor, 1896).

In 1878, the Chautauqua Literary and Scientific Circle used correspondence study and summer institutes to provide instruction in the liberal arts, and the state of New York authorized the awarding of degrees to successful students (Watkins & Wright, 1991). The Correspondence University, which was an unsuccessful venture, was headquartered at Cornell University in New York in 1883 (Watkins & Wright, 1991). In Great Britain, in 1880, Skerry's College offered help in preparing for civil service examinations; and in 1884, the Foulkes Lynch Correspondence Tuition Service offered courses in accounting (Mood, 1995). In the United States, in 1890, the Blackstone School of Law was established to teach principles of law by correspondence in Chicago (Smart, 1987). In 1891, Thomas J. Foster offered a course in mine safety through correspondence by the International Correspondence Schools of Scranton, Pennsylvania; and in 1892, William Rainey Harper founded the University of Chicago, which included correspondence education (Mood, 1995). Other universities also aggressively pursued correspondence study. From 1906

through 1916, the University of Wisconsin enrolled 24,555 students in their Correspondence Study Department (Watkins & Wright, 1991).

Distance educators were quick to explore and adopt new technologies including radio and television. By 1928, the British Broadcasting Corporation was using radio for adult education. They did not promote this use for formal study, granting no credit or degrees, but saw it as a means for individuals to improve their lives by increasing their knowledge (Mood, 1995). In 1930, the University of Wisconsin used an eight-station radio network to offer a School of the Air for rural high school students. Australia has long used its Radio School of the Air to reach school-age children living in remote areas (Mood, 1995). The Ford Foundation provided a $365,000 grant to examine the use of television for correspondence study in 1956 (Watkins & Wright, 1991).

Distance education began to evolve to include newer applications of technology, such as interactive video and personal computers. From 1963 through 1974, many colleges and universities, such as Vermont College of Norwich University, Nova University, Open University of Great

Britain, and Walden University, were established specifically to offer distance learning programs (Mood, 1995). In 1966, the ERIC Database added "correspondence study" to its list of descriptors; and in 1983, the ERIC Database added "distance education" to its list of descriptors (Yates, 2003). In 1970, the first distance-only program was developed by the University of the State of New York as the Regents External Degree Program, later known as Regents College and now known as Excelsior College (Yates, 2003). The Ed.D. was offered as an external degree program by Nova Southeastern University in 1972; and in 1985, Nova Southeastern University began offering a computer-based distance learning program for librarians (MacFarland, 1996). In 1986, the Step Star Network began operations to deliver distance learning and continues to offer interactive television; and in 1988, the Star Schools Program was first authorized to provide grant funding for education projects that included distance learning and telecommunications (Yates, 2003).

Satellite distance learning programs were developed in the late 1980s primarily for business and university audiences (Coldeway, 1991). Satellite courses developed

for public school students in rural and remote districts began to appear in the mid-1980s. Typically, students that enrolled in these satellite programs needed credit for courses that were required for admittance to college, such as foreign language classes. Students that were at risk of school failure also enrolled in these satellite distance learning classes so that they could attain enough credits to advance to the next grade (U.S. Congress, Office of Technology Assessment, 1989).

The end of the twentieth century brought the "virtual classroom" to the field of distance learning. In 1997, the Florida Virtual High School (now Florida Virtual School) began offering courses; and in 1998, the Western Governors University opened degree programs to students in a virtual university (Yates, 2003). In 2002, the ERIC Database added "virtual classroom" to its list of ERIC descriptors (Yates, 2003).

Distance learning has taken many forms over the years and has seen many changes. It has been applied to the print-based model of correspondence education, supporting distance instruction through written messages. Distance learning has been broadcast by radio and television being

supported by correspondence instruction and print materials. Distance education was then expanded to include newer applications of technology, such as interactive video, satellite programs, and personal computers. The goal of distance learning, however, remains the same--the education of others at a distance.

Current Developments of Distance Learning

Recent telecommunications developments, particularly integrated voice, video and data systems, as well as satellite and compression technologies, have moved distance learning into the next generation. Currently, distance education involves a variety of media to transmit instruction (Camacho-Dungca, 1997). Distance learning educators usually will utilize a combination of instructional tools and media (such as audio, computer and video conferencing, electronic and voice mail, computer based and controlled multimedia) and traditional media (including slides, video and audio tapes, and overheads) (Mason, 1995).

During the early years of practice, online education was approached from one of two traditional perspectives: an extension of distance education or a variant of classroom

activity (Harasim, 1990). Online education was distinguished by the social nature of the learning environment. Like traditional education, online education supported interactive group communication. Online education had attributes that differentiated it from existing modes of education and characterized it as a unique mode: many-to-many communication, place independence, time independence, and computer-mediated interactive learning (Harasim, 1990). With the mediation of the computer, online learning introduced entirely new elements to distance education.

Online technical advances such as hypertext, hypermedia, multimedia, graphical user interface, and Java have helped online education become even more powerful (Starr, 1997). Java has allowed Web pages to be as feature-laden as any multimedia CD-ROM application, with responses to user mouse clicks, user entries and exits, access to databases, and functions such as online calculations and user-driven simulations (Starr, 1997). These innovations have opened the door to delivery of multimedia anywhere in the world. These developments have started a revolution in communication that is providing new

opportunities for delivering distance education. As the Web matures, new components will become available for distance learning instruction and existing components will improve with time (Starr, 1997).

Networks made computerized distance education increasingly attractive (Markwood, 1994). Networks provided the opportunity to utilize resources which enhanced curriculum, and networks encouraged interactivity and interpersonal collaboration. Distance education used network-specific tools, such as e-mail, bulletin boards, and computer conferencing (Harasim, et al., 1996). The network of networks was the Internet, and the worldwide linking of Web pages was commonly referred to as the World Wide Web (WWW). With the WWW, the educator needed to acquire a new set of tools. Khan (1997) referred to these tools as components. He stated that distance learning had the ability to provide rich learning environments in a global, democratic, and interactive manner. Distance education required careful consideration of the Web's potential in relation to instructional design principles. An understanding of the capabilities of the WWW's components and features facilitated the design of

meaningful distance learning environments and relevant learning opportunities (Khan, 1997).

Virtual schools are learning institutions that provide either some or all academic instruction over the Internet. Distance learning impacted Alabama through the state's use of the Alabama Online High School. More than 300 students from eight districts participated during the 2001-2002 school year. During the 2002-2003 school year, more than 30 courses were offered to an additional 60 districts. One important feature of Alabama's virtual high school was its emphasis on helping to achieve equity in poor and rural schools. Alabama also funded and supported the state's virtual library, which was a partnership of several state agencies and public libraries. This virtual library offered Alabama residents access to a wide range of material (Robelen, 2002b).

In 2002, 32 states sponsored e-learning initiatives, and 13 regulated private e-learning initiatives that were not operated by the state. State e-learning programs included online assessments, virtual schools, or training for online educators. State efforts to regulate independently provided e-learning efforts included

requiring that programs meet state standards or that online teachers were certified (Robelen, 2002b).

Trotter (2002) described the online courses available through the Virtual High School (VHS). The VHS had 200 member schools in 28 states and eight countries in 2002. Members were required to recruit a teacher to lead at least one online class of 20 students. For each course provided, the school received 20 places for its students in online courses. Online learning through the VHS allowed students to participate in classes that they otherwise may not have had the opportunity to take (Trotter, 2002).

According to Brandao (2002), Florida Virtual School began in 1996 with fewer than 100 students. During the 2001-2002 school year, more than 8,200 students were enrolled. The increasing popularity of online instruction was an indication that the concept of a teacher standing in front of a class was changing to a broader concept that learning could happen at any time and in any place. The needs of too many students were not being met in the traditional classroom. Technology had the potential of providing alternatives for these students. Distance learning was one of the many possible uses of new

technology to help students reach their greatest potential (Brandao, 2002).

Estelle (1998) focused on four high schools in Indiana participating in a program titled Job Skills. This distance learning program was designed to give students an idea of the career choices available to them. The four participating schools were linked via a two-way audio/video fiber optic network. The schools received a grant which enabled them to purchase all of the necessary equipment for this program. Local professionals were invited to visit the four participating high schools to discuss the various responsibilities of their jobs and requirements for getting started. Students from any one of the high schools could ask questions because the network was interactive. This interaction allowed the students from all four of the schools to be involved. This distance learning experience permitted students to gain real-world lessons and more in-depth understanding of a given profession, while combining technology with a community partnership (Estelle, 1998).

Wise (2002) reported about the Ward Melville Heritage Organization (WMHO) which was a nonprofit education organization that has been preserving and interpreting

historical and environmentally sensitive places in Long Island, New York. To keep the salt marsh wetlands from being harmed by countless field trips and to enable other students to view the wetlands who were not able to travel to Long Island, WMHO began a distance learning program utilizing videoconferencing. WMHO has developed a variety of interactive components and preparation materials for the program. After booking a videoconference and prior to the connection date, the distant classroom teacher received a learning kit with a teacher's handbook and Windows CD-ROM, which included complete unit lesson plans. Through the use of technology, the class was connected with a naturalist at the wetlands so that they could keep in constant communication as they explored the marsh. The Salt Marsh Ecosystem distance learning program allowed students from across the country to share the wonders of the salt marsh (Wise 2002).

According to Gifford (2001), the Internet was a ready pipeline through which educational programming could be offered and a compelling source of useful information. As such, the Internet was beginning to solve some problems at schools. The satellite-based distance learning networks

that were created in recent years were "very viable in the K-12 primary and secondary school market in particular," said Arlene Krebs, director of technology initiatives and development at California State University, Monterey Bay. She also stated that the ascendancy of computers over televisions meant that "streaming media is certainly lessening the need for large-scale, satellite-based programming the way we used to think of it years ago" (Gifford, 2001, p. 22). Krebs saw a new model for distance education in a recent series of programs on communications technologies called Ready2Net. Ready2Net produced and broadcasted four 90-minute programs between January and May of 2001. Each show was distributed live by satellite and live on the Web. The training programs garnered a substantial audience. They had more than 4,000 satellite downlinks, and the programs were encoded for Internet delivery in six streaming media formats reaching over 7,000 live viewers. This technology opened up new possibilities in distance education (Gifford, 2001).

Corgan, Hammer, Margolies, and Crossley (2004) asserted that instructors need to document and share best practices for distance learning instruction. At the

University of Cincinnati, Raymond Walters College, Office Information Technology Department, faculty have developed a model that employs several successful online instructional strategies. The computer application and Web technology classes have maintained high enrollment, retention, and student satisfaction. They believe that these strategies can be applied to an online course of any content. According to Corgan, Hammer, Margolies, and Crossley (2004), it is imperative to design the environment for success before the course begins. During the online class, the educator must build a sense of learning community by promoting communication and interaction. In addition, administrative support is vital (Corgan, Hammer, Margolies, and Crossley, 2004). According to Groneman (2004), many aspects need to be considered to provide effective online learning activities, including the age and academic level of students, the technology available, training requirements, students' technological expertise, course objectives, resource material availability, and the assessment methods needed. Course objectives, learning activities, and assessment methods need to be intrinsically

linked together when developing online classes (Groneman, 2004).

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, particularly the Internet and the WWW, has dramatically changed our lives. Classroom walls are being broken down by the use of online learning, satellite links, communications media, and networks. Nowhere is this change more dramatic than in the potential offered by distance learning.

Technological Applications

In the past, correspondence study advocates took advantage of new technologies by incorporating them into their teaching and learning environments. For example, the telecommunication technologies of radio and television broadcasting as well as audio and video recording were incorporated into the distance education environment. Currently, distance learning environments have continued to evolve with advancing technology. These learning environments are moving toward virtual classrooms where

instruction from a host site is delivered to distance sites using a combination of live, two-way interactive audio, video, or both. Synchronous/asynchronous computer-based interactions that take advantage of networks, the Internet, and the WWW are also utilized in virtual classrooms in this distance learning environment (Williams, Paprock & Covington, 1999).

According to Barron (1999), the various technologies used in distance learning could be divided into four categories: print, audio, computer (data), and video. Print materials included textbooks, study guides, workbooks, and facsimiles. Even though there were new options for distance learning, print remained a significant component of most courses. Audio technologies included telephone, voice mail, audioconferences, audiotape, and radio. Audio or voice technologies offered cost-effective ways to enhance distance learning courses. Computer (data) technologies included electronic mail, Web-based courses, videoconferences, CD-ROM, and collaboration software. With the increased popularity of the Internet, computer technologies were receiving more and more attention as a means of delivering distance learning. Video technologies

included videotape, satellite delivery, microwave, broadcast video, and desktop video. The ability to see and hear an instructor offered opportunities for behavior modeling, demonstrations, and instruction of abstract concepts. Each of the media could be described by how it related to the direction of the video and audio signals as either one-way or two-way (Barron, 1999).

Minoli (1996) described a number of application solutions that were available to meet the needs of K-12 schools for distance learning applications. Included were the Internet, value-added network providers, groupware, educational television programming (one-way video solutions), and two-way videoconferencing. The Internet provided access to digital libraries, collaborative learning, and electronic field trips. Value-added network providers offered digital information services and interactive multimedia services, such as chat rooms and bulletin boards. Groupware was a data-oriented distance learning solution that provided K-12 schools with a partial substitute to the Internet; and it referred to software that could support electronic messaging, data conferencing, and messaging gateways. Educational television programming

was a one-way video/audio solution that enabled K-12 schools access to a number of educational programs. The two-way videoconferencing solution allowed for remote education links among schools. Along with the use of a satellite system, educators could provide instruction at multiple locations (Minoli, 1996).

According to Prewitt (1998), the asynchronous computer-mediated electronic classroom contributed to the "anytime" and "anywhere" learning of students. The students in his study read texts and assignments each week and posted their comments in the electronic classroom. Use of an electronic chat room encouraged dialogue among class participants regarding their course content. The students and teacher also utilized electronic mail messaging for discussions. The students had access to the virtual library and could electronically download articles and books related to their topics of discussion. Through the use of technology, this virtual classroom accommodated various learning styles, promoted a collaborative learning process, and allowed the students to become actively engaged in debate and critical thinking (Prewitt, 1998).

Videoconferencing was synchronous, or real-time, technology that offered a new way for teachers to collaborate with colleagues and to help their students share their learning experiences with distant peers. With the installation of low-cost ISDN (Integrated Services Digital Network) lines, a school could connect to the outside world via videoconferencing and interact with other schools that had the same capabilities. At Stratford High School in Nashville, Tennessee, a teacher required his students to set up a research project on the world environment that incorporated videoconferencing. The students covered such topics as global warming, non-point sources of pollution, and depletion of the ozone. Students used the videoconferencing equipment to talk to experts on these subjects and to present their findings to other students in distant locations (Zanetis, 2002).

Cochrane (2000) reflected on his personal use of distance learning from 1977 through 1997. The technology that was utilized during this 20 years changed considerably. Some of the technologies that were used include: study guides and readings (that were in printed form and on the WWW), textbooks, films/slides, games, audio

cassettes, radio and television programs, videocassettes, software on disk, and CD-ROM. He believed that the method of technology used set the tone and expectations for the course (Cochrane, 2000).

At the beginning of the twenty-first century, teachers developed and offered courses on the Internet via distance learning technologies. Two of the most common programs used to offer online courses were Blackboard and WebCT (Bartholome, 2003). Business education teachers who learned how to design instruction for use with these programs could conceivably teach classes on the Internet to anyone anywhere in the world.

Internet access was necessary for many of the technological applications in distance education. According to the National Center For Education Statistics (NCES), in late 2001, 99% of public schools in the United States had access to the Internet. In 2001, 85% of public schools used broadband connections to access the Internet. Broadband connections were faster and more efficient than dial-up connections. The ratio of students to instructional computers with Internet access in public

schools was 5.4 to 1 in 2001, which was an improvement from 1998, when it was first measured (Kleiner & Farris, 2002).

In 1998, North Carolina State University began to offer The University of North Carolina at Asheville students the lower division engineering courses through distance learning. Courses in the program were delivered using a virtual classroom model. Professors and students could interact during class and office hours. Classes were provided in an entirely synchronous mode. The lectures, however, were archived for later delivery when necessary. One of the goals of this project was to make the teaching environment as natural as possible for the instructor in regards to technology. They used the SMART Board from SMART Technologies, Inc. The SMART Board was essentially a large touch-screen computer that appeared as a whiteboard to students in the sending location, but the image that was transmitted to the remote location was the same information that appeared on the touch-screen computer. Images could also be transmitted from a document camera or from on-screen presentations (Brawner, et al., 2002).

According to Taylor (2004), Web-based technologies provided a seamless learning environment between school and

home. The technologies also made a remarkable impact on helping underachieving students catch up with their class, while helping overachieving students remain challenged and motivated. Students completed lessons in the classroom or worked in a lab setting, while others completed their work at home. Technology provided immediate feedback on lessons, so students did not have to wait for their scores or to find out the areas of needed review (Taylor, 2004).

Technology was transforming the educational process through distance learning by facilitating and enhancing communication. As a result of new and emerging communications technology, conventional educational systems were being challenged to reach out to students to offer education at the time, place, and pace appropriate for each learner. The importance of technology in distance education was due to its capability and potential to mediate communication between teacher and student and thereby, enhance the learning process. Gurubatham (2004) found that up-to-date technology and technology support were imperative to the success of a distance learning program. Establishment of technological infrastructures was important to ensure that the distance education

programs were effectively and efficiently developed, managed, and executed (Gurubatham, 2004). Faculty were now expected to be masters of technology and delivery management as well as experts in their subject (Laird, 1999). In order to make distance education an effective learning tool, the role of the teacher is essential in using technology to its best advantage (Bayram, 1999).

Teacher Training

Over the years, the technologies that supported distance learning continued to increase in number, complexity, and power. As the options increased, so did the difficulty in choosing appropriate distance learning solutions for particular educational and training needs. Teaching in a distance learning environment required specialized skills and strategies in regards to technology (Gurubatham, 2004). Instructor resistance to new educational technologies was most often attributed to the poor implementation of technology initiatives, which were inadequate training, support, and/or planning (Cuban, 2001). Sellers (2001) suggested that training be conducted using the same type of technology that would be employed in instructing the distance learning courses. This training

afforded teachers with opportunities to become familiar with the equipment and software. The more at ease teachers were, the more confident they would be as instructors in distance education. Authorities agreed, "As teachers gain confidence in their ability to use the technology, they increasingly take responsibility for their own instruction" (Rodes, Knapczyk, Chapman & Chung, 2000, p. 94).

Groneman (2004) found that in order to create effective learning activities, teachers need to be aware of the possibilities of the technology and be trained to use it. Trainers should show teachers examples of other distance learning courses, so that teachers can visualize an actual distance education class. Technical training should be given on e-mail, scanners, Web page creation, and the use of online course authoring software. Tutorial books and software can be helpful as an introduction, but some teachers prefer to be trained in a hands-on classroom environment (Groneman, 2004). Yohon (2004) asserted that teachers need upgraded technology and pedagogical skills training to effectively integrate the Internet into the classroom because of the fairly recent development of the Internet for educational use. The amount of training

needed depends upon the teacher's prior knowledge and use of the Internet.

Carnes, Awang, and Marlow (2003) conducted a study exploring the integrity and quality of online courses by conducting interviews with faculty who have an extensive range of experience teaching online classes. The researchers recommended that institutions provide incentives in order to entice more faculty to develop online courses. In addition, they found that institutions should train faculty and provide a support staff to aid instructors in developing online classes. The researchers further agreed that if institutions do not provide online courses to students who are seeking those courses, then the students will search for the classes at other institutions that offer the online courses. Carnes, Awang, and Marlow (2003) also recommended that business instructors develop a facilitator philosophy through training and professional development.

According to Policy Statement No. 65 (PCBEE), business educators have a responsibility to take advantage of professional development activities offered in their uses and applications of distance education. Teacher educator

programs should offer pre-service and in-service training in the development of distance learning courses.

Educators faced changing instructional needs in an ever-changing technological environment. This environment was one in which technologies were transforming so quickly that many faculty members did not have time to learn them before the next innovation occurred (Fink, 2002). Teacher training programs that related to the development of online learning courses and the use of instructional technologies were of primary interest to educators (Kolbo & Turnage, 2002).

Levenburg and Major (2000) stated that it was important to communicate to educators the idea that distance education courses are successful and that the institution's training program could help them be successful distance educators. They concluded that for educators to embrace technology-enhanced learning systems, incentives and support must be provided. If adequate support is not provided, distance learning initiatives may not yield desired results. Support could include workshops on developing distance learning classes and incentives for participation.

Willis (1994) found that faculty training was critical to the success of any distance education program. When training was provided, effort should be made to identify required program components and provide flexible, creative, and hands-on in-service opportunities. Designing, creating, and implementing effective and productive training is the most efficient path to the long-term success of distance learning. According to Willis (1993), effectively teaching at a distance requires specialized skills, abilities, and training. While some teachers instinctively develop the necessary skills and abilities, the majority require specialized training to become comfortable and effective at distance learning instruction. Adequate training prior to distant teaching and ongoing support throughout the delivery process are the most effective methods for ensuring long-term success in distance education.

According to Gross, Gross, and Pirkl (1998), teacher training is a process, not an isolated event or activity. Teacher training may begin with a workshop as part of an orientation session; however, the success comes when there is an ongoing program. An orientation workshop should

include an orientation to the delivery system, analysis of prospective students, instructional design issues, interaction and learning activities, feedback and assessment, hands-on experience, and logistics of the distance learning program at the institution. Follow-up activities should include meetings with faculty to work on specific design and production issues related to their content and course structure. Educators should also have the opportunity to experience the on-line or network environment. Sessions orienting users to network capabilities, electronic mail access, Web access, browser capabilities, and ongoing technical support are also helpful and necessary.

According to data from Market Data Retrieval (Skinner, 2002), spending on staff development and training decreased as a percentage of school technology budgets from 2000 to 2001. Staff development and training accounted for only 14% of school technology spending in 2001, compared with 17% in 2000. States that received technology funds under the federal "No Child Left Behind Act of 2001" were required to spend at least 25% of that money on professional development and training. As of 2002, 26

states and the District of Columbia required technology training for initial teacher certification; and 13 states offered incentives for teachers to use technology in their classrooms (Skinner, 2002).

Thomas (1999) stated that teaching via a two-way interactive television system (ITV) is more than merely pushing the correct equipment buttons. Training for teachers to use the systems should involve more than a 15-minute session. Learning to use this instructional medium effectively requires a systematic approach to course design, materials development, equipment, delivery, computer interaction with ITV, and computer-delivered presentations. ITV is an expensive technology and often requires an instructor to redesign a course that may have been taught previously in a traditional classroom setting. It is the joint responsibility of teachers and administration to ensure the educator is prepared to use the system effectively.

According to Zeliff (2004), the challenges of integrating technology and the Internet into the classroom can create barriers for business education teachers. Technical support from educational institutions for

business educators is essential. Training should include strategies to help business education teachers successfully manage learners and technology.

To effectively instruct courses utilizing distance learning technology, faculty must be provided adequate training and technical support in regards to hardware, software, and troubleshooting. Thach (1993) stated that the distance educator needs to be creative in developing activities and leading discussions via technology that assist the student in practicing, debating, and developing their own viewpoints on content matter. According to Hopey and Ginsburg (1996), staff development and teacher training should be continuous and ongoing. Traditional staff development models of workshops and conference presentations do not meet the need for continuous, ongoing technology training. New methods of continuous improvement and training will need to be developed in regards to distance learning technology.

Credentialing/Professional Development

Online degrees meet the needs of diverse, non-traditional learners. According to Crews (2003), society and educators are expecting "just-in-time" education in an

online environment. Many schools and universities offer courses, professional development, and entire degree programs in a Web-based environment. These opportunities allow business educators to enhance their credentials via distance learning technology.

Providing post-graduate courses and professional development opportunities to working teachers has never been easy. Kessell (1999) found that it was especially difficult in remote Western Australia. He designed and taught several courses for education teachers seeking academic credit or professional development. His use of the Web for faculty and staff development has promoted collaboration in curriculum development and delivery. Kessell (2000), in cooperation with the Western Australia Department of Education, created a new postgraduate degree that met the needs of all K-12 teachers regardless of prior technology experience. This degree program also catered to teachers starting the program at different times and proceeding at different rates. The program was taught totally via the Web and CD-ROM. Successful completion of the program led to a Graduate Certificate in Learning Technologies from Curtin University of Technology. The

earned credits could also be applied towards a master's degree or professional doctorate.

Roberts (2000) found that distance learning, along with use of the Internet, is transforming education norms. Time-constrained adults can earn a degree without ever sitting in a traditional classroom. Typical distance learning students are anything but typical. Distance education has attracted a large pool of nontraditional students, largely because of its built-in flexibility and convenience older students have never had before. However, regardless of age or gender, distance education is a booming market. According to Roberts, in 1998, approximately 1.6 million students were taking more than 54,000 courses online. This figure (1.6 million students) represents more than double the number of distance learners recorded in 1995 by the National Center for Education Statistics.

Timmons (2004) asserted that by increasing distance learning course offerings, educational institutions have created more opportunities for individuals who want access to higher education and/or professional development. Distance education appeals to many working adults because

they are able to study at home, at work, or in the library; access learning resources at any time; attend class at their own convenience; learn from subject-matter experts; and stay current without radically changing their lifestyles. In addition, a majority of students participating in distance learning courses were equally or more satisfied with the quality of instruction in distance education compared to classroom-based instruction (Timmons, 2004).

The Alabama Educational Television Foundation, in cooperation with the Alabama Commission on Higher Education, funded a project to determine the scope of the existing telecommunications systems in Alabama. Future plans of the colleges and universities in the state to develop distance learning systems were also studied. The study showed that the use of technology to deliver education was growing more rapidly than anticipated. The number of universities providing educational services at a distance through telecommunications significantly altered the traditional thinking of an institution's mission, role, and scope. The objective of the project was to facilitate use of telecommunications systems in Alabama by emphasizing

the advantages of shared resources through the exploration of networking opportunities. The Foundation's goal was to offer distance education on a credit and noncredit basis in the state of Alabama through their telecommunications system. However, rigorous policies and bureaucracy impeded their progress (England, 1990).

According to Maeroff (2003), elementary and secondary teachers are one of the biggest potential markets for distance education. There is a demand for postgraduate professional development by educators. Attaining advanced certification and gaining continuing education credit by teachers is increasing the distance learning market. Teachers College at Columbia University, the largest graduate school of education in the United States, created a separate department to study the possibilities of online learning for educators. Competition for this expanding market is expected to be fierce in coming years (Maeroff, 2003).

Yoder (n.d.) outlined the advantages and challenges of being an online student while gaining professional development. The advantages were extensive opportunities and resources, specific goals, convenience and flexibility,

involvement in a larger learning community, and emerging technologies. Challenges included self-discipline, deliberate and thoughtful class discussions, resourcefulness, and independence. Professional development opportunities appeared to be abundant and increasing in variety and depth.

According to Glenn (2001), the Teacher Professional Development Institute is an example of a distance education environment that integrates synchronous and asynchronous communication. Users can store and share documents and interact with others in an electronic environment. Online professional development opportunities are also offered as part of pre-service degree programs and college and university continuing education certificate and advanced degree programs.

Perreault (2004) asserted that business education teachers moving from the classroom to a distance learning delivery format will encounter many obstacles. This delivery format requires a collaborative design where the teacher is a facilitator. Delivery and feedback methods are different for distance education courses; however, most educators have not had any formal training or professional

development in the area of distance learning. It is important to have opportunities to learn how to use new technologies and how to modify teaching methods for a business teacher moving from teaching a traditional class to a distance learning class. Professional development sessions can provide the new skills and a supportive environment where experienced teachers share their experiences and strategies for dealing with distance education delivery issues. The professional development opportunities can be workshops, tutoring, meetings, or degree programs (Perreault, 2004).

Glenn (2004) found that teachers need more professional development in regards to technology. Riverdeep, an educational software company, has provided AssessOnline and IntegrateOnline, which are software applications that provide technological professional development to teachers. These software products allow teachers to access technology training on their own schedule. AssessOnline gauges teacher knowledge of and performance in technological applications. IntegrateOnline delivers online modular courses which range from basic introduction to technology for teaching and learning to

specific office applications. Educators can also use this software to apply their coursework to college credit and/or to continuing education requirements. Riverdeep has also partnered with *T.H.E. Journal* to offer teachers a variety of accredited professional development workshops and courses, such as Web site design and multimedia design and production. Educators can take classes onsite or via distance learning (Glenn, 2004).

Crews and Brown (2003) conducted a study examining the use of online courses in business education and the need for Web-based classes. In addition, their research investigated the need for a graduate distance education degree program for business educators. A majority of participants in their study believed that most business education courses can be taught in a Web-based environment. Several respondents were also interested in pursuing a doctoral degree in an online program. Further, Crews and Brown (2003) found that there is a need for more online classes and degrees.

The presence of the Internet, online learning, and distance education has expanded opportunities for business educators as they seek to enhance their credentials and

certification, gain professional development, and achieve advanced degrees. The review of literature has shown that numerous opportunities exist in distance learning education and more opportunities are constantly becoming available.

The Future of Distance Learning

Technology is constantly changing, and technical innovation continues to improve. As technology and technical innovation impact distance education, distance learning will continue to evolve. According to Willis (1993), as a result of this constant improvement in innovation, distance educators must continually increase their technical skills and knowledge.

Chute, Thompson, and Hancock (1999) stated that in tomorrow's communications age, learning will no longer be restricted to a classroom with four walls. Information resources will be everywhere, separated from learners only by time and space. Distance learning will be the bridge between learners and these distributed learning resources. Chute, Thompson, and Hancock's vision of the future of distance learning calls for the creation of networked learning environments, which "have the potential to make education and training more accessible, convenient,

focused, effective, and cost-efficient for the learners and the education and training providers" (Chute, Thompson, & Hancock, 1999, p. 207).

A variety of emerging technologies make teaching and learning possible at any time and from any place. Piskurich (1998) has identified eight learning technologies as future forces in distance education: Web-based training, desktop conferencing, interactive distance learning through satellite or landline linkages, high-definition television, portable computers, voice recognition technology, wireless personal communication devices, and virtual reality processes. These technologies will enhance learning opportunities in virtual learning environments.

According to Glenn (2003), the increasing accessibility to computers and the Internet will create opportunities for business educators at all levels to provide timely, relevant courses in their discipline to those whose only option is to get those courses online. In addition, business educators who offer online courses enhance their students' workplace readiness because online training is becoming a preferred training method in business. Chute, Thompson, and Hancock (1999) view

learning as a lifelong pursuit in which training and retraining become strategies for individual, educational, and corporate success. Distance learning will use communications and information technologies to access the vast amount of resources available and enhance the development of lifelong learning skills. Oblinger (1999) also felt that advances in telecommunications, computing, and collaboration are merging to create a network that is changing how we live, work, and educate. To prosper in this century, we will need continuously educated employees. Numerous organizations will become part of this lifelong learning system.

When considering the future of distance learning, it is useful to consider the various types of learners and demographic trends of those who will be motivated to take advantage of these opportunities. According to Oblinger (1999), the major demographic trend will be an increase in average age and a decrease in relative numbers compared to the population as a whole. There will be an increase in adult distance learners rather than the traditional 18- to 22-year-old age group. Population growth is also expected to outgrow the capacity of the world to provide access to

universities (Oblinger, 1999). Uhlig (2002) reported that the typical distance learner today is the working person who wishes to upgrade his/her skills or who wants to increase his/her employment opportunities. However, he also stated that more young people are becoming aware of the opportunities afforded by distance education.

Gifford (2001) reported that with the advancements in wireless Internet delivery, distance learning can become a liberating educational experience. One can potentially carry around a laptop and have access to distance education. Gross, Gross, and Pirkl (1998) believed that Internet II will provide a new dimension in integrated high-quality video and bundled multimedia services for education. In 1997, a consortium of research universities began developing Internet II. Internet II will be directed specifically toward education and research purposes. It will also employ advanced telecommunications technology resulting in a high-capacity backbone system, which will greatly increase the speed of the Internet. Internet II could possibly open new doors for distance learning.

Distance education is offered to students in grades 9 through 12 in Alabama via Alabama Online High School

(AOHS). AOHS utilizes current technology to offer courses "that bridge the barriers of time and distance and create unprecedented opportunities for schools to achieve access, excellence, and equity in education" (www.aohs.state.al.us, retrieved 9/30/03). Courses are developed by certified teachers and are correlated to the Alabama state course of study. AOHS currently offers courses in English, math, social studies, science, foreign languages, electives, and remediation courses. Business education courses are currently not offered online (www.aohs.state.al.us, retrieved 9/30/03). This lack of online business education courses could represent a future opportunity for Alabama business educators and business education students.

Educators and students today have access to virtual libraries. Maeroff (2003) believed that virtual libraries would continue to expand and provide many resources online. In addition, he is convinced that electronic books will be part of the next generation. Students and educators will be able to gain access to an entire book over the Internet. These new technologies will have a profound impact on distance learning.

New technologies being perfected such as wireless communications, handheld computers, and cell phones will increase Internet use and are potential educational complements. These telecommunication tools and more advanced computers have the potential for enhancing learning through distance education in which classrooms, workplaces, homes, and community settings are linked for education activities (Yohon, 2004).

While the Internet is playing a major role in disseminating information globally, some believe that it will make classrooms obsolete. However, others believe that the traditional classroom will change, not disappear (Timmons, 2004). According to Timmons (2004), the increase in the demand for distance education will continue because of the affordability of owning a personal computer; the accessibility of the Internet from virtually anywhere; the constant improvement of technology, such as wireless; and the flexibility and convenience of enrolling and completing classes.

The federal government is taking notice of the opportunities distance education can afford students, and they intend to research and review the issue thoroughly as

they formulate the nation's new education technology plan (Emeagwali, 2004). The NBEA believes that the use of distance learning will continue to grow as a result of increased technological innovations and competitive forces in the educational marketplace. Business educators will have opportunities to utilize distance learning delivery methods as a result of that growth (PCBEE Statement No. 65).

Summary

The literature reviewed indicated that technology will be vital for learning and instructing courses utilizing distance education for Alabama business educators. During the 1990s, research studies had begun to focus on teacher training and professional development in the area of technological innovations to enable educators to better utilize distance learning technology. Several researchers (Kalny, 1999; Mayer, Schustack & Blanton, 1999; McKay & McGrath, 2000; Rodes, et al., 2000; Vojtek & Vojtek, 2000; S. Wang, 2000) emphasized the importance of integrating technology and utilizing training in the educational process. Research findings indicated that professional development and training in the area of distance learning

technology should be an ongoing process due to the continuous changes in technology.

Research on distance education in career and technical education has been limited despite recommendations for research more than twenty years ago (Oliveira & Rumble, 1982). Little is also known about secondary career and technical education teachers' use of distance learning (Zirkle, 2003).

Recent research has shown that due to the constraints of time and distance, educators are looking to distance learning for their continuing education and professional development. Several researchers (Crews, 2000; Kessell, 1999; Kessell, 2000; Maeroff, 2003; Roberts, 2000) found that many educators are interested in gaining advanced degrees and certification utilizing distance education because of the flexibility that it affords.

Few studies exist in career and technical education on faculty use of distance learning (Zirkle, 2003). The shortage of all types of research on distance learning in career and technical education may be attributed to the recent interest in the subject by career and technical education researchers (Wonacott, 2001). Zirkle (2003)

called for research in the area of distance learning in career and technical education specifically with respect to teacher utilization. Phipps and Merisotis (1999) also called for research in the areas of professional development and technical support for teachers engaged in distance learning.

The National Business Education Association (NBEA) stressed the importance of distance learning in business education in Policy Statement No. 65 (PCBEE). The NBEA believes that there are challenges, but also many opportunities, in the field of distance education for business educators and students. Distance learning affords access to more educational resources and courses for a larger and more diverse population of learners (PCBEE Statement No. 65). No study was found that researched teacher preparation for instructing Alabama business education courses utilizing distance learning technology. Further, no study could be found on teacher credentialing using distance education by Alabama business educators. Therefore, this study will concentrate on the use of distance learning technology by Alabama business teachers for credentialing and instruction.

III. METHODS AND PROCEDURES

Introduction

The focus of this study was to determine the extent to which Alabama business teachers use distance learning technology in their courses and have the preparation, desire, and support to teach business courses via distance learning. This study was also designed to determine the extent to which Alabama business educators utilize or possess interest in using distance learning technology in their credentialing process.

Permission to conduct the study was granted from the Auburn University Institutional Review Board (Appendix A). Permission was also granted from the participants by the return of a completed survey.

Population

The participants of this study included Alabama business teachers. Alabama secondary business education teachers were selected as the population for this study because they are in the best position to provide current

and relevant information concerning their use of distance learning technology for credentialing and instruction. Only they are able to identify training, professional development, and technological needs. The Alabama Department of Education 2003-2004 Business Education Directory provided the roster of names from which the sample was taken. This directory is available from the State of Alabama Department of Education. This population (N = 705) included secondary business education teachers listed in the directory. Each business education teacher received a survey. In order to maximize the number of surveys returned, the entire population was surveyed. This study included the entire population of interest as a census with no sampling techniques utilized. "The strength of a census of this type lies in its irrefutability. Its weakness lies in its confinement to a single limited population at a single point in time" (Ary, Jacobs, & Razavieh, 1990, p. 408-409).

Instrumentation

Data were collected through a researcher-designed survey (Appendix B) entitled Business Education Distance Learning Technology Assessment (BEDLTA). The variables

were defined by responses of teachers to the survey (BEDLTA).

The instrument employed to gather data, BEDLTA, was developed by the researcher to identify the use of distance learning technology by Alabama business teachers for credentialing and instruction. The researcher developed the survey instrument after an appropriate instrument was not revealed in the review of literature. Format for presentation of assessment items was found in relevant texts. The survey included the following components: (a) demographic data; (b) degree of usage of distance learning technology in business education courses; (c) degree to which Alabama business educators have received distance learning training and/or professional development (instruction); (d) degree of usage of distance learning technology in credentialing; and (e) degree of computer technology availability, support, and training needs.

The demographic data in section one included grade level taught, gender, years teaching business education, highest degree held, highest certification level, and type of school.

In section two of the survey instrument, participants were asked about their experience with distance learning and their perceptions about distance education. Respondents were asked to list the number of classes taught utilizing distance learning technology and the number of clock hours that they had received distance learning instruction. Participants were asked to check their preference or choice from a given list for each question. The questions related to training and instructing classes in distance learning.

The third section of the survey contained questions relating to the participants' interest in training and professional development for distance learning. A three-point Likert-type scale was utilized for two of the questions with the following scale: (1) Definite Interest-Would Participate; (2) Some Interest-May Participate; and (3) No Interest-Would Not Participate. There was also a question in this section that rates the respondents' degree of knowledge and/or expertise in areas related to instruction of distance learning. A four-point Likert-type scale was used for this question with the following scale: (1) High Level of Skill; (2) Moderate Level of Skill; (3) Low Level of Skill; and (4) No Skill.

Section four contained questions relating to the participants' interest in utilizing distance learning technology for obtaining advanced degrees and/or credentials. Respondents were asked to check yes or no for two of the questions. A three-point Likert-type scale was utilized for the final question in this section with the following scale: (1) Definite Interest-Would Participate; (2) Some Interest-May Participate; and (3) No Interest-Would Not Participate.

The fifth section contained questions relating to the degree of computer technology availability, support, and training needs. Participants were asked to check their preference or choice from a given list for the questions. Some of the questions in this section also asked for numerical values to be placed in blanks as answers to the questions. In addition, there were open-ended questions regarding needs for computer technology training, distance learning equipment training, and pedagogical training. The final question in this section was an open-ended question which requested any additional comments that the respondent felt would be pertinent to this study.

The research method was survey research. A purpose of survey research is to collect primary data, that is, data gathered and assembled specifically for the research project at hand (Emory & Cooper, 1991; Minium, King, & Bear, 1993). Surveys are extremely flexible and very valuable for obtaining information (McCall, 1990). The development of a survey for this study was driven by the research objectives. The researcher developed and administered a survey instrument which meets the two fundamental assumptions identified by Dillman (2000): "(1) responding to a self-administered questionnaire involves not only cognition, but also motivation, and (2) multiple attempts are essential to achieving satisfactory response rates to self-administered surveys regardless of whether administered by e-mail, the web, or postal delivery" (p. 13).

The survey instrument was constructed with the intent to impart a feeling of intrinsic value and importance to the respondents, that the study was genuinely interested in their perceptions and opinions, and that their responses were individually valuable and critical to a better understanding of the role and needs of Alabama business

education teachers. The instrument was designed using standard 8 ½" x 11" paper as, "It appears that no experiments have shown a significant improvement in response from the use of these smaller sizes . . . . In addition, it appears that [we are being pushed] in the direction of using standard 8 ½" x 11" questionnaires" (Dillman, 2000, p. 170-171).

An explanation of the purpose and need for the survey and the importance of each Alabama business education teacher to respond completely and to the best of their ability was provided in an information letter. The instrument used a readable font style and format and included clear and specific directions for responding preceding each section. According to Dillman (2000), the researcher should "not place instructions in a separate instruction book or in a separate section of the questionnaire" (p. 120).

The survey packet contained the following items:

1. An information sheet (Appendix C), as required by the Auburn University Institutional Review Board, describing the study to the potential

participants and outlining the procedures to be followed in completing the survey.

2. A pre-addressed stamped envelope was included for the convenience of the respondent to encourage greater participation.

To preserve the confidentiality of the participants, each return envelope was assigned a code number to be used only for follow-up purposes. During the data collection process, only the researcher had access to the code number. As the surveys were returned, the participant name was removed from the list and the coded returned envelopes were destroyed.

Researchers at Auburn University, where the study was conducted, must obtain permission from the Institutional Review Board (IRB) to use the response of human subjects. Protocol, a request for exempt status, an information letter, and a copy of the survey instrument were forwarded to the IRB for approval prior to continuation of the study. The Board reviewed the protocol and granted the necessary permission on March 5, 2004 (Appendix A).

Validity and Reliability

The most prominent internal validity concern in designing the survey was the presence and degree of measurement error. The degree and presence of measurement error was controlled by developing clearly worded instructions and questions in the survey instrument and understandable directions in all related correspondence used to facilitate response. Questions not clearly stated leading to individual respondent interpretation and speculation, ambiguous questions, and unclear instructions could lead to some degree of systematic or non-random error. Minimizing or eliminating these sources of error, to the extent possible, was addressed during the survey development and validated by the panel of experts review.

The basis for the items on the survey was derived from the review of literature and the research objectives of this study. The areas included in the review of literature focused on such topics as developments in distance learning, technological applications, teacher training, and credentialing/professional development. To ensure the validity of the scores from the survey instrument, a panel of expert university faculty members was used to evaluate

the content. Content and face validity were established using a panel of experts chosen based on their knowledge and experience in descriptive survey research design, survey instruments, and/or data collection. The panel was asked to assist in developing an instrument which accurately represented the area and domain of interest in this study as well as the perception that the instrument will measure what it purports to measure. Panel comments, input, and recommendations were considered and incorporated into the final instrument.

Usability of the survey was determined through the use of a panel of expert judges. A selected group of professional business educators was asked to review the survey instrument for clarity of directions, concepts, and definitions. Follow-up was made with participants for further input. Based on the recommendations from the expert panel of judges, minor modifications were made to the survey instrument. Packets were then mailed to the population for data collection.

Data Collection

Each member of the population received a packet including (a) an information letter describing the study

and an outline of the procedures to be followed (Appendix C); (b) a survey instrument (Appendix B); and (c) a pre-addressed stamped envelope.

The respondents were asked to return the survey within two weeks utilizing the enclosed pre-addressed envelope. Each return envelope had a code on the label to assist in the follow-up of non-returned surveys. During the data collection process, only the researcher had access to the code number. As the surveys were returned, the participant name was removed from the list and the coded returned envelopes were destroyed. The information letter explained the purpose of the code.

Follow-up procedures were conducted with subjects who had not returned the survey. Initially, follow-up e-mails were sent to the subjects with valid e-mail addresses listed in the 2003-2004 Alabama Department of Education Business Education Directory. Phone calls were utilized to further follow-up. Respondents were only contacted once through the use of follow-up.

At the conclusion of the data collection, 224 surveys were returned. Eight (8) surveys were returned either

blank or were not usable, which resulted in a 31% participation rate.

Data Analysis

Statistical treatment of the data included the use of the Statistical Package for Social Sciences (SPSS). Descriptive statistics were used to organize, summarize, and describe the collected data. Crosstabs were constructed utilizing chi-square tests. "When the data consist of frequencies in discrete categories, the chi-square test may be used to determine the significance of differences between two independent groups. The focus of the test is on whether the differences in proportions exceed those expected as chance or random deviations from proportionality (Siegel & Castellan, 1998, p. 111)." Chi-square is calculated by comparing the actual, or observed, frequencies in each cell in the table to the frequencies that would be expected if there were no relationship at all between the two variables in the population from which the sample is drawn (Connor-Linton, 2004). When $N > 40$, the chi-square test is the appropriate nonparametric statistic to use for dichotomous variables (Siegel & Castellan, 1988). Chi-square tests were used to determine the

relationship between the extent of distance learning use by Alabama business educators in their instruction and the extent to which they received distance learning training, exhibit a willingness to teach distance learning classes, perceive they have the necessary equipment to utilize distance learning instruction, and enhance their credentials via distance learning technology. Crosstabs and chi-square tests were also used to determine the relationship between the extent that Alabama business educators would be interested in using distance learning technology in their credentialing process and the extent to which they are willing to instruct classes utilizing distance learning technology.

Chi-square allows the researcher to make decisions about whether there is a relationship between two or more variables. A measure of the strength of that relationship is also desirable. The phi coefficient will measure the degree of association between the variables represented in the data. The phi coefficient is derived by dividing the data's chi-square value by *N* (the total number of observations) and then taking the square root of the product (Connor-Linton, 2004).

A t-test was used where the independent variable was dichotomous and the dependent variable was continuous. This is an acceptable method (Huck & Cormier, 2000; Pedhazur & Schmelkin, 1991; Shannon & Davenport, 2001). A t-test was used to determine the relationship between the extent of distance learning use by Alabama business education teachers in their instruction and the extent to which they perceive their degree of skill in selected areas.

A Pearson product-moment correlation was used where the independent variable was continuous and the dependent variable was continuous. This is an acceptable method of data analysis (Huck & Cormier, 2000; Pedhazur & Schmelkin, 1991; Shannon & Davenport, 2001). A Pearson product-moment correlation was used to determine if there is a significant difference in the perceived degree of skill of Alabama business educators and the number of years that they have been teaching business education.

Analysis of variance (ANOVA) was used to evaluate quantifiable responses where the independent variable was categorical and the dependent variable was continuous. This is an acceptable method (Emory & Cooper, 1991; McCall,

1990; Minium, King, & Bear, 1993). ANOVA was used to determine if there is a statistically significant difference in the perceived degree of skill of Alabama business education teachers among the various levels of highest degree held (Bachelor, Master, Specialist, Doctorate) or highest certification level (B-Bachelor, A-Master, AA-Post Master).

A value above the critical level for the appropriate degrees of freedom indicates significance. This level was determined to be the .05 level of probability. In other words, if differences occurred less than 95% of the time, the difference was significant.

IV. STATISTICAL ANALYSIS AND RESULTS

Introduction and Restatement of the Problem

This study was designed to provide information regarding the integration of distance learning into Alabama business education courses and the use of distance learning by Alabama business teachers for credentialing. Reviewed literature in Chapter 2 revealed the necessity for business education to include technology training and support for learning and instructing courses utilizing distance education.

This chapter presents the analysis of the data collected from Alabama business education teachers utilizing the researcher-developed Business Education Distance Learning Technology Assessment (BEDLTA) instrument.

Descriptive Data Analysis and Results

Descriptive statistics, including frequencies and percentages, were run in SPSS to summarize, analyze,

organize, and describe the data and to provide an indication of the relationships between variables.

The Business Education Distance Learning Technology Assessment (BEDLTA) instrument was designed to collect data regarding the grade levels taught by the responding teachers, the gender of the respondent, highest degree held by the responding teacher, and highest certification held by the respondent. Table 1 presents this information. The largest percent of respondents taught high school (81%), were female (90.7%), held a master's degree (66.7%), and held A (master's level) certification (51.7%).

Table 1

Demographic Data of Respondents

Categories	*n*	Percent
Grades Taught		
6-8	40	19.0
9-12	171	81.0
Gender		
Male	20	9.3
Female	195	90.7
Highest Degree		
Bachelor	59	27.3
Masters	144	66.7
Specialist	12	5.5
Doctorate	1	0.5
Highest Certification		
B (Bachelor)	56	27.9
A (Master)	104	51.7
AA (Post Master)	28	13.9
Doctorate	1	0.5
Alternative	11	5.5
Emergency	1	0.5

Table 2

Type of School of Respondents

Type of School	*n*	Percent
Comprehensive High School	137	64.0
Junior High School	6	2.8
Middle School	12	5.6
Vocational Center	23	10.8
School Including Grades 7-12	24	11.2
School Including Grades K-12	12	5.6

The descriptive statistics also identified the various types of schools in which respondents taught. Table 2 reflects the collected data. Most of the respondents (64%) taught at a comprehensive high school. The mean number of years teaching business education of the respondents was 13. The majority of the respondents (59.3%) taught in a county school system, while 40.7% of the respondents taught in a city school system.

Research Questions

Question 1: What is the status of distance learning use and instruction in Alabama as determined by the extent to

which business educators: (a) utilize distance learning technology in their courses, (b) are willing to teach distance learning courses, (c) enhance their credentials via distance learning technology, (d) exhibit interest in using distance learning technology in their credentialing process, (e) perceive they have the necessary equipment (electronic/computer technology) to utilize distance learning instruction, and (f) receive technology support and training in the field of distance learning?

Part (a) of this research question was addressed by questions 8, 9, and 10 on the Business Education Distance Learning Technology Assessment (BEDLTA). The majority of the respondents (95.8%) have not taught a distance learning class, while only 4.2% have taught a distance education course. Of the respondents that have taught a distance learning class, on average they have taught 1.43 classes. The range was between 1 and 2 classes. Only 1 respondent was provided with extra compensation for instructing a distance learning class. The other participants received nothing extra as a result of teaching a distance education course.

Question 14 on the BEDLTA was used to address part (b) of this research question. The majority of the participants (64.2%) expressed a willingness to teach a distance learning class, while 35.8% were not willing to instruct a distance learning course. Table 3 presents the frequencies and percents of the findings in parts (a) and (b) of this research question.

Table 3

Status of Distance Learning Use

Categories	*n*	Percent
Teach Distance Learning Class		
No	207	95.8
Yes	9	4.2
Willing To Teach Distance Learning Class		
Yes	136	64.2
No	76	35.8

Parts (c) and (d) of this research question are addressed by questions 20, 21, and 22 on the BEDLTA. The majority of respondents (84.7%) have not participated in a distance learning program to obtain an advanced degree or credentials, while 15.3% have participated. However, a majority of participants (63.3%) exhibited interest in participating in a distance learning program to obtain an advanced degree or credentials, while 36.7% did not possess an interest. Question 22 on the BEDLTA survey asked respondents to indicate their interest in participating in a distance learning program to obtain an advanced degree,

an advanced certification, and another certification area. A three-point Likert-type scale was used for analysis. The scale consisted of the following choices: (1) Definite Interest – Would Participate; (2) Some Interest – May Participate; and (3) No Interest – Would Not Participate. Table 4 reflects the frequency and percent for each item based on the scale. A majority of respondents reported a definite interest in pursuing an advanced degree (43.2%) and advanced certification (40.4%) via distance learning. The majority of participants (44.5%) expressed no interest in pursuing another certification area utilizing distance learning.

Table 4

Interest in Distance Learning Programs

Categories	*n*	Percent
Advanced Degree		
Definite Interest	85	43.2
Some Interest	54	27.4
No Interest	58	29.4
Advanced Certification		
Definite Interest	82	40.4
Some Interest	65	32.0
No Interest	56	27.6
Another Certification Area		
Definite Interest	52	27.5
Some Interest	53	28.0
No Interest	84	44.5

Questions 23-30 on the Business Education Distance Learning Technology Assessment (BEDLTA) were used to address part (e) of this research question. All respondents (N = 216) reported having access to the Internet at their school. On average, each respondent's classroom had 23.69 computers with 21.60 computers having Internet access. The respondents reported having, on average, 155.25 computers in their school with 151.50 computers having Internet access. Table 5 outlines these findings.

Table 5

Classroom and School Computers

Category	*n*	*M*
Computers in Classroom	216	23.69
Computers in Classroom With Internet Access	216	21.60
Computers in School	188	155.25
Computers in School With Internet Access	178	151.50

The majority of respondents (72.9%) reported having no distance learning lab or classroom, while 27.1% reported having a distance learning lab or classroom. If the respondent reported having a distance learning lab or classroom, they were asked to place a check mark beside the equipment that was available in their distance learning lab or classroom. Table 6 reports the equipment that is available in the respondents' distance learning labs.

Table 6

Available Distance Learning Lab Equipment

Category[a]	Frequency	Percent
Computers with Internet Access	42	19.6
Interactive Television Equipment	51	23.8
LCD Overhead Projector	43	20.1
Camera Equipment	40	18.7

[a] *n* = 58 for each category.

A slight majority of respondents (50.5%) perceive that they do not have the necessary equipment available to instruct a distance learning course, while 49.5% report that they do perceive that they have the necessary equipment to teach a distance learning class.

Questions 11-13, 15-18, and 31-35 were used to address part (f) of this research question. The majority of respondents (87.9%) have not received any teacher training or professional development in the field of distance learning, while 12.1% have received training. Of the respondents that reported having received training, they received on average 13.35 hours of training. Of the 26 respondents that reported having received distance learning

training, 13 (50%) believed that the training prepared them to instruct a distance learning class, while 10 (38.5%) did not feel that their training prepared them to teach a distance learning course.

More respondents (81.1%) were willing to instruct a distance learning class if they received training or professional development in the field of distance learning. Without training, only 64.2% of the respondents were willing to teach a distance learning course.

A majority of respondents (48.8%) reported that teacher training and professional development in the area of distance learning is very important; while 33.8% believe that training is somewhat important, 13.6% feel that training is not very important, and 3.8% reported that training is not at all important.

A three-point Likert-type scale was used for analysis in questions 17 and 18. The scale consisted of the following choices: (1) Definite Interest – Would Participate; (2) Some Interest – May Participate; and (3) No Interest – Would Not Participate. In question 17, respondents were asked to indicate their interest in participating in distance learning training and

professional development at certain times. Online (48.7%) and summers (40.5%) received the highest percentages in Definite Interest – Would Participate. Participants were asked to indicate their interest in participating in certain distance learning training and professional development activities in question 18. Workshops (56.3%) and online modules (41.8%) received the highest responses in Definite Interest – Would Participate. Table 7 reflects the responses for each of these questions.

Table 7

Distance Learning Training and Professional Development

Category	*n*	Percent
During Planning Period		
Definite Interest	42	22.7
Some Interest	67	36.2
No Interest	76	41.1
Afternoons – After School		
Definite Interest	35	19.0
Some Interest	81	44.0
No Interest	68	37.0
Weekends		
Definite Interest	17	9.4
Some Interest	53	29.5
No Interest	110	61.1
Summers		
Definite Interest	79	40.5
Some Interest	85	43.6
No Interest	31	15.9

(Table Continues)

(Table 7 – Continued)

Category	*n*	Percent
Online – On Demand		
Definite Interest	91	48.7
Some Interest	66	35.3
No Interest	30	16.0
Hands On Workshops		
Definite Interest	116	56.3
Some Interest	72	35.0
No Interest	18	8.7
Online Modules		
Definite Interest	82	41.8
Some Interest	79	40.3
No Interest	35	17.9
College Coursework		
Definite Interest	76	38.8
Some Interest	69	35.2
No Interest	51	26.0
Self-study		
Definite Interest	58	30.5
Some Interest	69	36.3
No Interest	63	33.2

Questions 31 and 32 address the computer technical support staff personnel that are available to the respondents. On average, 1.2 computer technical support staff personnel are available at the respondent's school, and 4.02 computer technical support staff personnel are available within the respondent's school system.

Questions 33-35 address the respondent's need for computer technology training, equipment training, and pedagogical training. A majority of respondents in each category expressed a need for training. Table 8 reflects the results of these responses.

Table 8

Training Needs

Category	*n*	Percent
Computer Technology Training		
Yes	127	61.4
No	80	38.6
Equipment Training		
Yes	130	63.1
No	76	36.9
Pedagogical Training		
Yes	112	53.1
No	99	46.9

Question 2: Is there a relationship between the extent of distance learning use by Alabama business educators in their instruction and the extent to which they: (a) received distance learning training/professional development, (b) are willing to teach distance learning classes, (c) perceive their degree of skill in selected areas, (d) perceive they have the necessary equipment (electronic/computer technology) to utilize distance

learning instruction, and (e) enhance their credentials via distance learning technology?

Questions 8 and 11 on the Business Education Distance Learning Technology Assessment (BEDLTA) were used to address part (a) of this research question. To determine if there is a relationship between the extent of distance learning use by Alabama business education teachers in their instruction and the extent to which they received distance learning training and professional development, a crosstabs and chi-square design was utilized. The relationship between distance learning use and distance learning training/professional development was statistically significant, χ^2 (1, N = 214) = 3.95, p = .047. The phi coefficient test was calculated as a measure of the strength of the relationship between the variables. It was also statistically significant, Φ (N = 214) = .136, p = .047. Those who received distance learning training/professional development were more willing to use distance learning in their instruction.

Part (b) of this research question was addressed by questions 8 and 14 on the BEDLTA survey. A crosstabs and chi-square design was used to determine if a significant

relationship existed between the extent of distance learning use by Alabama business education teachers in their instruction and the extent to which they are willing to teach distance learning classes. The relationship between distance learning use and the respondent's willingness to teach distance learning courses was statistically significant, χ^2 (1, N = 212) = 4.646, p = .031. The phi coefficient was calculated as a measure of the degree of association between the variables. It was also statistically significant, Φ (N = 212) = .148, p = .031. The respondents who were willing to teach distance learning classes were more likely to use distance education in their instruction.

Part (c) of this research question was addressed by questions 8 and 14 on the BEDLTA survey instrument. A t-test was used to determine if a significant relationship existed between the extent of distance learning use by Alabama business educators in their instruction and the extent to which they perceive their degree of skill in selected areas. Relating to the degree of skill of Alabama business education teachers, those that have taught a distance learning class (M = 38, SD = 13.01) reported a

significantly higher overall level of skill than those that have not taught a distance learning course (M = 48.56, SD = 8.738), $t(205) = -3.463$, $p = .001$ (two-tailed), $d = .056$. Power was recorded at .931, which indicated that the analysis was powerful enough.

Questions 8 and 30 on the BEDLTA were used to address part (d) of this research question. To determine if there is a relationship between the extent of distance learning use by Alabama business education teachers in their instruction and the extent to which they perceive they have the necessary equipment to utilize distance learning instruction, a crosstabs and chi-square design was utilized. The relationship between distance learning use and the respondent's perception that they have the necessary equipment was statistically significant, χ^2 (1, N = 206) = 4.804, $p = .028$. The phi coefficient was calculated as a measure of the strength of the relationship between the variables. It was also statistically significant, Φ (N = 206) = .153, $p = .028$. If the respondents perceived they have the necessary equipment (electronic/computer technology) to utilize distance

learning instruction, they were more likely to use distance education in their instruction.

Part (e) of this research question was addressed by questions 8 and 20 on the BEDLTA survey. A crosstabs and chi-square design was used to determine if a significant relationship existed between the extent of distance learning use by Alabama business education teachers in their instruction and the extent to which they enhance their credentials via distance learning technology. The relationship between distance learning use and the use of distance education to enhance the respondent's credentials was not statistically significant, χ^2 (1, N = 215) = .130, p = .719. No further tests were necessary.

Question 3: Is there a relationship between the extent that Alabama business educators would be interested in using distance learning technology in their credentialing process and the extent to which they are willing to instruct classes utilizing distance learning technology?

Questions 14 and 21 on the Business Education Distance Learning Technology Assessment (BEDLTA) were used to address this research question. To determine if there is a relationship between the extent that Alabama business education teachers would be interested in using distance learning technology in their credentialing process and the extent to which they are willing to instruct classes utilizing distance learning technology, a crosstabs and chi-square design was utilized. The relationship between the respondent's interest in distance learning use in the credentialing process and their willingness to instruct classes via distance learning technology was statistically significant, χ^2 (1, N = 185) = 25.625, p < .001. The phi coefficient was calculated as a measure of the strength of the relationship between the variables. It was also statistically significant, Φ (N = 185) = .372, p < .001. The respondents that were willing to instruct classes

utilizing distance learning technology would be more interested in using distance education in their credentialing process.

Question 4: Is there a significant difference in the perceived degree of skill in selected areas among demographic groups: (a) years teaching business education, (b) highest degree, and (c) highest certification level?

Question 19 on the Business Education Distance Learning Technology Assessment (BEDLTA) was used to address the respondent's perceived degree of skill in certain areas that are important in the field of distance learning. A four-point Likert-type scale was used for analysis. The scale consisted of the following choices: (1) High Level of Skill; (2) Moderate Level of Skill; (3) Low Level of Skill; and (4) No Skill. A sum score and average score was obtained from the results of the data for each respondent. A low score indicates a high level of skill among the different areas. The sum scores ranged from 18 to 68, with a mean score of 48.10 and a standard deviation of 9.183 (N = 205). The average scores ranged from 1 to 4, with a mean score of 2.67 and a standard deviation of .51

(*N* = 205). Table 9 reflects the mean and standard deviation of each category relating to the respondent's perceived degree of skill.

Table 9

Degree of Skill

Category	*N*	*M*	*SD*
Use of Internet	212	1.33	.481
Use of E-mail	213	1.28	.469
Teaching Online	210	3.39	.795
Utilizing Electronic Discussion Groups or Conferencing Tools	211	2.99	.938
Use of Software to Create, Edit, or Convert Material to Web Pages	213	2.67	.960
Use of HTML to Create a Web Page	213	2.91	.972
Knowledge of Converting Computer Presentations to Web Pages	212	2.77	.963
Use of Multimedia Tools	214	1.99	.760
Teaching Via Interactive TV	211	3.60	.776
Teaching Via Telecourse	211	3.68	.675
Teaching Via Correspondence	208	3.52	.840
Teaching Via Video	212	3.39	.909
Teaching Via CD-ROM	211	3.19	1.017
Use of LCD Overhead Projector	212	1.51	.788
Use of Scanner	213	1.52	.762
Use of Camera Equipment	212	1.73	.809

(Table Continues)

(Table 9 - Continued)

Category	*N*	*M*	*SD*
Ability to Use Course Development/ Management Software	212	2.79	1.105
Administration of Distance Learning Programs	209	3.68	.705

*Scale for each category under degree of skill: (1) High Level of Skill; (2) Moderate Level of Skill; (3) Low Level of Skill; (4) No Skill.
Note: Data and information obtained from question 19 on BEDLTA survey (Appendix C).

Questions 3 and 19 on the Business Education Distance Learning Technology Assessment (BEDLTA) were used to address part (a) of this research question. To determine if there is a significant difference between the perceived degree of skill of Alabama business education teachers and the number of years that they have been teaching business education, a Pearson product-moment correlation design was utilized. The relationship between the respondent's perceived degree of skill in selected areas and the number of years that they have been teaching business education was statistically significant, $r(203) = .323$, $p < .001$. The longer the respondent had been teaching business

education, the higher their perceived degree of skill was in selected areas.

Part (b) of this research question was addressed by questions 4 and 19 on the BEDLTA survey. To determine if significant differences existed in the perceived degree of skill in selected areas and the level of highest degree (Bachelor, Master, Specialist, Doctorate), a one-way ANOVA design was utilized. With an alpha level of .05, the effect of highest degree was not statistically significant, F (2, 205) = 1.16, p = .316. No further tests were necessary.

Questions 5 and 19 on the BEDLTA survey instrument were used to address part (c) of this research question. An ANOVA design was used to determine if a significant difference was found in the perceived degree of skill and highest certification level (B-Bachelor, A-Master, AA-Post Master). With an alpha level of .05, the effect of highest certification level on the perceived degree of skill was not statistically significant, F (3, 190) = .46, p = .71. No further tests were necessary.

V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

Distance learning technology has impacted business education through instruction and credentialing by teachers. Distance education will continue to grow as a result of increased technological innovations and competitive forces in the ever-changing educational arena. A research survey instrument was developed to assess the degree to which Alabama business teachers are utilizing distance learning technology in their courses and the extent to which Alabama business teachers are enhancing their credentials via distance education. Analyses were conducted to determine the degree to which Alabama business teachers utilize distance learning technology in their instruction, the factors that are critical in the determination of whether or not Alabama business teachers teach via distance learning, and the degree to which distance learning is used by Alabama business teachers in their credentialing and professional development.

In the previous chapter, data collected from Alabama business teachers utilizing the researcher-developed Business Education Distance Learning Technology Assessment (BEDLTA) survey instrument were presented and analyzed. This chapter includes discussion of the findings, conclusions, and recommendations.

Summary of Findings

Most Alabama business teachers are female (90.7%), hold a masters degree (66.7%), and hold A (master's level) certification (51.7%). The majority of business education teachers (81%) teach grades 9-12 and teach at a comprehensive high school (64%).

The majority of the respondents (95.8%) have not taught a distance learning class. Of the respondents that have taught a distance learning class, on average they have taught 1.43 classes. Most of the respondents were not provided with any incentives to teach a distance learning course. The majority of the participants (64.2%) did express a willingness to teach a distance learning class. This percentage increased with training. More respondents (81.1%) were willing to instruct a distance learning class if they received training or professional development in

the field of distance education. A majority of respondents (48.8%) reported that teacher training and professional development in the area of distance learning is very important.

The majority of respondents (87.9%) have not received any teacher training or professional development in the field of distance learning. Of the respondents that reported having received training, they received on average 13.35 hours of training. Workshops (56.3%), online modules (41.8%), and summer (40.5%) were preferred by Alabama business teachers at the "definite interest" level for training and professional development. In addition, the current study identified online-on demand as a preferred time for scheduling training for business education teachers in the field of distance learning. The current study supported Willis (1994) who found that faculty training was critical to the success of any distance education program. Business education teachers were asked about their need for computer technology training, equipment training, and pedagogical training. A majority of respondents in each category expressed a need for training.

The majority of participants (84.7%) have not participated in a distance learning program to obtain an advanced degree or credentials; however, 63.3% of the respondents exhibited interest in participating in a distance education program to gain an advanced degree or certification. These factors support Kessell (2000) who found that many educators are interested in gaining advanced degrees and certification utilizing distance education.

All respondents (N = 216) reported having access to the Internet at their school. On average, each respondent's classroom had 23.69 computers with 21.60 computers having Internet access. The majority of respondents (72.9%) reported having no distance learning lab or classroom. A slight majority of participants (50.5%) perceive that they do not have the necessary equipment available to instruct a distance learning course.

The relationship between distance learning use by business education teachers and distance learning training/professional development was statistically significant, χ^2 (1, N = 214) = 3.95, p = .047. Those who received distance learning training/professional

development were more willing to use distance learning in their instruction. The relationship between distance learning use and the business teacher's willingness to teach distance learning courses was also statistically significant, χ^2 (1, N = 212) = 4.646, p = .031. The respondents who were willing to teach distance learning classes were more likely to use distance education in their instruction. Relating to the degree of skill of Alabama business education teachers, the teachers that have taught a distance learning class (M = 38, SD = 13.01) reported a significantly higher overall level of skill than those that have not taught a distance learning course (M = 48.56, SD = 8.738), t(205) = -3.463, p = .001 (two-tailed), d = .056. The relationship between distance learning use and the business education teacher's perception that they have the necessary equipment was statistically significant, χ^2 (1, N = 206) = 4.804, p = .028. If the respondents perceived they have the necessary equipment to utilize distance learning instruction, they were more likely to use distance education in their instruction. However, the relationship between distance learning use and the use of

distance education to enhance the business education teacher's credentials was not statistically significant, χ^2 (1, N = 215) = .130, p = .719. The relationship between the business education teacher's interest in distance learning use in the credentialing process and their willingness to instruct classes via distance learning technology was statistically significant, χ^2 (1, N = 185) = 25.625, p < .001. The respondents that were willing to instruct classes utilizing distance learning technology would be more interested in using distance education in their credentialing process.

Respondents were asked to rate their perceived degree of skill in selected areas that are important in the field of distance learning. A sum score and average score was obtained from the results of the data for each respondent. The sum scores ranged from 18 to 68, with a mean score of 48.10 and a standard deviation of 9.183 (N = 205). The average scores ranged from 1 to 4, with a mean score of 2.67 and a standard deviation of .51 (N = 205). The relationship between the respondent's perceived degree of skill in selected areas and the number of years that they have been teaching business education was statistically

significant, $r(203) = .323$, $p < .001$. The longer the respondent had been teaching business education, the higher their perceived degree of skill was in selected areas. No significant difference [F (2, 205) = 1.16, p = .316] was found between perceived degree of skill and highest degree earned. There was also no significant difference [F (3, 190) = .46, p = .71] found between perceived degree of skill and highest certification level.

Conclusions

The following conclusions were based on the findings of the study:

1. An opportunity exists to train and prepare business education teachers to instruct courses utilizing distance learning technology. Although a majority of respondents are willing to teach a distance learning class, very few teachers have been trained in the area of distance education. Overall, Alabama business education teachers report on average a low to moderate level of skill in selected areas related to distance learning technology. The respondents' degree of skill is not related to highest degree or highest certification level.

2. Alabama business education teachers have shown an interest in enhancing their certification and/or attaining an advanced degree through the use of distance learning technology. An opportunity exists to provide distance learning programs to aid business teachers in enhancing their credentials.
3. The business education teacher's willingness to instruct a course utilizing distance learning technology is critical to the implementation of distance learning in business education. A majority of respondents reported that training in distance learning technology is very important. A greater percentage of participants were also willing to teach via distance learning if they received training.
4. Having the necessary equipment to instruct a distance learning course is critical in establishing a distance education program. A majority of business education teachers do not have a distance learning lab or perceive they have the necessary equipment to teach a distance learning class.

Recommendations

Based on the conclusions, the following recommendations are made:

1. Consideration should be given to implementing a plan to prepare both pre-service and in-service Alabama business education teachers for utilizing distance learning technology. With training, more teachers would be willing to instruct courses in distance education and the level of degree of skill would be increased.
2. Alabama educational leaders should play a vital role in preparing business education teachers to effectively use distance learning technology. The Alabama Department of Education, school systems, and colleges providing teacher education should provide training in the area of distance education to future and current Alabama business education teachers.
3. Universities should design and implement distance learning business education programs to enable Alabama business education teachers the opportunity to enhance their credentials. A

majority of participants expressed an interest in increasing their certification and/or attaining an advanced degree via distance learning technology.

4. Online modules and summer workshops should be designed to assist Alabama business education teachers in the area of distance learning technology.
5. Colleges offering business teacher education programs should strive to include the integration of distance learning technology into the curriculum.
6. A follow-up study should be conducted in two years to determine progress toward the goal of preparing Alabama business education teachers in the area of distance learning technology.
7. This study should be repeated in other states.

REFERENCES

Alabama Online High School. (n.d.). Retrieved September 30, 2003, from http://www.aohs.state.al.us

Ary, D., Jacobs, L. C., & Razavieh, A. (1990). *Introduction to research in education* (4th ed.). Orlando, FL: Harcourt Brace College Publishers.

Barron, A. (1999, February). *A teacher's guide to distance learning.* Retrieved September 29, 2003, from University of South Florida, College of Education Web site: http://fcit.coedu.usf.edu/distance/default.htm

Bartholome, L. W. (2003). Delivery systems for business education. In M. H. Rader, & L. A. Kurth (Eds.), *Effective methods of teaching business education in the 21st century* (pp. 17-34). Reston, VA: National Business Education Association.

Bayram, S. (1999, May). Internet learning initiatives: How well do Turkish virtual classrooms work? *THE Journal, 26*(10), 65-68.

Becker, H. (1999). *Teaching, learning, & computing.* Irvine, CA: University of California-Irvine Publications.

Brandao, C. (2002, May). Teaching online: Harnessing technology's power at Florida Virtual School. *THE Journal, 29*(10), 37-43.

Brawner, C. E., Rajala, S. A., Miller, T. K., Cherukuri, H. P., Alderman, C., & Ingle, R. K. (2002, October). Partnerships increase access to engineering education: North Carolina's two + two experience. *THE Journal, 30*(3), 30-36.

Camacho-Dungca, B. (1997). *Use of telecommunication in the delivery of a staff development telecourse for educators of exceptional children in Guam and Saipan: A descriptive study of its use and suggestions for improving its effectiveness.* Unpublished master's thesis, University of Oregon.

Carnes, L. W., Awang, F., & Marlow, J. (2003, Fall). Can instructors ensure the integrity and quality of online courses? *The Delta Pi Epsilon Journal, XLV,* 162-172.

Chandler, L. A. (1994). *Descriptive case studies of training, research, and development in computer and related instructional technologies for teachers.* Unpublished doctoral dissertation, Andrew University.

Chute, A. G., Thompson, M. M., & Hancock, B. W. (1999). *The McGraw-Hill handbook of distance learning.* New York: McGraw-Hill.

Cochrane, C. (2000, February). The reflections of a distance learner 1977-1997. *Open Learning, 15*(1), 17-34.

Coldeway, D. O. (1991, October). Patterns of behavior in individualized distance education courses. *Research in Distance Education, 3*(4), 6-10.

Connor-Linton, J. (2004). Chi square tutorial. Retrieved May 10, 2004, from http://www.georgetown.edu/faculty/ballc/webtools/web_chi_tut.html.

Conte, C. (1998, January). Technology in schools: Hip or hype? *The Education Digest, 63,* 28-33.

Corgan, R., Hammer, V., Margolies, M., & Crossley, C. (2004, February). Making your online course successful. *Business Education Forum, 58*(3), 51-53.

Crews, T. B. (2003, Fall). Business education online: 'Just-in-time'. *The Southern Reporter, 48*(2), 9.

Crews, T. B. & Brown, H. F. (2003, Fall). Business education online: Beliefs and perceived needs. *The Delta Pi Epsilon Journal, XLV,* 215-227.

Cuban, L. (2001). Why are most teachers infrequent and restrained users of computers in their classrooms? In J. Woodward, & L. Cuban (Eds.), *Technology curriculum and professional development.* Thousand Oaks, CA: Corwin Press.

Davie, E. L. (1996). *Times of turbulence and transition in distance education: Needed research in computer-mediated communication (CMC) course design.* Retrieved November 2, 2003, from The Ontario Institute for Studies in Education Web site: http://www.oise.utoronto.ca/~ldavie/NeededResearch.html

Dickey, J., & Davis, R. (1998, March). *Faculty development and instructional computing.* Proceedings paper in the Society for Information Technology and Teacher Education. Washington, DC.

Dillman, D. A. (2000). *Mail and Internet surveys: The tailored design method* (2nd ed.). New York: John Wiley & Sons.

Dillon, C. L. (1989). Faculty rewards and instructional telecommunications: A view from the telecourse faculty. *The American Journal of Distance Education, 3*(2), 35-43.

Dillon, C. L., Hengst, H. R., & Zoller, D. (1991, Spring). Instructional strategies and student involvement in distance education: A study of the Oklahoma Televised Instruction System. *Journal of Distance Education, 6*(1), 28-41.

Emeagwali, N. S. (2004, May). High school students increasingly learning from a distance. *Techniques, 79*(5), 14.

Emory, C. W., & Cooper, D. R. (1991). *Business research methods* (4th ed.). Homewood, IL: Irwin.

England, R. (1990). The Alabama project. In M. G. Moore (Ed.), *Contemporary issues in American distance education* (pp. 365-374) New York: Pergamon Press.

Estelle, N. (1998, March/April). Career exploration through technology. *Media and Methods, 34*(4), 18-20.

Fink, M. L. (2002). Faculty development in a national sample of community colleges. *Community College Review, 27*(3), 47-65.

Gifford, J. M. (2001, July). The desk as classroom. *Satellite Broadband, 2*(7), 22-26.

Glenn, J. L. (2001, December). Supporting teacher learning: Professional development goes online. *Business Education Forum, 56*(2), 8-13.

Glenn, J. L. (2003, April). E-Learning evolution: Your (digital) future awaits. *Business Education Forum, 57*(4), 8-15.

Glenn, J. L. (2004, February). Riverdeep: Integrating technology into teaching and learning. *Business Education Forum, 58*(3), 16-17.

Groneman, N. (2004). Instructional materials and the Internet. In D. Christopher, & S. Jaderstrom (Eds.), *E-world: Virtual learning, collaborative environments, and future technologies* (pp. 26-41). Reston, VA: National Business Education Association.

Gross, R., Gross, D., & Pirkl, R. (1998). *New Connections: A guide to distance education* (2nd ed.). Washington, DC: The Instructional Telecommunications Council.

Gurubatham, J. L. (2004, March 15). Resources for the distance educator. *Distance Education Report, 8*(6), 6-7.

Harasim, L. (1990). *Online education: Perspectives on a new environment.* New York: Praeger.

Harasim, L., Hiltz, S. R., Teles, L., & Turoff, M. (1996). *Learning networks: A field guide to teaching and learning online.* Cambridge, MA: The MIT Press.

Hopey, C. E., & Ginsburg, L. (1996, September/October). Distance learning and new technologies. *Adult Learning, 8*(1), 22-23.

Huck, S. W., & Cormier, W. H. (2000). *Reading statistics and research* (3rd ed.). New York: Addison Wesley Longman.

Hurst, D. S., & Bradely, T. (1993, March). *Targeting specific strategies for effective integration of technology.* Paper presented at the Tenth Tennessee Technology Conference, Nashville, TN.

Kalny, J. (1999, May/June). Teaching in the technology age. *Schools in the Middle, 8*(7), 18-21.

Kessell, S. (1999, February). Postgraduate courses on the www: Teaching the teachers and educating the professors. *The Technology Source.* Retrieved September 29, 2003, from http://ts.mivu.org/default.asp?show=article&id=47

Kessell, S. (2000, July/August). Creating a web-based learning technologies degree for K-12 teachers. *The Technology Source.* Retrieved September 29, 2003, from http://ts.mivu.org/default.asp?show=article&id=790

Khan, B. H. (1996). *Web-based instruction.* Englewood Cliffs, NJ: Educational Technology Publications.

Kleiner, A., & Farris, E. (2002, September). *Internet access in U.S. public schools and classrooms: 1994-2001,* (NCES 2002-018). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Kolbo, J. R., & Turnage, C. (2002, September/October). Technological applications in faculty development. *The Technology Source.* Retrieved September 29, 2003, from http://ts.mivu.org/default.asp?show=article&id=943

Laird, E. (1999, May 28). Distance-learning instructors: Watch out for the cutting edge. *The Chronicle of Higher Education, 45*(38), 86-89.

Levenburg, N., & Major, H. (2000, September/October). Kindling the fire: How to attract faculty to distance education., *The Technology Source.* Retrieved September

29, 2003, from http://ts.mivu.org/default.asp?show=article&id=803

MacFarland, T. (1996). *Distance education at Nova Southeastern University* (Research and Planning Report 96-20). Fort Lauderdale, FL: Nova Southeastern University Press.

Maeroff, G. I. (2003). *A classroom of one.* New York: Palgrave Macmillan.

Markwood, R. A. (1994). Computer tools for distance education. In B. Willis (Ed.), *Distance education Strategies and tools* (pp. 199-211). Englewood Cliffs, NJ: Educational Technology Publications.

Mason, R. (1995). Synchronous and asynchronous media for distance education. In D. Seward (Ed.), *One world, many voices: Vol. 2. Quality in open and distance learning* (pp. 399-402). London: The Open University.

Mayer, R., Schustack, M., & Blanton, W. (1999). What do children learn from using computers in an informal, collaborative setting? *Educational Technology, 39*(2), 27-31.

McCall, R. B. (1990). *Fundamental statistics for the behavioral sciences* (5th ed.). New York: Harcourt Brace Jovanovich.

McKay, M., & McGrath, B. (2000, June). Creating Internet-based curriculum projects. *THE Journal, 27*(11), 114-119.

Minium, E. W., King, B., & Bear, G. (1993). *Statistical reasoning in psychology and education* (3rd ed.). New York: John Wiley & Sons.

Minoli, D. (1996). *Distance learning technology and applications.* Norwood, MA: Artech House.

Mood, T. A. (1995). *Distance education: An annotated bibliography.* Englewood, CO: Libraries Unlimited.

Oblinger, D. G. (1999, July). Global education: Thinking creatively. *Higher Education In Europe, 24*(2), 251-258.

Oliveira, J., & Rumble, G. (1982). Vocational education at a distance. In G. Rumble & J. Oliveira (Eds.), *Vocational education at a distance: International perspectives* (pp. 3-9). London: Kogen Page.

Pedhazur, E. J., & Schmelkin, L. P. (1991). *Measurement, design, and analysis: An integrated approach.* Hillsdale, New Jersey: LEA.

Perreault, H. R. (2004). Online course development for business education. In D. Christopher, & S. Jaderstrom (Eds.), *E-world: Virtual learning, collaborative environments, and future technologies* (pp. 1-12). Reston, VA: National Business Education Association.

Phipps, R., & Merisotis, J. (1999). *What's the difference? A review of contemporary research on the effectiveness of distance learning in higher education.* Washington, DC: The Institute for Higher Education Policy.

Piskurich, G. (1998). Future forces. In G. Piskurich, & E. Sanders (Eds.), *ASTD models for learning technologies, roles, competencies, and outputs* (pp. 5-6). Alexandria, VA: American Society for Training & Development.

Policies Commission for Business and Economic Education. (n.d.) *This we believe about distance learning in business education* (Statement No. 65). Retrieved April 1, 2002, from http://www.nbea.org/curriculum/no65.html

Prewitt, T. (1998, July). The development of distance learning delivery systems. *Higher Education in Europe, 23*(2), 187-194.

Rakes, G. (1999). Teaching visual literacy in a multimedia classroom. *Schools in the Middle, 43*(4), 14-18.

Ritchie, D. C., & Hoffman, B. (1997). Incorporating instructional design principles with the world wide web. In B. H. Khan (Ed.), *Web-based instruction* (pp. 135-138). Englewood Cliffs, NJ: Educational Technology Publications.

Robelen, E. W. (2002, May 9a). Alabama State Profile. *Education Week, 21*(35), 68.

Robelen, E. W. (2002, May 9b). E-learning initiatives across the states. *Education Week, 21*(35), 11-16.

Roberts, M. (2000, May). Back in the loop. *Techniques: Connecting Education and Careers, 75*(5), 14-17.

Rodes, P., Knapczyk, D., Chapman, C., & Chung, H. (2000, May). Involving teachers in web-based professional development. *THE Journal, 27*(10), 94-98.

Sellers, R. (2001). *Learning to teach in a virtual environment: A case study of the Louisiana virtual*

classroom teachers. Unpublished doctoral dissertation, Louisiana State University.

Shannon, D. M., & Davenport, M. A. (2001). *Using SPSS to solve statistical problems: A self-instruction guide.* Upper Saddle River, New Jersey: Prentice-Hall.

Siegel, E., & Jennings, J. G. (1998, Winter). Distance learning in social work education: Results and implications of a national survey. *Journal of Social Work Education, 34*(1), 71-80.

Siegel, S., & Castellan, N. J., Jr. (1988). *Nonparametric statistics for the behavioral sciences* (2nd ed.). New York: McGraw-Hill.

Skinner, R. (2002, May 9). Tracking tech trends. *Education Week, 21*(35), 53-56.

Smart, J. E. (1987). *A short history of the early years of study by correspondence.* Rocheport, MO: Smartco.

Stapleton, C. D. (1997). *Basic concepts and procedures of confirmatory factor analysis.* Austin, TX: Southwest Educational Research Association. (ERIC Document Reproduction Service No. ED407416).

Starr, R. M. (1997, May/June). Delivering instruction on the world wide web: Overview and basic design principles. *Educational Technology, 37*(3), 7-15.

Stern, M. R. (1992). The new majority: Impact of older students upon the university today. *Higher Education Management, 4*(1), 13-27.

Sullivan, J. (1999). *Statewide online web-based training program to prepare New Jersey community college faculty for distance teaching.* Unpublished doctoral dissertation, Nova Southeastern University.

Talab, R., & Newhouse, R. (1990). *Survey of the Kansas distance learning teaching partner and principal: A study of roles, tasks, training and receptivity to technological change.* Paper presented at the National Rural Education Association Research Forum, Colorado Springs, CO.

Taylor, F. P. (2004, May). Education technology helps unite school communities, improve academic achievement. *T.H.E. Journal, 31*(10), 46-48.

Thach, E., & Murphy, K. (1995). Competencies for distance education professional. *Educational Training Research & Development, 43*(1), 57-79.

Thach, L. (1993). Exploring the role of the deliverer in distance education. *International Journal of Instructional Media, 20*(4), 289-307.

Thomas, K. J. (1999, April). Teaching via ITV: Taking instructional design to the next level. *THE Journal, 26*(9), 60-66.

Ticknor, A. E. (1896). *The society to encourage studies at home.* Cambridge: Riverside Press.

Timmons, R. J. (2004). Working adults and online instruction. In D. Christopher, & S. Jaderstrom (Eds.), *E-world: Virtual learning, collaborative environments, and future technologies* (pp. 89-99). Reston, VA: National Business Education Association.

Trotter, A. (2002, May 9). E-learning goes to school. *Education Week, 21*(35), 13-18.

Uhlig, G. E. (2002, Summer). The present and future of distance learning. *Education, 122*(4), 670-673.

U.S. Congress, Office of Technology Assessment. (1989). *Linking for learning: A new course for education.* Washington, DC: Government Printing Office.

Vojtek, B., & Vojtek, R. (2000, Fall). Technology: Visual learning. *Journal of Staff Development, 21*(4).

Retrieved October 18, 2003, from http://www.nsdc.org/library/jsd/vojtek214.html

Wang, S. (2000). Multimedia and some of its technical issues. *International Journal of Instructional Media, 27*(3), 303-313.

Wang, Y. (2000). Training teachers to use computers. *THE Journal, 27*(10), 66-74.

Watkins, B. L., & Wright, S. J. (1991). *The foundations of American distance education: A century of collegiate correspondence study.* Dubuque, IA: Kendall/Hunt.

Williams, M. L., Paprock, K., & Covington, B. (1999). *Distance learning: The essential guide.* Thousand Oaks, CA: Sage Publications.

Willis, B. (1993). *Distance education: A practical guide.* Englewood Cliffs, NJ: Educational Technology Publications.

Willis, B. (1994). Enhancing faculty effectiveness in distance education. In B. Willis (Ed.), *Distance education strategies and tools* (pp. 277-290). Englewood Cliffs, NJ: Educational Technology Publications.

Willis, B. (1998, January/February). Effective distance education planning: Lessons learned. *Educational Technology, 38*(1), 57-59.

Wise, W. (2002, March). Videoconferencing exposes students to new worlds. *THE Journal, 29*(8), 53-55.

Wonacott, M. (2001). *Implications of distance education for CTE.* Columbus, OH: The National Dissemination Center for Career and Technical Education. (ERIC Document Reproduction No. 452 368).

Yates, J. M. (2003). *Interactive distance learning in preK-12 settings.* Westport, CT: Libraries Unlimited.

Yoder, M. B. (n.d.). Is online professional development for you? *Eisenhower National Clearinghouse.* Retrieved October 8, 2002, from http://www.enc.org/focus/urban/document.shtm?input=FOC-002941-index

Yohon, T. (2004). Internet use in classroom instruction. In D. Christopher, & S. Jaderstrom (Eds.), *E-world: Virtual learning, collaborative environments, and future technologies* (pp. 42-66). Reston, VA: National Business Education Association.

Zanetis, J. (n.d.). New uses for distance education. *Eisenhower National Clearinghouse.* Retrieved October 8, 2002, from http://www.enc.org/focus/urban/document.shtm?input=FOC-002958-index

Zeliff, N. D. (2004). Pedagogical and technological challenges of the Internet. In D. Christopher, & S. Jaderstrom (Eds.), *E-world: Virtual learning, collaborative environments, and future technologies* (pp. 67-88). Reston, VA: National Business Education Association.

Zirkle, C. (2002). *Distance education and career and technical education: A good match?* Paper presented for the National Dissemination Center for Career and Technical Education, The Ohio State University, Columbus, OH.

Zirkle, C. (2003). Distance education and career and technical education: A review of the research literature. *The Journal of Vocational Education Research, 28*(2), 161-181.

APPENDIX A

Auburn University

Auburn University, Alabama 36849

Office of Human Subjects Research
307 Samford Hall

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March 18, 2004

MEMORANDUM TO: Christal C. Pritchett
Curriculum and Teaching

PROTOCOL TITLE: "The Use of Distance Learning Technology by Alabama Business Teachers for Credentialing and Instruction"

IRB FILE: 04-026 EX 0403
APPROVAL DATE: March 5, 2004
EXPIRATION DATE: March 4, 2005

The referenced protocol was approved "Exempt" from further review under 45 CFR 46.101 (b)(2) by IRB procedure on March 5, 2004. You should retain this letter in your files, along with a copy of the revised protocol and other pertinent information concerning your study. If you should anticipate a change in any of the procedures authorized in protocol # 04-026 EX 0403, you must request and receive IRB approval prior to implementation of any revision. Please reference the above IRB File in any correspondence regarding this project.

If you will be unable to file a Final Report on your project before March 4, 2005, you must submit a request for an extension of approval to the IRB no later than February 28, 2005. If your IRB authorization expires and/or you have not received written notice that a request for an extension has been approved prior to March 4, 2005 you must suspend the project immediately and contact the Office of Human Subjects Research for assistance.

A Final Report will be required to close your IRB project file.

If you have any questions concerning this Board action, please contact the Office of Human Subjects Research at 844-5966.

Sincerely,

E. N. (Chip) Burson, Executive Director
Office of Human Subjects Research

cc: Dr. Andrew Weaver
Dr. Bonnie White

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Business Education Distance Learning Technology Assessment

In an era characterized by fiscal constraint, public agencies are challenged to increase their efficiency. Producing the same quality of educational services at a lower cost requires the adoption of new approaches to service delivery. Distance learning is a possible solution to this dilemma. Distance learning is an educational process between students and instructors separated by distance and facilitated by technology. The purpose of this study is to provide information which may be utilized to develop programs to improve the overall business education program involving teaching distance learning by Alabama business educators. It should take approximately 15 minutes to complete this survey. Thank you for your input.

Please let me know about yourself. Check the appropriate response.

1) **Please indicate the grade levels of the concentration of students in your courses. (Check all that apply)**
   ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 Other _____

2) **What is your gender?**
   ☐ Male ☐ Female

3) **How many years have you been teaching Business Education?** _____

4) **What is your highest degree held?**
   ☐ Bachelor ☐ Master ☐ Specialist ☐ Doctorate

5) **What is your highest certification level?**
   ☐ B ☐ A ☐ AA ☐ Doctorate ☐ Alternative ☐ Emergency Other _____

6) **Is your school a city or county school?**
   ☐ City ☐ County

7) **What is the type of school in which you are teaching?**
   ☐ Comprehensive High School
   ☐ Junior High School
   ☐ Middle School
   ☐ Intermediate School
   ☐ Vocational Center
   ☐ School Including Grades 7-12
   ☐ School Including Grades 1-12
   ☐ Other _____

Please let me know about your experience with and your perceptions about distance learning. Check the appropriate box and/or respond to questions in the space provided.

8) **Do you presently teach or have you ever taught a distance learning class? (If no, skip to question #11)**
   ☐ Yes ☐ No

9) **If yes, how many classes have you taught?** _____
   Please list the distance learning classes that you have taught and the number of times that you have taught each class.

Name of class/course:	**Number of times taught:**
_____	_____
_____	_____

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10) **If you instruct a distance learning course, which of the following are provided for you? (Check all that apply)**

_____Extra planning time

_____Extra compensation

_____Lighter course load/fewer classes to teach overall

_____No "extras"

_____Other _____

11) **Have you ever received any teacher training or professional development in the field of distance learning? (If no, skip to question #14)**
☐ Yes ☐ No

12) **If yes, what is the number of clock hours that you have received training or professional development in the field of distance learning?** _____

13) **If you have received teacher training or professional development in the area of distance learning, do you feel that the amount of training time that you have received prepared you for instruction in a distance learning class?**
☐ Yes ☐ No ☐ Not Applicable

Please explain:

14) **Would you be willing to teach a distance learning class?**
☐ Yes ☐ No

15) **If you received teacher training or professional development in the area of distance learning, would you be willing to teach a distance learning class?**
☐ Yes ☐ No

16) **How important is teacher training and professional development to you in the area of distance learning?**
☐ Very Important
☐ Somewhat Important
☐ Not Very Important
☐ Not At All Important

Please let me know your interest in training/professional development for distance learning.

17) **Please indicate your interest in participating in distance learning training/professional development at the following times:**

(1) Definite Interest – Would Participate
(2) Some Interest – May Participate
(3) No Interest – Would Not Participate

_____During your planning period

_____Afternoons - after school

_____Weekends

_____Summers

_____Online - on demand

_____Other _____

18) Please indicate your interest in participating in the following distance learning training/professional development activities:

(1) Definite Interest – Would Participate
(2) Some Interest – May Participate
(3) No Interest – Would Not Participate

_____Hands on workshops

_____Internet online modules available on demand

_____College coursework for credit

_____Self–study

19) Please indicate your perceived degree of skill in the following areas:

(1) High Level of Skill
(2) Moderate Level of Skill
(3) Low Level of Skill
(4) No Skill

_____Use of Internet

_____Use of e-mail

_____Teaching online

_____Utilizing electronic discussion groups or conferencing tools

_____Use of software to create, edit, or convert existing course material to Web pages

_____Use of HTML (Hypertext Markup Language) to create a Web page

_____Knowledge of converting current computer presentations to Web pages

_____Use of multimedia tools (graphics, sound, video, etc.)

_____Teaching via Interactive Television (ITV)

_____Teaching via Telecourse (PBS)

_____Teaching via correspondence

_____Teaching via video

_____Teaching via CD-ROM

_____Use of LCD overhead projector

_____Use of scanner

_____Use of camera equipment

_____Ability to use course development/management software (WebCT, Blackboard, etc.)

_____Administration of distance learning programs

Please let me know about your interest in utilizing distance learning technology for obtaining advanced degrees and/or credentials.

20) Do you presently participate, or have you ever participated, in a distance learning program to obtain an advanced degree and/or credentials?
☐ Yes ☐ No

21) If no, would you be interested in participating in a distance learning program to obtain an advanced degree and/or credentials?
☐ Yes ☐ No

22) Please indicate your interest in participating in a distance learning program to obtain the following:

(1) Definite Interest – Would Participate
(2) Some Interest – May Participate
(3) No Interest – Would Not Participate

_____Advanced degree

_____Advanced certification/credentials

_____Another certification area

_____Other _____

Please let me know about your computer technology availability, support, and training needs.

23) Does your school have access to the Internet?
☐ Yes ☐ No

24) How many computers are there in your classroom? _____

25) How many computers are there in your school? _____

26) How many computers in your classroom have Internet access? _____

27) How many computers in your school have Internet access? _____

28) Does your school have a distance learning lab/classroom? (If no, skip to question #30)
☐ Yes ☐ No

29) If yes, please place a check mark beside the equipment below that is available in the distance learning lab/classroom (check all that apply):

_____Computers with Internet access

_____Interactive television equipment

_____LCD overhead projector

_____Camera equipment (for taping asynchronous videos)

_____Other _____

30) Do you perceive you have the necessary equipment available to instruct a distance learning course?
☐ Yes ☐ No

Please explain:

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31) **How many computer technical support staff personnel are available at your school?** _____

32) **How many computer technical support staff personnel are available within your system?** _____

33) **Do you have a need for any type of computer technology training in order to instruct a distance learning class?**
☐ Yes ☐ No

Please explain:

34) **Do you have a need for any type of equipment training in a distance learning lab/classroom?**
☐ Yes ☐ No

Please explain:

35) **Do you have a need for pedagogical training (teaching methods and delivery) in order to instruct a distance learning class?**
☐ Yes ☐ No

Please explain:

Please provide any additional information that you feel is important.

36) **Please make any additional comments that you feel would be pertinent to this study:**

Thank you for participating in this study! Your assistance in providing this information is greatly appreciated! Please place the completed survey in the return envelope and place in the mail by April 7, 2004.

APPENDIX C

Auburn University

Auburn University, Alabama 36849-5212

:ulum and Teaching
ge of Education
-Haley Center

Telephone: (334) 844-4434
Fax: (334) 844-6789

INFORMATION SHEET
FOR
The Use Of Distance Learning Technology By Alabama Business Teachers For Credentialing and Instruction

Dear Professional Alabama Business Teacher:

You are invited to participate in a research study designed to determine the degree to which Alabama business teachers are utilizing distance learning technology in their courses and the extent to which Alabama business teachers are enhancing their credentials via distance education. This study is being conducted by Christal C. Pritchett, a doctoral candidate, under the supervision of Dr. Bonnie White, coordinator of the Business Education program at Auburn University. The study will determine the extent to which Alabama business teachers use distance learning technology in their courses and have the preparation, desire, and support to teach business courses via distance learning, as well as, the extent to which Alabama business teachers utilize or possess interest in using distance learning technology in their credentialing process. You were selected as a participant because you are listed as a business education teacher in the 2003-2004 Alabama Department of Education Business Education Directory.

If you decide to participate, it will take approximately 15 minutes to complete the survey. You are receiving a survey and a return envelope that is preaddressed and stamped.

Although there are no guarantees of personal benefit by participating in the study, there is the potential of utilizing the revealed information to improve Business Education in the state of Alabama.

Your input, as a professional business teacher, is very important to the success of this research. Any information obtained in connection with this study will remain anonymous. Information collected through your participation may be used as partial fulfillment of the requirements for the Degree of Doctorate of Education and future publications. The ONLY purpose of the coding on the envelope is for follow-up of non-returned surveys. **If you choose not to participate in the research study, please return the blank survey as indication of your non-participation. If you choose to participate, please return the completed survey by *MARCH 24, 2004.***

Your decision whether or not to participate will not jeopardize your future relations with Auburn University or the Department of Career and Technical Education.

If you have any questions, you may contact Christal C. Pritchett at (334) 742-9933 or (334) 524-4648 (pritccc@auburn.edu) or Dr. Bonnie White at (334) 844-3800 (whitebj@auburn.edu).

For more information regarding your rights as a research participant you may contact the Office of Human Subjects Research by phone or e-mail. The people to contact there are Executive Director E. N. "Chip" Burson at (334) 844-5966 (bursoen@auburn.edu) or IRB Chair Dr. Peter Grandjean at (334) 844-1462 (grandpw@auburn.edu).

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER TO PARTICIPATE IN THIS RESEARCH PROJECT. IF YOU DECIDE TO PARTICIPATE, THE DATA YOU PROVIDE WILL SERVE AS YOUR AGREEMENT TO DO SO. THIS LETTER IS YOURS TO KEEP.

Christal C. Pritchett
Doctoral Candidate
Principal Investigator

HUMAN SUBJECTS
OFFICE OF RESEARCH
PROJECT # 04-026 EX 0403
APPROVED 3/5/04 - 3/4/05