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THE AWARENESS AND PERCEPTION OF DISTANCE EDUCATION BY THE LEADERSHIP IN THE TEXAS STATE TECHNICAL COLLEGE SYSTEM

DISSERTATION

Presented to the Graduate Council of the

University of North Texas in Partial

Fulfillment of the Requirements

For the Degree of

DOCTOR OF EDUCATION

By

John Raymond Knue, B.S., MA

Denton, Texas

May, 1998

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The purpose of this study was to determine whether there were differences in the levels of awareness and perception concerning distance education among the leadership at the seven campuses of the Texas State Technical College (TSTC) System. The literature review focused on ten steps considered common to most successful distance education programs and summarized as distance education planning, curricular issues, and cost-effectiveness. The research population consisted of 170 leaders from the seven TSTC campuses. Specifically, the population consisted of 46 administrators, 96 department/program chairs, and 28 staff support personnel involved in the planning and implementation of distance education. An advance survey (May 1997) indicated that each of the seven campuses had already initiated distance education courses or had plans to do so within the next three years. A previously used survey designed to determine distance education awareness and perception of two-year college leadership was administered in September-October 1997.

It is the conclusion of this study that there is very little difference in the levels of awareness and perception concerning distance education among the TSTC leadership. Of the 16 survey items seeking to determine the specific differences in awareness and perception of distance education planning, curricular issues, and cost-effectiveness, only

three demonstrated any statistically significant difference. The three differences were regarding changes in faculty teaching patterns, the cost-effectiveness of distance education, and whether or not distance education was a benefit to faculty, staff, and students. The survey also concluded that the leadership at only three of the seven campuses showed a high degree of awareness regarding the current status of distance education on their campus. The findings indicated inconsistent to low levels of awareness at the remaining four colleges. Based on the findings, seven recommendations were made for the purpose of enhancing the levels of awareness and perception of distance education by the leadership of the TSTC campuses.

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CHAPTER 1

INTRODUCTION

In 1995, the 74th Texas Legislature passed "The Telecommunications Act" (House Bill 2128, 1995). A portion of the $150 million in annual funding for House Bill 2128 was dedicated to "distance education." Simultaneously, the United States Congress passed a new telecommunications law that permitted telephone and cable companies to compete for online telecommunications services (Stevens, 1996). Stevens stated that, "With the rush to find new and effective ways of instructional delivery, the [telecommunications] law could provide education with its next wave of technology-based advances" (p. 28).

What is distance education? How do colleges plan for and implement it? How will it affect curriculum development and teaching techniques? Is it cost-effective? These are all questions that administrators, department chairs, and support staff at the seven colleges of the Texas State Technical College (TSTC) System need to answer. Are these three leadership groups within the TSTC system aware of what distance education might hold for the future? And what is their perception of distance education?

In reality, distance education is no more than taking an age-old concept and applying current technology. "Educational outreach, or bringing instruction to the learner rather than having the learner come to instruction, is an ancient concept in the history of education" (Arreola, 1995, p. 219). Catchpole (1992) stated:

> Also, one could ask, who is more "distant" from the instructor, the student in back of a five-hundred-seat lecture theater or the student taking a televised course at home who uses a well-designed course package, and interacts with the instructor and fellow students either on the air or via frequent audio and computer conferences? (p. 334)

Unfortunately, limited transportation and communication systems have, in the past, made education more cost-effective by centralizing the educational systems around facilities and the faculty. With the availability of technology, teaching and learning can occur in different places at different times through telecommunications (Moore, 1993). "Education will not be location-dependent, and learning at home and through home-school-community connections will become prominent" (Dyrli & Kinnaman, 1995, p. 43).

What is the difference between distance education and distance learning? For this study, the following distinction by Hubbard (1995) was applied:

> The two terms are frequently used synonymously. However, there should be a distinction which becomes clear when a third term is introduced. We propose to use "distance teaching" to refer to that which emanates from an instructor, and "distance learning" to refer to that which is received by a student. "Distance education," then becomes an overall term referring to the entire process. (p. 2)

Rationale

How has distance education technology impacted the delivery of instruction at the TSTC colleges? What is in store for the future? Are there significant differences in

delivering instruction using telecommunications technology and distance education compared to traditional methods? Are there differences in teaching style with distance education versus conventional classroom teaching? Is distance education cost-effective, and can it provide a quality learning experience? These are all specific issues of which college faculty leaders, administrators, and support staff should be aware when implementing distance education (Lape, 1995). However, the TSTC System Chancellor stated that the System had not conducted any significant research to determine how much the employees knew about distance education or how they felt about it (R. T. Strother, personal communication, June 16, 1997).

According to Hanson et al. (1997), "A well-run distance education enterprise is the product of people, planning, and technology" (p. 34). Willis (1994) noted that, "Without exception, effective distance education programs begin with careful planning and a focused understanding of course requirements and student needs" (p. vi). A comprehensive 1994 North Carolina study clearly emphasized the importance of establishing a benchmark to ensure competent distance education planning (Randall et al., 1996).

Like the North Carolina study, this study has established such a benchmark for the TSTC System by determining to what extent the leadership at each of the colleges is aware of distance education concepts and what their perception is of distance education. The levels of awareness and perception will most likely influence the planning and implementation of a distance education program.

Preparations for this research project included review of eight other studies to determine whether factors of awareness, understanding, and perception of distance education influenced the planning and implementation of teaching at a distance (Goodwin, 1993; Hamilton, 1993; Walsh, 1993; Scott, 1994; Lape, 1995; Heath, 1996; Needham, 1996; Randall et al., 1996). In each case, the levels of awareness and perception differed among the faculty and leadership role groups with regard to distance education planning and implementation.

Prior to beginning this study, each of the TSTC colleges was contacted to determine their current status and intentions regarding course offerings via distance education. In May 1997, an informal e-mail/telephone survey of the seven two-year colleges in the TSTC System identified a 100% commitment to offering credit courses via distance education within the next three years (Knue, 1997).

Theoretical Framework

The theoretical framework for this study was based on the need for colleges to ensure that those in leadership roles are fully aware of distance education concepts and that their perceptions of distance learning are known to others in the decision-making process. Thach and Murphy (1995a) determined that certain levels of awareness, or competencies, are necessary for distance learning professionals. The competencies included planning and organization, collaboration and teamwork, and instructional design. Their top ten competencies reflected the specific abilities required of the various leadership role groups of any organization involved in implementing distance education.

Fuhrmann and Grasha (1994) indicated that in the last three-hundred years of college teaching in the United States the leadership roles have remained, until recently, relatively stable. They further stated that even though colleges have continued with professional development, in comparison to upheavals in educational technology and deeper insights into learning processes, the educators' roles have changed remarkably. They also noted that even though the roles have changed, the response by educators to the changing roles has been minimal. Fuhrmann and Grasha (1994) also contended that, "Today's schools and universities are perceived as past and present bound. Technological and social change is outracing the educational system" (p. 15). These opinions seemed to indicate that the levels of awareness and perception within the leadership groups have not kept pace with the technological impacts concerning the way colleges deliver instruction.

O'Banion (1994) pointed out that in recent decades, two-year colleges have been primarily interested in the physical structure of the institution to meet the demands of increasing enrollment and not in the creative use of technology to do so. Doucette (1994) added that distance learning is a pragmatic response to the growing phenomenon of increasing enrollments.

This study used Fuhrmann and Grasha's (1994) and O'Banion's (1994) views to substantiate the beliefs of Verduin and Clark (1991) about America's post-secondary educators' readiness for distance learning. Verduin and Clark (1991) stated that America's post-secondary educators lack awareness of what distance education is, how it operates, and what it can do for adult learning. Based on the research of Graf, Albright, and Wheeler (1992), the distance education environment is quite different from that of a

standard classroom. Comprehensive training and development programs are required to help inexperienced educators operate effectively in the distance education environment.

Purpose of the Study

The purpose of this study was to determine whether there were differences in the levels of awareness and perception concerning distance education among the various leadership role groups at the seven TSTC campuses. It was necessary to determine the differences in the levels of awareness and perception so the TSTC System (each college) can take one of the following actions: (a) continue distance education planning and implementation with confidence, (b) take appropriate action(s) to raise the awareness and improve the perception of distance education, or (c) stop the initiative because the college leadership lacks the awareness of distance education to make it work effectively or does not perceive it as a viable method for offering instruction.

The following assertions indicate that instructional technology and telecommunications capabilities have emerged so rapidly, and planning for distance learning has taken place at such a torrid pace, that it is probable that many aspects of the preparation by the leadership at the TSTC colleges had been overlooked. "Technological and social changes are outpacing the educational system" (Fuhrmann & Grasha, 1994, p. 17). Hawkins and MacMillan (1993) stated that, "Professional development to use technology to reform the learning environment has never kept pace with the purchase and distribution of equipment" (p. 26). Former Secretary of Education, Terrel H. Bell, stated, "Every school should have access to a telecommunications network connecting teachers and students"

(Bell & Elmquist, 1992, p. 24). So, as Bell and Elmquist (1992) stated, "Our current teaching practices are alarmingly outdated in a world of technological wonders" (p. 22).

Has the emergence of distance education technology taken the same route as that of other instructional technologies? Do the above assertions apply to the seven colleges in the TSTC System with regard to implementing distance learning technology? It was the intent of this study to determine the answers.

Research Questions

Three research questions were formulated for this study:

1. Are there differences in the levels of awareness and perception among the leadership role groups at the seven TSTC colleges regarding distance education planning?

2. Are there differences in the levels of perception among the leadership role groups at the seven TSTC colleges regarding distance education curricular issues and distance education cost-effectiveness?

3. What are the awareness levels of the leadership role groups at the seven TSTC colleges regarding the current status of distance education courses offered and received at their respective colleges?

Delimitations and Limitations

The researcher presumed three delimitations for this study. The first was to limit the study to the seven colleges that constitute the Texas State Technical College System (see the Definition of Terms). The second was to limit the survey participation to employees who were serving in a leadership role. They were defined as administration, department chairs, and staff support charged with the responsibility of implementing and

overseeing distance education activities. The third delimitation was to include only telecommunications technology as a means of providing course work or training to off-campus locations or students and not traditional print-based correspondence materials (see Definition of Terms).

There were also two possible limitations in conducting this study. First, none of the seven colleges could be required to identify a contact person or respond to any requests for information. Second, none of the individuals who were sent a survey could be required to respond to the survey; they could only be encouraged to participate. In either of the above cases, requests for information might have been construed as surreptitious attempts to determine the respective college's current progress, or lack of progress, in distance education.

Definition of Terms

For this study, selected terms have been defined in advance in this section. Additional terms are defined at the time of their use, as necessary, in the remaining chapters. The following definitions are listed in alphabetical sequence, not in order of importance.

Distance Education

The Texas Legislature defined distance education as instruction, learning, and training which are transmitted from one site to one or more sites by telecommunication services. Specifically, distance education is the use of telecommunication services by educational institutions predominately for instruction, learning, or training involving the use of video, data, voice, and electronic information (House Bill 2128, 1995).

Other definitions of distance education included: (a) the use of telecommunications to offer instruction to students in different geographical locations at the same or different times (Roberts, Blakeslee, Brown, & Lenk, 1990), and (b) the linking of a teacher and students in several geographic locations via technology that allows for interaction (Cartwright, 1994). For this study, distance education occurs when students are located in one place and their teacher(s), peers, or other instructional resources are located in another place.

Instructional Technology

Gagne (1987) defined instructional technology as the process of using existing media to deliver instruction. He also stated that instructional technology should include practical techniques of instructional delivery that are systematically focused on effective learning, whether or not it involves the use of media. Reiser (1987) supported Gagne's definition by providing two definitions of his own. First, he stated, "It means the media born of the communications revolution which can be used for instructional purposes alongside the teacher, textbook, and blackboard" (p. 11). Reiser's (1987) second definition termed instructional technology as "a systematic way of designing, carrying out, and evaluating the total process of learning and teaching" (p. 11). For this study, instructional technology meant using electronic media in a systematic way to deliver instruction.

Interactive Video/TV

Interactive video creates a multimedia learning environment that capitalizes on the features of both television and computer-assisted instruction. It is an instructional

delivery system in which recorded video material is presented under computer control to viewers who not only see and hear the pictures and sounds, but who also make active responses which affect the pace and sequence of the presentation (Heinich, Molenda, & Russell, 1993).

Two-way audio, two-way video, known as interactive TV, can be used to present interactive video programs as described above (Zigerell, 1991). Interactive TV's greatest strength lies in its ability to provide for live audio and visual interaction, questions and answers, and discussions between teacher and student or between student and student at separate locations. Interactive TV can be used for still pictures, graphic images, and motion pictures (Heinich et al., 1993).

Internet

The Internet is simply a wide area computer network capable of extending professional education (Blurton, 1994). The Internet can be used for communication via electronic mail, electronic research, or group discussions on a Listserv. It can also be used for sending many types of computer generated files to other Internet users.

Leadership Role Groups

The three leadership role groups utilized in this study were defined as follows.

Administration. The administrative group included presidents, deans, associate deans, and managers and directors, as applicable.

Instructional department chairs. This group was composed of the department and program chairs, their assistants when assigned, and lead instructors for each of the instructional programs at every TSTC campus. The department chairs are responsible for

the day-to-day supervision and management of their respective instructional departments. Department chairs carry a teaching load equal to three-quarters that of a full-time faculty member. The positions are designated by appointment and the individual receives $200.00 in addition to his or her regular monthly salary ($100.00 for assistants).

Staff support. The makeup of the staff support group varied somewhat, depending on the organizational structure of each college. In any case, it encompassed the staff positions that were most likely to be involved in planning and implementing distance education at their respective college. This group included the non-directors in student services, human resources, fiscal services, instructional networking, audiovisual/media production, and the library. Also included were those responsible for instructional development, teacher training, and facilities planning.

Multimedia

Whitaker (1992) provided the basis for defining multimedia. In today's jargon, she defined multimedia as the combination of sound, motion and still pictures, and text on one display device, usually a personal computer. Simply put, it is multiple media. In education, the primary function of multimedia is to present information in as much of a sensory representation as possible. Even though multimedia sounds like nothing more than television, it is available on a desktop computer, in the library, or in the classroom.

Satellite Transmission

A common method of delivering distance education is by satellite transmission. Satellite networks commonly provide "one-way" transmission of audio and video signals. They may be augmented with a two-way audio transmission via telephone connections.

Satellite transmissions can also offer two-way audio and video by uplinking (broadcasting) from the local classroom while simultaneously uplinking from the remote classroom(s). This delivery system provides full-motion, two-way, real-time interaction. Unfortunately, the high cost of satellite transmissions are usually prohibitive for educational purposes (Tompkins, 1992-1993).

Synchronous versus Asynchronous Instruction

Conventional college classes are a primary example of synchronous instruction. Synchronous instruction is based on a fixed unit of time, usually a certain number of class contact hours over a specified term (quarter or semester). Most notably, it requires the students and instructor to be at the same place, at the same time, and usually in the college classroom (Cartwright, 1994). Conversely, according to Cartwright, asynchronous learning is not based on a fixed unit of time. As an instructional approach, asynchronous learning does not require students and instructor to be in the same place at the same time. Instruction is made available anywhere, at anytime, using computer-based information technology and electronic telecommunications.

Telecommunications

"The term 'telecommunications' simply means communicating across distances. In its broadest sense, this definition includes communicating by any medium including radio, television, telephone, telegraph, and computers" (Roberts et al., 1990, p. 4). Telecommunications can also include fiber optic cable, cellular technology, and satellite broadcast (Heinich et al., 1993).

Texas State Technical College System

Most of the following information was extracted from the TSTC System's (1996) Agency Strategic Plan for the 1997-2001 Period. The TSTC System is a coeducational two-year institution of higher learning offering courses of study in technical-vocational education. The Fall 1996 enrollment for the System was over 8,000 students, with the majority being enrolled full-time (TSTC System, 1997). The TSTC System has seven colleges at the following locations: Abilene, Breckenridge, Brownwood, Harlingen, Marshall, Sweetwater, and Waco. Four of these campuses are residence colleges.

Summary

This study used three research questions to determine the levels of awareness and perception regarding distance education among the leadership role groups at the seven TSTC colleges. Chapter Two contains a review of the literature describing the history and current status of distance education. The literature review also provides substantial support for the research questions addressing distance education planning, curricular issues, and cost-effectiveness. In Chapter Three, the research population has been described along with the general design, survey instrument, data collection process, and data analysis for the research methodology. Chapter Four contains the data analysis and discussion of results from the survey, and Chapter Five closes with a summary of the findings along with conclusions and recommendations.

CHAPTER 2

LITERATURE REVIEW

Introduction

The literature review was conducted to specifically address these three research questions about distance education at the seven colleges that constitute the Texas State Technical College (TSTC) System:

1. Are there differences in the levels of awareness and perception among the leadership role groups at the seven TSTC colleges regarding distance education planning?

2. Are there differences in the levels of perception among the leadership role groups at the seven TSTC colleges regarding distance education curricular issues and distance education cost-effectiveness?

3. What are the awareness levels of the leadership role groups at the seven TSTC colleges regarding the current status of distance education courses offered and received at their respective colleges?

The following forms of literature were reviewed to support the purpose of the study and the three research questions: (a) refereed and non-refereed journals, (b) periodicals, (c) books, (d) state government legislation and policy, (e) monographs, (f) reports from distance education conferences, (g) dissertation abstracts, (h) distance education training literature, (i) Educational Resources Information Clearinghouse (ERIC) documents, and (j) other general information about distance education.

The literature review addresses four specific areas. First, it provides a brief history of distance education. The history includes the concepts of distance education, and the legislative, policy, and technological trends over the years. Second, the literature review explores the prospect of distance education planning with specific reference to the need and the market analysis for, the policies concerning, and the administration of distance education courses. The third portion reviews the curricular issues of distance education. These curricular issues are very often open to significant differences in interpretation due to various perceptions about distance education. Finally, the literature review covers the cost-effectiveness of offering college courses at a distance. Specifically, can distance education be cost-effective for regular course offerings and for staff training and development, and is the investment in distance education of benefit to faculty, staff, and students?

The foundation for the literature review on planning, curricular issues, and cost-effectiveness was derived from the extensive research conducted by Levine (1996) in support of the Annenberg/Corporation for Public Broadcasting Project and the Public Broadcasting Service Adult Learning Satellite Service. Specifically, Levine (1996) identified the following ten activities or steps as common to most successful distance education programs:

1. Determine whether a demand exists for a distance education degree program and whether the college mission would be well served by such a program.
2. Identify policies, both internal and external, that will either affect the success of the distance education program or serve as barriers.

3. Build a broad base of support for the value of distance education programs.

4. Examine the degree programs offered and determine whether the courses can be adapted readily to distance education technologies.

5. Select the institutions and programs that meet the needs of the community college.

6. Develop campus-based distance education programs to supplement or support the program or degree requirements.

7. Evaluate the cost-effectiveness of the various distance education technologies to determine the delivery system that best meets the course, student, and faculty needs.

8. Ensure that student services are provided and meet the needs of the student.

9. Select and train the faculty in effective distance teaching methods and in the use of distance education technologies.

10. Develop an evaluation plan that involves the faculty, students, and administrative staff. (p. 13)

Historical Perspective

Prior to reviewing specific literature related to the three research questions, it was appropriate to explore the history of distance learning from the 19th century up to recent legislative events in Austin. "The roots of distance education are at least 150 years old" (Hanson et al., 1997, p. 3). There were references to distance education as far back as 1833, when advertisements in a Swedish newspaper touted the opportunity to study composition via correspondence (Hanson et al., 1997). Throughout the 19th century,

there were numerous possibilities to use correspondence methods for academic study. For example, from 1883 to 1891, the state of New York authorized the awarding of academic degrees to students who completed summer institutes and correspondence courses (Hanson et al., 1997).

In the 20th century, advances in electronic communications offered a new medium for distance education (Buckland & Dye, 1991). In the 1920s, more than 175 radio stations were established at educational institutions to conduct distance education. By the 1930s, experimental television teaching programs were established at three major universities in Indiana, Iowa, and Kansas (Buckland & Dye, 1991). "Satellite technology, developed in the 1960s and made cost-effective in the 1980s, enabled the rapid spread of instructional television" (Hanson et al., 1997, p. 4). The development of fiber optic communication systems in the early 1990s has made possible the expansion of live, two-way, and high quality audio and video systems (Hanson et al., 1997).

What has transpired to influence distance education in Texas? Possibly the most significant contribution to distance education in Texas was House Bill 2128 (1995), in which the 74th Texas Legislature committed to spend $150 million annually for telecommunications over a ten-year period starting in 1995. This money has been designated to fund grants and loans, with priority given to distance education and the collaborative efforts of schools and universities (Texas Department of Information Resources, 1995). Another way the Texas state leadership demonstrated a commitment to distance education was through the development of a Distance Learning Master Plan for Higher Education (Texas Higher Education Coordinating Board [THECB], 1996b).

Texas Leadership also has addressed the use of new technology as a integral part of the curriculum. The Texas Higher Education Coordinating Board's (1996b) Guidelines for Instructional Programs in Workforce Education made specific reference to advances in professional development and multimedia. Specifically, the Coordinating Board guidelines stated that, "All institutions shall demonstrate promotion of teaching excellence by implementing professional development activities for all part-time and full-time faculty." Such activities include "new technologies and curricular applications" and "the use of technology/multimedia/telecommunications in instruction" (p. 8).

Distance Education Planning

Planning for distance education at the college level encompasses various concerns, including the following: (a) the use/need for distance education at the college level and its relevance to the college's mission, (b) the need for a market analysis in determining distance education requirements, (c) the review of policies and regulations that might serve as barriers to distance education, and (d) administration and evaluation of courses offered at a distance.

Need for Distance Education

Why pursue distance education? "Today, distance education is evolving to deal with the changing demands for living a life in the technological fast lane" (Teletraining Institute, 1996, p. 2A.2). Specifically, the Teletraining Institute based the previous statement on these assumptions:

1. Future education and training endeavors will continue to be increasingly knowledge-based.

2. The amount of information available to individuals will continue to explode.

3. Rapid change and impermanence will be the rule, not the exception.

4. Inter-organizational partnerships, resource sharing, and networking will improve access to information. (p. 2A.2)

The Texas Higher Education Coordinating Board (1995a) found that more institutions are participating in distance education than ever before. The Coordinating Board surveyed the state's 116 higher education institutions and found that, during the 1993-1994 school year, 59 of those institutions offered courses for credit via instructional telecommunications. The Board (1995a) reported that more courses are being offered, more students are enrolling, and more disciplines are represented each year. They added that this trend was expected to continue and that the growth rate should accelerate. The Coordinating Board cited two primary reasons for the pursuit of distance education: (a) to meet the needs of the under-served population and (b) to increase course offerings in disciplines designated as occupational shortage fields.

The use and need for distance education has not been confined to Texas. In a widely circulated report on instructional technology, the Carnegie Commission on Higher Education predicted that by the end of the century at least 80 percent of the off-campus instruction delivered by colleges and universities would be offered through the use of emerging informational technologies (as cited in Buckland & Dye, 1991).

Another, and totally different, view regarding the need for and use of distance education came from the fiscal side. Cartwright (1994) noted, "The depressing state of the higher education economy has led many planners and presidents to re-examine

information technology with an eye toward increasing faculty, staff, and student productivity" (p. 30). Even though many of the concerns related to new technology involved the depersonalization of instruction and the loss of faculty jobs, distance education may be the most appropriate avenue for attracting new students, entering new market segments, and meeting lifestyle changes (Cartwright, 1994).

The College Mission

Perhaps the most appropriate information relative to this study's consideration of distance education and the college's mission has been the TSTC System's (1996) Agency Strategic Plan for the 1997-2001 Period. The strategic plan described the TSTC mission in serving the technical-vocational needs of the state. Many of the System's goals for the years 1997-2001 are directly related to the use of distance education technology (TSTC System, 1996).

The TSTC System's (1996) strategic plan also pointed out that the majority of TSTC students are from the Generation X age group, that is, those born between 1964 and 1977. Caudron (1997) found that students from Generation X should be very comfortable in an environment that offers education at a distance. For example, these students are well acquainted with the computer, the Internet, the television, and most other modern technologies. Additionally, Rose (1995) stated that students of Generation X "...tend to be independent problem-solvers, who are remarkably good at getting the job done on their own" (p. 21), a trait critical to the success of learning at a distance.

The TSTC mission has also been driven by the requirements of the Texas Higher Education Coordinating Board. According to the Coordinating Board's 1995 Master Plan

for Higher Education, all state institutions should provide adequate technological support for education. The plan specifically cited the use of technology to increase student access to current higher education resources (THECB, 1995b).

Another way that distance education can enhance the accomplishment of TSTC's mission is by making course work more accessible to women. One of TSTC's primary goals has been to increase its enrollment of female students and, ultimately, to increase the number of women entering non-traditional vocational and technical occupations (TSTC System, 1996). Specifically, "a larger percentage of females is desired and more effort is currently being expended to recruit female students" (p. 27). Rose (1995) found that "distance education provides women with multiple roles the opportunity to study in their off or crevice time, that is in their spare moments between the tasks of paid employment and household and childcare responsibilities" (p. 8). Rose added that women were more likely to stop pursuing an education than men because of the many demands upon their time. The accessibility for continuing their education at a distance might permit women to reduce this trend, according to Coon's (1996) research. Coon stated that "women not only participate in distance education opportunities at greater rates than men, they also make greater use of distance education than traditional education formats" (p. 53).

Market Analysis

If colleges offer distance education, will people automatically respond to a more technologically advanced method of delivery? The literature seemed to indicate that there is a market for distance education (Buckland & Dye, 1991; Teletraining Institute, 1996;

THECB, 1996b). Nevertheless, until such an analysis has actually been performed, any distance learning project could suffer the same fate as the Learn Alaska Network (Hershfield, 1986). The state of Alaska invested approximately $30 million to install telecommunications to deliver distance education courses; nonetheless, their focus on the technology rather than the market caused the network to be discontinued (Hershfield, 1986).

"It is important to know something about the people for whom distance learning programs are intended" (Wagner, 1995, p. 18). Distance learning audience analysis should examine the needs, skills, and competencies of those who would be receiving the training. Duning, Van Kekerix, and Zaborowski (1993) also stressed the point that distance education projects should be based on identified student needs. They stated that the planning process should begin with determining whether or not a need for distance education exists. Even though state guidelines (THECB, 1996a) and TSTC System (1996) intentions call for implementation of distance education, there should still be a market analysis to ensure there is a demand for the curriculum a college proposes to offer. Rothwell and Sredyl (1987) emphasized that "needs analysis...is the first and perhaps... most important step in designing planned learning experiences" (p. 87).

Policies and Regulations

Some higher education institutions have already restructured policies and procedures to accommodate the unique requirements of distance education. "The majority of schools, however, remain locked in conventional methods that hinder if not

eliminate the opportunity for these students to pursue additional education" (Maxwell, 1995, p. 43.)

The most significant barrier TSTC has encountered to offering distance education in the state of Texas has been the policy of in-state geographic restriction. In May 1997, the 75th Texas Legislature passed House Bill 1404 (1997), which was to remove the in-state geographic restrictions. This should have meant that TSTC colleges would have an increased opportunity to offer courses via distance education in other geographic in-state regions if the courses were already within the approved curriculum of the college. However, the Coordinating Board's interpretation of House Bill 1404 was that it applied to computer distance education (Internet) and VCR courses only (J. G. Hendricks, personal communication, July 13, 1997). Consequently, the in-state geographic restrictions still apply to all other distance education offerings in Texas.

The Texas Higher Education Coordinating Board (1996b) requires colleges to provide students at distant sites with the same essential services which support learning as those on campus. These guidelines are further reinforced by the Southern Association of Colleges and Schools' Criteria for Accreditation (1996). It is clear that the Southern Association expects institutions to meet all the same requirements for distant learners as those for on-campus students.

Administration and Evaluation

When it comes to the administration of distance education courses, there are no specific state (THECB, 1996b) or national guidelines (Hanson et al., 1997) establishing how the courses are to be offered. Many continuing education programs have utilized

distance education technology to expand their course offerings. However, it appears that the primary emphasis in distance education has been on offering courses for credit. Brey (1990) stated that by 1989, between 750 and 1,000 post-secondary institutions were offering some form of distance learning (telecourses) for credit. In another study, Arreola (1995) noted that by 1993, nearly 90 colleges and universities offered degrees in over 125 fields through distance learning. Additionally, he found that over 300,000 people were taking for-credit courses in the distance education programs with some 30,000 enrolled in actual degree programs.

Distance education has finally begun to gain the respect of the mainstream higher education leaders. Due to advancements in technology, institutions are now using a complex mix of delivery modes including telephones with computers, audio and video, satellite links, and telephone lines (Wilson, 1991). From 1987 to 1992, distance learning had grown from only 10 states showing any significant interest to all 50 states using some form of distance education technology (Tompkins, 1992-1993).

The administration of distance education courses takes on a very different perspective when one considers the number of people involved in the development and production of a distance education course. In distance education, "...no single medium is used. Instruction is no longer an individual's work, but the work of a team of specialists--media specialists, instructional specialists, knowledge specialists, instructional design specialists, and learning specialists" (Moore, 1993, p. 4). Rose (1995) supported Moore's contentions that the administration of distance education courses "is particularly important because far more individuals are involved in the development of a distance

education course than are concerned with the usual university level course" (p. 5). As decisions are made regarding the administration of distance education courses, the methods for evaluating the effectiveness of the program should also be addressed.

Many of the aspects of evaluating the distance education program are not unlike evaluating any other result-oriented program. Phillips (1991) described numerous actions to be included in such an evaluation process. Several of Phillips' actions related directly to the ten planning functions called for by Levine (1996) and listed at the beginning of this chapter. Regardless of how they are evaluated, the evaluation process is a critical aspect of implementing any new programs (Phillips, 1991). He further emphasized that the evaluation process should be part of the overall implementation scheme. Phillips' views are supported by others who have conducted research in evaluating distance education programs (Albrecht & Bardsley, 1994; Eastmond, 1994).

Some research supports the need for a separate evaluation process for distance education. Gibson and Gibson (1995) reviewed the lessons learned from more than 100 years of distance education. They concluded that "Traditional classroom models should not serve as the model to be emulated in distance learning. Distance learning is different and the classroom model should not be the base against which all success or failure is measured" (p. 15). The Texas Distance Learning Master Plan (THECB, 1996b), cautioned institutions in regards to evaluating distance education courses. It stated that "...the added complexities and complications implicit in distance learning argue for an especially thorough approach to evaluation, both at the institutional level and from the statewide perspective of the Coordinating Board" (p. 34).

There does not seem to be a clear cut approach to evaluation of distance education programs. Even though some research pointed to evaluation specifics for such programs (Gibson & Gibson, 1995; THECB, 1996b), most of the literature emphasized the need for evaluation as part of the overall process without focusing on specific needs of distance education (Phillips, 1991; Albrecht & Bardsley, 1994; Eastmond, 1994).

In summary, planning for distance education should encompass the needs and mission of the college and be based on a market analysis of the student needs. Furthermore, planning must identify, and hopefully eliminate, any policies and regulations that would inhibit students learning at a distance. Finally, the planning process must ensure that the most appropriate and efficient methods are used to administer and evaluate programs offered at a distance. With these issues in mind, program implementation can move forward to address the curricular issues related to teaching at a distance

Distance Education Curricular Issues

This portion of the literature review addresses five distance education curricular issues: (a) differences in academic performance between distance and non-distance courses, (b) changes in faculty teaching patterns, (c) interaction between faculty and student, (d) the quality of prepackaged courses compared to those developed by a college's own faculty, and (e) faculty preparation time and the appropriate compensation or incentives.

Academic Performance

One of the most frequently asked questions regarding traditional and distance learning has been the difference in student achievement. There are a multitude of references comparing the levels of achievement between distant and traditional students. For example, Hanson et al. (1997) cited several studies which determined that student achievement for those learners receiving education at a distance was equal to or better than their counterparts in the traditional classroom. Closer to home, the Texas distance education master planning document also reported positive results for student achievement in distance education (THECB, 1996b). Specifically, it stated: "We find that when appropriately designed and conscientiously practiced by the provider--and responsibly pursued by the learner--distance learning can be at least as effective as traditional classroom instruction for the delivery and acquisition of knowledge (p. 7).

Even though the previous studies noted that student achievement in distance education seemed to meet or exceed that of the traditional classroom, supportive issues, such as student isolation and how advising should take place, came under scrutiny. Rose (1995) stated that "research within higher education has consistently found that distance education is at least as effective as more traditional classroom (i.e., lecture) approaches" (p. 5). However, Rose confined those results to cognitive gain and concluded that other areas of student development did not show the same results. Johnstone and Krauth (1996) reported nearly the same findings:

> The efficacy of technology itself is not in question; research and evaluation have consistently demonstrated that the achievement and satisfaction of students who

> learn via technology can equal those of student in regular classrooms. Instead, the focus is on surrounding issues, such as, will students in 'virtual' learning situations be isolated, with no semblance of human contact with their instructors? How can effective advising and academic support be provided...? (p. 39)

The TSTC colleges which are already implementing distance education are doing so using two-way interactive TV as the primary delivery system. In a report by the Texas Center for Educational Technology (TCET), two-way interactive TV was found to be as effective for learning as traditional methods (as cited in Hubbard, 1995). Some of the reasons that TCET cited for the success of two-way TV were its ability to provide two-way full motion video, student-teacher and student-student interaction, and the control it provided for the instructor (as cited in Hubbard, 1995).

A study by Mortensen (1995) which assessed the learning outcomes of students taught in a competency-based computer course using distance teaching methods determined that "a competency-based ('hands-on') course can be taught via distance education methods" (p. 80). This is especially important to the TSTC System because the majority of its courses are competency-based, with the largest enrollments in the computer science disciplines, as were Mortensen's subjects.

If there was any doubt that distance education can provide learning experiences comparable in quality to those provided by traditional methods, the following assertion by Heinich et al. (1993) should ease some of those fears:

> For many years doctors, veterinarians, pharmacists, engineers, and lawyers, have used [distance education] to continue their professional education. These

> individuals are often too busy to interrupt their practice and participate in classroom-based education. Recently, academic institutions have been using distance education to reach a more diverse and geographically dispersed audience not accessible through traditional classroom instruction. (p. 18)

Changes in Faculty Teaching Patterns

The next portion of the literature review addresses what changes in teaching techniques are necessary for teaching at a distance versus teaching by traditional methods? "In some ways, teaching effectively with telecommunications means applying techniques that have always formed the foundation of good teaching. But you also need special skills for online activities" (Dyrli & Kinnaman, 1996b, p. 58).

The primary emphasis in this section was devoted to situations where the instruction would be live and the instructor interacted with the student, rather than student-controlled interactive multimedia, such as Internet or CD-ROM instruction. The presentation mode can be either synchronous or asynchronous. The more common methods are interactive television, television broadcasts, and one-way or two-way video conferencing using satellite transmission (as cited in Levine, 1996).

Before defining any changes in teaching technique, it was appropriate to first validate the need for change or further personal development. Bialac and Morse (1995) characterized the experienced teacher as "... a novice in the virtual classroom" (p. J-3). They insinuated that veteran teachers of the traditional classroom will require new skills once they enter the virtual classroom associated with distance teaching. Dooley and Greule (1995) emphasized that distance teaching is a new experience for most faculty;

therefore, practice with distance learning systems is critical to the success of teaching via telecommunications.

Graf, et al., (1992) pointed out that "the distance education environment is quite different from that of the standard classroom" (p. 105). They argued that "comprehensive training programs are required to help inexperienced faculty members operate effectively in a distance learning environment" (p. 105). Thach and Murphy (1995b) stated that "you can use traditional training approaches in a high-tech distance learning environment. But, you have to match the approach with the technology" (p. 44). Bialac and Morse (1995) were careful to point out that no technology can overcome poor teaching. They concluded that poor teaching can actually be exacerbated in a distance learning situation. Conversely, "when skilled teachers are involved, enthusiasm, expertise, and creative use of media can enrich students beyond the four walls of the classroom" (Bialac & Morse, 1995, p. J-3). Finally, "recognizing that teaching via telecommunications is different from face-to-face teaching is the first step in preparing to teach effectively; the second step is to adapt teaching style, method and presentation to accommodate or compensate for the differences" (Lacy & Wolcott, 1988, p. 3).

Nine elements that should be modified in distance teaching technique were derived from three sources: (a) The Distance Learning Certification Program at Texas A&M University (Zent, 1995), (b) Thach and Murphy's (1995a) top ten competencies of the distance learning professional, and (c) Willis' (1993) practical examples for interactive teaching techniques. The nine elements are as follows:

1. The importance of body movement and eye contact while on camera.

2. The importance of dress and appearance on camera.

3. The changes in interpersonal skills, specifically in communication and feedback.

4. The increased need for organization.

5. The use of question and answer techniques in student discussion.

6. The encouragement of student participation and interaction in an electronic environment.

7. Awareness of timeliness and time constraints.

8. The effective use of visual aids.

9. The appropriate use of voice and speech patterns.

The order of the these elements does not imply importance, as they have been listed alphabetically based on topic area. In summary, "distance education's evolution to a learner-centered view of learning...requires dramatic changes in the role of the distance instructor (Gunawardena & Zittle, 1995, p. 57).

Faculty Preparation Time and Incentives

The extra preparation time required of faculty in a distance setting stemmed from two requirements. First, faculty would need to adjust their teaching techniques as described above. Second, faculty would most likely use more multimedia when teaching in a telecommunications environment. According to Laney (1996), who recently taught a series of lessons at a distance, "establishing a 'comfort' level with the 'technology' was more difficult. I spent a great deal of advance planning time learning about and

practicing with distance learning technology in my institution's distance learning laboratory" (p. 51). Laney was comparing the time necessary to establish a comfort level with his instructional content and materials to the time required to adapt to the distance teaching technology, something that should be done for every course. The learning curve for this new process ought to flatten somewhat once a teacher becomes more experienced, but it will never completely diminish because of the constant innovations in new technology.

In her research on distance teaching, Ridley-Smith (1996) offered a very specific rule for determining how much preparation time would be necessary in a distance learning environment. Her recommendation was to "use the 6-to-1 rule. For every hour of instruction via distance learning, spend at least six hours of planning" (p. 88). Ridley-Smith was not alone in suggesting specific (extra) time for preparing lessons to be used in a distant course. The Texas Higher Education Coordinating Board (1996b) made similar recommendations to institutions regarding course development and release time for both faculty and staff.

"Although many faculty will eagerly undertake the challenges of working with new technologies and delivery systems, faculty support and training for such activities should become an integral part of the process. Similarly, incentives for ongoing activities should be developed" (Sedlak & Cartwright, 1997, p. 55). A closely related issue to teaching technique is that of additional compensation for faculty who develop courses to be used in a distance setting. The Texas Higher Education Coordinating Board (1996b) identified faculty release time, compensation, property rights, and promotion and tenure as

"...matters of great concern to faculty" (p. 27). Institutional policies differ significantly on matters such as these. Some institutions have well-defined policies covering compensation and other matters, while others have no formal policies or guidelines whatsoever.

Hanson et al. (1997) stated, "Distance teaching places increased demands on instructors' time. Distance teachers need additional planning time and must adapt current materials or develop new ones with a new set of criteria" (p. 38). Distance courses often involve materials and instructor sharing. "The definition of what constitutes teacher productivity changes considerably in a distance education setting," added Arreola (1995, p. 229). When courses are recorded and delivered repeatedly while the teacher is doing something else, is that teacher more productive? Additionally, the enrollment in courses broadcast to multiple sites will likely exceed the enrollment of the traditional classroom.

Faculty-Student Interaction

Doucette (1994) considered student-teacher and student-student interaction as the critical component of distance education. He professed that a quality program must provide for regular and substantive opportunities for interaction among faculty and students. Wagner (1995) stated that when learners are active participants in the learning process, they are more likely to perform with greater success. She cautioned that interaction and participation must be a function of good instruction regardless of the technology being used to deliver the instruction. Both interaction and participation in distance learning must be planned for in advance because they may require additional time that otherwise would be used for providing content or other learning activities.

Souder (1993) investigated interaction and achievement of students in traditional versus distant courses. In his study, distant students defended their distance learning experience. They did not believe they were impeded by the lack of teacher proximity when at a distance. Souder's results seemed to indicate that students learning at a distance tended to bond more with their fellow classmates and the instructor. The amount, or limitation, of interaction in a distance education classroom may undoubtedly relate to the amount, or limitation, of the interpersonal skills of the faculty member. Granger and Benke (1995) emphasized that distance teachers must know their audience. In their research they found that consideration of the interpersonal skills was important during the curriculum design stage as well as during delivery. The distance learning training literature from Texas A&M University made numerous references to the importance of the distance teacher's interaction with students (Dooley & Greule, 1995; Zent, 1995).

Greydanus, Root, and Pribyl (1991) recommended that the instructor personalize the instruction by matching students' interests with relevant examples and make the participants comfortable by encouraging interaction and using the student's name. Specifically, they noted:

> The success of interaction hinges on your ability to establish a friendly, concerned and stimulating environment that is conducive to communication. Positive rapport is enhanced when you are excited and knowledgeable about your subject, value students' comments, set aside specific time when interaction is expected and encouraged, and remain accessible. (p. 26)

Prepackaged Courses

One of the advantages of distance education is the ability to offer nationally marketed, prepackaged instruction (courseware) or training using asynchronous TV, satellite, or the Internet. In a survey conducted by Training magazine, it was noted that American businesses spent $50.6 billion on training in 1994 (as cited in Multimedia Training, 1995). Many organizations require more training than ever before, but training budgets have been substantially reduced. "One alternative which is gaining broad acceptance is multimedia training, also known as computer-based training" (Multimedia Training, 1995, p. 1). This form of prepackaged, nationally distributed training has been evolving over the last two decades and is past the experimental stage.

Institutions must consider whether or not the packaged courses are of higher quality than materials that could be developed internally. One of the largest producers of videotape courses for use in distance education is the Dallas County Community College District (DCCCD) (THECB, 1996a). "More than 160,000 students in Dallas County have earned credit through telecourses offered by DCCCD. Hundreds of thousands of students across Texas and throughout the country have taken courses produced by DCCCD and offered by their local institution" (p. 5).

Levine (1996) developed a basis for evaluating the prepackaged courseware. He required that a course be available nationally and have at least eight units to receive an acceptable rating. Levine identified that most, but not all, of the acceptable courseware packages included textbooks and faculty guides.

Distance Education Cost-Effectiveness

There were numerous views as to the cost-effectiveness of distance education. This portion of the literature review considers the following issues: (a) the approaches to computing the cost-effectiveness of distance education, (b) the difference in cost structures between distance teaching and traditional methods, (c) the cost-effectiveness of distance education for staff development, and (d) the overall benefits of distance education to faculty, staff, and students.

Costs and Benefits of Distance Education

Moore (1993) asserted that there is a general agreement that distance education is the "...only cost-effective way of distributing scarce expertise, and making it available on demand" (p. 1). Thach and Murphy (1995a) added, "Advances in communication technology, emphasis on cost-savings, and changing demographics are just a few of the reasons for this new emphasis on distance education" (p. 57). These beliefs seemed to apply to TSTC because of the scarcity of some of the programs offered by the System, such as Semiconductor Manufacturing and Laser Electro-Optics. Due to the high cost of supporting certain programs and the lack of funding for technical education, some disciplines are offered at only one college in the System, or nowhere else among the state's community colleges. Offering these programs using distance education appears to be a very cost-effective option.

Green and Gilbert (1995) suggested caution when comparing the costs and benefits of instructional technology. They did not so much imply that distance education was not cost-effective as they advised caution in evaluating which costs should be included and

what benefits could be expected. Their primary concern was incomplete estimates. They felt, for example, that cost estimates for implementing distance education programs too often neglected to include intangible or difficult to assess expenses such as faculty and staff training time, inevitable software and hardware upgrades, and other ancillary costs.

Some of the specific findings in various cost-benefit analyses of instructional technology and distance education included reduced trainer/faculty costs, reduced travel costs, a compression of the actual training time, and increased class sizes (Mortensen, 1995; Multimedia Training, 1995; Chandra, 1996; Teletraining Institute, 1996). Brown and Brown (1994) added, "While there are resource constraints, the implementation of distance education methods can be cost-effective and productive over time, providing that initial investments are well conceived and employed, and resources are shared among institutions" (p. 12).

Comparison of Cost Structures

Since equipment, staff, and learning resources used for distance education often support on-campus operations as well, comparing the cost-effectiveness of distance education to traditional methods has been very difficult (THECB, 1996b). Additionally, the costs related to distance education vary considerably depending on the mode of delivery and the types of courses to be offered.

In their research, Threlkeld and Brzoska (1994) found that "cost comparisons between distance education and traditional education are often neither as simple as one might hope, nor, as with media comparison studies, as useful" (p. 58). They cited three main cost components in distance education: (a) delivery, the cost of getting the

information to the students; (b) production, the cost of creating the teaching materials; and (c) support, the additional costs to ensure that the system works successfully. Finally, they referred to three studies which concluded that, despite the differences in cost comparisons between distance teaching and non-distance delivery, there appear to be suitable methods for making effective comparisons.

The staff trainers at the AT&T National Teletraining Center have developed a model to assist clients in selecting media and determining the cost-effectiveness of distance education (Hubbard, 1995). Although they did not report any specifics on cost-comparisons or cost-effectiveness, their models can be used to compare the basic costs of six delivery options on the basis of equipment cost, maintenance, instructors, support staff, and delivery of instruction. Hubbard (1995) also cited two other studies that provided a framework for comparing higher education at a distance to more traditional teaching and training methods.

It appears from the research that the cost structures between distance education and non-distance delivery methods are difficult to compare. However, instances do exist where the comparisons seem to have been made with confidence.

Cost-Effectiveness for Staff Development

The literature has already shown that distance education can be effective for attaining the desired student achievement and may be cost-effective as compared to more traditional teaching methods. However, can distance education technologies provide cost-effective staff development and training? There were very few literature references to specific cost-effectiveness comparisons for staff development in distance education.

Lape (1995) identified two sources that made reference to distance education as a cost-effective method for delivering staff training and development. Both studies reported that training at a distance was a cost-effective approach to training and development for the staff (as cited in Lape, 1995).

There were several literature references to the effectiveness of offering staff development and training using distance education technologies. A study conducted by Weitman (1993) at the Georgia Technical Institutes concluded that 80% of the participants (faculty, administrators, and support staff) were willing to participate in a computer-based distance education staff development program. A study by Timura (1996) of human resources vice presidents in a 50% sample of Fortune 500 corporations found that those organizations supported distance education for staff training and development and urged their employees to participate. Kilcrease (1996) stated that one of the advantages of using the Internet as a distant method for offering employee training was the fact that it was "cheaper than face-to-face training," and "the training takes employees away from their work for a minimal amount of time" (p. 117).

Benefit to Faculty, Staff, and Students

The final area addressed in this literature review is whether or not distance education technologies are of benefit to faculty, staff, and students. Possibly the greatest benefit to faculty and staff at any of the TSTC colleges is the potential to receive undergraduate and graduate courses via distance education. By design, the TSTC colleges are not located in major metropolitan areas, nor are they in close proximity to state four-year institutions (TSTC System, 1996). Whereas this design may be of benefit

to the College's mission, it often inhibits TSTC faculty and staff from pursuing many potential opportunities for college courses afforded to other faculty. Distance degree programs could enhance the professional development of TSTC faculty and staff and, subsequently, their students.

The Teletraining Institute (1996) cited eight key benefits to distance education, most of which directly apply to the faculty, staff, and students:

1. Economic -- affect bottom-line profits.
    a. Directly impact bottom-line profits
    b. Travel and its related costs can be reduced
2. Better use of resources, human and material.
3. Provide quality educational opportunities that would not otherwise be possible.
    a. E.g., Language and subject areas that not all schools can afford
4. Get information disseminated in a more timely manner.
5. Reach more people more frequently.
6. More effective, longer lasting learning.
    a. Learners can get info in smaller doses and more frequently, thereby avoiding "information dumps" of traditional training or instruction
7. Access to experts.
8. Equally distribute training or instruction to those who want or need it. (p. 2A.9)

Another aspect evident in the literature was the way new technology, including the courses offered at a distance, redirected the focus more to the learner rather than on the teacher. Cartwright (1995), the president of a major university, stated that "students will

be the greatest beneficiary of new instructional technologies as the focus shifts from teaching and teachers to learning and learners" (p. 13). Cartwright was not alone; Menges (1994) implied the same philosophy when he wrote, "The teacher is no longer at the center. The center is occupied by accumulated knowledge and experience, to which students have direct access" (p. 183). Dyrli and Kinnaman (1996a) also supported this concept: "...computer-based telecommunications through the Internet and commercial on-line services brings immediacy and individualization to school curriculum" (p. 65).

Summary

Distance education is by no means a new concept. The recent explosion in telecommunications technology has, however, provided greater access to education for more people and from more institutions. Chapter Two has provided an in-depth look at the ten elements Levine (1996) outlined as essential to a successful distance education program. These elements were the basis for the first two research questions used in this study.

Research question one focused on the awareness and perception of planning for distance education. Planning and implementation of distance education must start with assessing the college's need and determining what the market requires. Institutions must address distance education's relevance to their missions and barriers which may inhibit program success. They must also consider administration and evaluation of courses offered at a distance. Research question two, regarding the curricular and cost-effectiveness areas, focused on many items that are open to varying degrees of perception by the college leadership. Student achievement and student-teacher interaction--along

with faculty teaching techniques, incentives, and planning and preparation time--demand significant attention during distance education implementation. Finally, the cost-effectiveness of distance education remains open to question, as it has yet to be validated by the literature.

CHAPTER 3

RESEARCH METHODOLOGY

Introduction

This comparative study has provided the System Office and the colleges of the Texas State Technical College (TSTC) System with an in-depth analysis on the levels of awareness and perception about distance education among the three leadership role groups at each of the seven colleges. A comparative methodology was used to determine and explicate the similarities and differences of the seven colleges (Mauch & Birch, 1993). This chapter has been divided into the following sections: (a) selection of the research population, (b) general design, (c) instrumentation, (d) pilot study, (e) data collection, and (f) treatment of data.

Research Population

The research population for this study consisted of three leadership role groups (administration, department chairs, and staff support) at each of seven colleges. The three leadership groups were derived from research conducted by Thach (1994) in determining the roles and competencies of distance education professionals. Research identified the people in these groups because they will make the decisions about distance education planning, equipment, and resource allocations, or they will be directly involved in the implementation (Randall et al., 1996).

The participants surveyed for this study constituted "all" of the people (census) in distance education leadership positions at each of the seven colleges; consequently, they have been referred to as the "survey population" and not as the sample. A survey of the entire population permitted each person in a leadership position the opportunity to respond. The three leadership role groups of the survey population (N=170) were previously defined in Chapter One. The justification for their inclusion follows here.

Administration

The administrative group (n=46) included the presidents, deans, associate deans, managers, and directors. This group represented 27% of the survey population. Each member of this group should be involved in and supportive of the distance education process if it is to be successful (Levine, 1996).

Instructional Department Chairs

Willis (1992) considered faculty to be the key element for implementing successful distance education programs in college. The instructional department/program chairs (n=96) are in both administrative and teaching roles and represent the faculty in the planning and decision making processes for implementing distance education programs. The department chairs constituted 56.5% of the survey population.

Staff Support

The makeup of the staff support group (n=28) varied somewhat depending on the organizational structure of each college. Staff support constituted 16.5% of the research population. Hanson et al. (1997) emphasized that an appropriately designed and maintained support system is critical to a successful distance education program. The

awareness and perception levels of the personnel in the staff support group needed to be analyzed to ensure that the distance education infrastructure is appropriately designed and supported at the college level.

The three leadership groups used in this study closely resembled the role groups used in similar studies to determine the perceptions and awareness for distance education at the two-year college level (Hamilton, 1994; Scott, 1994; Lape, 1995; Randall et al., 1996).

General Design

This study utilized an existing data collection instrument (fully described in the Instrumentation section) adapted for use in the TSTC System. The data were analyzed (Chapter Four) and the findings have been set forth as conclusions and recommendations in Chapter Five. An Application for Approval of Investigation Involving Human Subjects was submitted on July 15, 1997 to the University of North Texas Institutional Review Board (IRB) for the protection of human subjects in research. It was approved on July 22, 1997 (R. Schafer, personal communication, July 22, 1997). No data was collected prior to receiving approval from the IRB.

Prior to data collection, the researcher contacted the president/dean at each campus to solicit his support for the study (see sample letter in Appendix A). A representative, known as the contact person, was also identified for each campus. The primary function of the contact person was to assist the researcher in identifying the participants and distributing and receiving the surveys using intra-campus mail. The campus contact person did not represent a particular leadership group category. In each case, he or she

was a prior acquaintance of the researcher who volunteered or was asked to assist. The specifics for data collection and follow-up are described later in the Data Collection portion of this chapter. Once the data were collected, the survey forms were processed on a scanner, and the information was forwarded to a computer for analysis using SPSS® Advanced Statistics 7.5 (1997).

Instrumentation

Upon reviewing numerous abstracts in the Dissertation Abstracts International, a previously completed research project similar to this one was identified in Michigan. Douglas Lape of Northwestern Michigan College conducted that research in the Michigan Community College System in 1995 (Lape, 1995). This researcher contacted Northwestern Michigan College, which granted permission to use the survey developed by the original researcher (D. H. Lape, personal communication, May 21, 1997). See Appendix B for a copy of the permission letter.

Instrument Design

The survey used in this study was prepared on a two-page scannable form. It contained 23 items divided among four sections. The estimated time to complete the survey was 10-15 minutes because most of the items were single sentences with selection-type responses. Section I of the survey sought information about the participant's awareness and addressed distance education planning. It contained six questions answered with "Yes", "No", or "I Don't Know" options. Section I also contained a space where the respondents could enter information on policies and regulations they believed could serve as barriers to distance education.

Sections II and III of the survey dealt with the distance education curricular issues and cost-effectiveness, respectively, and were prepared using a Likert-type scale with five options, ranging from strongly agree to strongly disagree. The mid-point value was for neutral responses. There were six survey items for the curricular issues and five survey items for the cost-effectiveness responses.

The final portion gathered background information from participants and also addressed their awareness of distance education courses offered and received at their college. Section IV contained six items: four selection type items to determine participants' demographics (leadership role group, years of experience [2], and college location) and two "Yes", "No", or "I Don't Know" items where participants could respond to their awareness of whether or not distance education courses were produced or received at their college (see Appendix C for a sample of the four sections of the survey).

Validity

The survey was originally designed to measure the levels of awareness and understanding (perception) of distance learning issues by leadership groups at community colleges. The designer (Lape, 1995) used research by Levine (1992) to establish the content of the survey. To ensure both content and construct validity of the instrument, the developer (Lape, 1995) cited multiple references for each of the survey items that assessed either awareness or perception of the research participant (see Table 1).

Table 1

Listing of Survey Questions and Supporting Research Literature

Survey Items	Literature Citations
Section I: Distance Education Planning	
A. Is there a need for distance education courses at your college?	Beaudoin, 1990; Levine, 1992; Duning et al., 1993.
B. Has there been a market analysis to determine the need for distance education?	Aslanian & Brickell, 1990; Levine, 1992; Duning et al., 1993.
C. Would the mission of your college be well served through the implementation of distance education courses?	O'Connell, 1985; Levine, 1992; Duning et al., 1993.
D. Are there any policies or regulations that might serve as barriers to the success of distance education courses?	Garrison & Shale, 1987; Brey, 1990; Levine, 1992.
E. No literature references required for this completion item.	
F. Should distance education courses be evaluated differently than traditional courses?	Gooler, 1977; Levine, 1992; Duning et al., 1993.
Section II: Distance Education Curricular Issues	
G. There are no significant differences in academic performance for students in distance education courses and non-distance classroom courses.	Whittington, 1987; Clark & Verduin, 1989; Hayes, 1990; Gehlauf, Shatz, & Frye, 1991.
H. Distance education technologies will cause faculty to make changes in teaching patterns.	Beaudoin, 1990; Verduin & Clark, 1991; Levine, 1992.
I. The interaction between faculty and students is limited with distance education courses.	Garrison, 1990; Elmore, 1991; Verduin & Clark, 1991.

Table 1---Continued

J. The nationally marketed, prepackaged courses are equal in quality to the courses prepared by the faculty on our campus.	Verduin & Clark, 1991; Levine, 1992; Olcott, 1992
K. Incentives are needed to encourage faculty to participate in teaching distance education courses.	Dillon, 1989; Levine, 1992; Duning et al., 1993.
L. Teaching distance education courses requires additional time for preparing and planning lessons.	Dillon, 1989; Levine, 1992; Duning et al., 1993.
Section III: Distance Education Cost-Effectiveness	
M. Distance education courses can be cost-effective.	Levin, 1981; Mace, 1982; Rumble, 1988; Levine, 1992.
N. Both costs and benefits of distance education courses should be computed to determine the cost-effectiveness of distance education courses.	Mace, 1982; Duning et al., 1993.
O. Cost structures of distance and traditional education are so different that it is difficult to compare the two delivery systems.	Rule, DeWulf, & Stowitschek, 1989; Levine, 1992.
P. Distance education technologies can be cost-effective for staff training and development.	Ansari, 1992; Duning et al., 1993.
Q The investment in distance education technologies is a benefit to the faculty, staff, and students.	Ansari, 1992; Hart, 1994.

Note: Survey items S-W in Section IV were for collecting background information and did not have literature references.

Each item on the survey is directly related to one of the ten distance education planning activities cited in the Introduction to Chapter Two of this document. The ten activities or steps are based on extensive research by Levine (1992) in support of the Annenberg/Corporation for Public Broadcasting Project and the Public Broadcasting Service educational satellite programs offered by its Adult Learning Satellite Service.

To further enhance the instrument's validity, the original survey was reviewed with the researcher's (Lape, 1995) dissertation committee and modified as a result of the review. The survey was then pilot-tested at Northwestern Michigan College and further modifications were made. Finally, the original survey was used in actual research at the 29 community colleges in Michigan as originally planned (Lape, 1995). Of the 145 responses sought, 116 participants, at 27 of the 29 colleges, returned usable surveys for an overall return rate of 80%.

Pilot Study

Since the survey instrument selected for this study had already been pilot-tested and used in actual research, the only pilot test conducted in support of this study was to determine if the proposed data collection process was appropriate. The pilot test was conducted at the TSTC Marshall campus because of its small size (n=11) and ease of access for this researcher. The data from the pilot study has been included with the information obtained during the regular data collection process and reported in the findings of this study.

The pilot study was conducted from August 13 to September 3, 1997. This researcher notified the campus dean for Marshall (see sample letter in Appendix A) and named a campus contact person. The contact person assisted in identifying the survey participants. Once the participants were identified, an electronic mail distribution list was created to notify them a week in advance of the upcoming survey (see Appendix D for a sample of the electronic mail advance notice).

The surveys were prepared by the researcher and forwarded by U.S. Mail to the contact person for distribution in campus mail. After ten days, only six surveys had been received by the campus contact person; therefore, the researcher sent a follow-up electronic mail to each participant thanking them for responding to the survey if they had already done so, and imploring those who had not responded to do so as soon as they could (refer to Appendix E for a sample of follow-up electronic mail). Finally, 11 of the 12 surveys sent to Marshall (92%) were returned to the campus contact person by the end of the third week of the pilot study. The pilot study verified that the process of alerting the participants by electronic mail prior to distributing the survey, and also sending the follow-up notice by electronic mail was effective.

Data Collection

Once the pilot study was completed, the data collection process, consisting of a single phase, was accomplished. During August, this researcher asked each campus contact person to provide a mailing list of all the department/program chairs and assistants. Each college human resources office was capable of providing this document. The researcher also requested an organizational chart for each college to identify the participants in the administrative and staff support leadership role groups. Questions concerning an individual's assignment to the survey population were addressed on a case-by-case basis with the campus contact person.

The researcher then created an electronic mail distribution list, the same type as for the pilot study, to include each participant having access to electronic mail. In all, 188 of the 213 survey participants had access to electronic mail. On September 11, 1997, an

electronic mail notice (see Appendix D) was sent to the participants at the six remaining campuses notifying them of the upcoming survey. The researcher sent a letter to the other 25 participants who did not have access to electronic mail (see the sample in Appendix F). No data was collected using electronic mail, so there were no concerns for confidentiality.

The researcher forwarded the surveys to the six campuses (excluding Marshall which did the pilot study) for distribution in the campus mail on September 16, 1997. Each survey packet contained a cover letter (see Appendix G), a copy of the survey (see Appendix C), and a brief list of definitions to aid in completing the survey (see Appendix I). Each participant also received a leather coaster with the TSTC imprint (purchased by the researcher) as an enticement to participate in the survey.

The cover letter asked participants to complete the survey and return it in the self-addressed envelope to their respective contact person or by U.S. Mail (as applicable) within two weeks. After two weeks, a second electronic mail (see Appendix E) was sent to thank those who had already completed the survey, and to serve as a reminder to those who had not yet done so. A letter was sent to those who did not have access to electronic mail (see Appendix H). By the end of the 30-day survey period, 160 of the 201 surveys distributed had been returned. A total of 213 surveys were distributed, including the pilot test, of which 170 usable surveys were returned, for an effective rate of 80%.

Treatment of the Data

The researcher scanned the returned surveys into an ASCII Text file so the information could be analyzed using SPSS®. All handwritten information was entered as

text into a wordprocessing document for inclusion in this report in summary form. Chi Square was used to determine if there were differences in awareness and perception for the three leadership roles groups of the population. When the Chi Square value was statistically significant (exceeded the Critical Value), the Residuals were computed to determine which of the leadership groups differed.

Summary

Chapter Three describes the process that was used to conduct the research for this project. A population (N=170) was surveyed, rather than a sampling, to determine if there were differences in awareness and understanding levels of distance education by the leadership groups in the TSTC System. An existing survey was identified and used for this study. The researcher obtained the appropriate IRB approval for human subjects prior to any data collection. After conducting a pilot study to evaluate the process, data collection at each of the colleges was accomplished within a 30-day period, including follow-up. The data were processed from scannable forms using SPSS®.

CHAPTER 4

DATA ANALYSIS AND DISCUSSION OF RESULTS

Introduction

The purpose of this study was to determine whether there are differences in the levels of awareness and perception concerning distance education among the three leadership groups at the seven Texas State Technical College (TSTC) System campuses. Administration, department chairs and assistants, and key staff support personnel were surveyed regarding their awareness and understanding of distance education. The study used the following research questions:

1. Are there differences in the levels of awareness and perception among the leadership role groups at the seven TSTC colleges regarding distance education planning?

2. Are there differences in the levels of perception among the leadership role groups at the seven TSTC colleges regarding distance education curricular issues and distance education cost-effectiveness?

3. What are the awareness levels of the leadership role groups at the seven TSTC colleges regarding the current status of distance education courses offered and received at their respective colleges?

This chapter is organized into five sections. The first section provides an assessment of the survey findings with regards to the number of surveys distributed and the respective return rates. The second portion of Chapter Four depicts the characteristics

of the survey population, including demographics for each leadership group and its respective campus. The remaining three sections provide specific findings for the study's research questions. The sections are titled Distance Education Planning, Curricular and Cost-effectiveness Issues, and Campus Awareness.

Survey Findings

A total of 213 surveys (including the pilot test) were distributed. After one month, 171 survey responses had been received from the seven campuses inclusive of all leadership groups. One of the surveys was received incomplete. Only the first page contained any responses and the demographic entries were left blank; consequently, the survey was not considered usable. This resulted in a usable return of 170 of the 213 surveys distributed, for an adjusted rate of 80%.

The administrative group had the highest rate of return at 88%. The staff support group was second with 82%, and the department chairs return rate was 76%. With the exception of the staff support group at Sweetwater (33%), every leadership group, at every campus, had a return rate of over 50%, with many sub-groups returning 100% of their surveys. Only two campuses, Abilene and Brownwood, had an overall return rate of 100%; however, each campus returned more than 50% of their surveys, with 65% being the lowest rate of return for any campus. Refer to Table 2 for a complete illustration of the number of survey distributed and returned.

Table 2

Total Surveys Distributed and Usable Surveys Returned

Campus	Administration sent / returned	Department Chairs sent / returned	Staff Support sent / returned	Total for each sent / returned
Abilene	2 / 2 (100%)	8 / 8 (100%)	0	10 /10 (100%)
Breckenridge	2 / 2 (100%)	6 / 4 (67%)	1 / 1 (100%)	9 / 7 (78%)
Brownwood	2 / 2 (100%)	5 / 5 (100%)	1 / 1 (100%)	8 / 8 (100%)
Harlingen	12 / 10 (83%)	40 / 29 (73%)	9 / 8 (89%)	61 / 47 (77%)
Marshall	4 / 4 (100%)	4 / 3 (75%)	4 / 4 (100%)	12 / 11 (92%)
Sweetwater	13 / 10 (77 %)	18 / 12 (67 %)	6 / 2 (33 %)	37 / 24 (65%)
Waco	17 / 16 (94%)	46 / 35 (76%)	13 / 12 (92%)	76 / 63 (83%)
Total per group sent / returned	52/46 (88%)	127 / 96 (76%)	34 / 28 (82%)	Grand Total 213 / 170 (80%)
Percentage of total surveys returned	27%	56.5%	16.5%	

Characteristics of the Population

The survey asked participants to identify their respective campus location and leadership role group. Table 2 showed the summaries for these two questions. The survey also asked two questions regarding the participants experience levels: one for number of years in their current position and another for the total number of years of experience in education. Just over half of the survey participants (54%) had at least five years experience in their current position, with 8% having more than 20 years at the same job. Additionally, 65% of the participants had 10 or more years of experience in education, with only 15% having five years or less educational experience. The individual summaries by leadership group are described below (see Table 3 for illustration).

Administration

More than half (56%) of those surveyed in the administrative group had more than five years experience in their respective position. Furthermore, this leadership group had the highest percentage (46%) with 20 or more years of experience in education. In comparing the three leadership groups, the administrative group possessed the most overall experience in education.

Instructional Department Chairs

The department chairs ranked similar to administration regarding experience in their current position. Nearly half (49%) had five or less years as a department chair; however, 60% of the department chairs possessed ten or more years experience in education.

Table 3

Experience in Current Leadership Position and Total Years of Experience in Education

Leadership Role Group	n	1-5 Years	5-10 Years	10-20 Years	20+ Years
Administration					
-Years in Position	45	20	14	7	4
-% of Category		44%	31%	16%	9%
-Years in Education	46	3	9	13	21
-% of Category		6%	20%	28%	46%
Department Chairs					
-Years in Position	93	46	13	26	8
- % of Category		49%	14%	28%	9%
-Years in Education	95	19	19	38	19
- % of Category		20%	20%	40%	20%
Staff Support					
- Years in Position	27	10	9	6	2
- % of Category		37%	33%	22%	7%
- Years in Education	26	3	4	9	10
- % of Category		12%	15%	35%	38%
All Groups					
- Years in Position	165	76	36	39	14
- % of Category		46%	22%	24%	8%
-Years in Education	167	25	32	60	50
- % of Category		15%	19%	36%	30%

Staff Support

The staff support group showed the lowest level of experience in their current positions. Only about one third (29%) of those surveyed had ten or more years experience in their current jobs. Conversely, the staff support group had a high

percentage of participants (73%) with ten or more years experience in education. This would seem to indicate that many of the staff support group, like administration, had held other jobs in the educational field prior to their current position.

Distance Education Planning

The first section of the survey addressed distance education planning to answer the first research question: Are there differences in the levels of awareness and perception among the leadership role groups at the seven TSTC colleges regarding distance education planning? Five of the six questions solicited a response of "Yes", "No", or "I Don't Know." The remaining question sought information on how distance education courses were administered, when applicable, and will be reported later in the campus awareness section.

The results for each survey item are briefly discussed in the following paragraphs and also displayed in tables showing the number of responses and their respective percentages. The Chi Square value for each item was calculated and listed also on the table. The "I Don't Know" responses were not included in the tables, nor were they considered in computing the Chi Square value. The computed Chi Square value was subsequently compared to the Critical Value for each item to determine whether or not there were statistically significant differences in the response levels among the leadership groups. The Critical Value was based on two degrees of freedom at an alpha level of 0.05. When the Chi Square value exceeded the Critical Value, the Residuals were calculated to determine which groups constituted the significant difference for their levels of awareness and perception.

Need for Distance Education

The overwhelming response to the initial question concerning the need for distance education courses was positive. Eighty-three percent of those surveyed indicated that there was a need for distance education at their college. In the administrative group, 96% stated that there was a need for distance education. The staff support group was second at 82% and instructional department chairs selected "Yes" in 77% of the cases. The only "No" responses were from five of the department chairs (3%), and the remaining 14% of the participants responded as "I Don't Know."

The Chi Square value of 4.383 was below the Critical Value, indicating that there was not a significant difference; therefore, no additional tests were required. See Table 4 for a more detailed illustration.

Table 4

Summary of Results with Chi Square Value for Survey Item A (N=168; 2 missing): Is there a need for distance education courses at your college?

Leadership Group	n	Yes	No
Administration	45	43 96%	0
Department Chairs	95	73 77%	5 5%
Staff Support	28	23 82%	0
Total	168	139 83%	5 3%
Chi Square = 4.383			Critical Value = 5.991

Note: The "I Don't Know" responses were not included in the table nor considered in the computation of the Chi Square value.

Market Analysis

The second survey question sought to determine if a market analysis had been completed to identify if there was a need for TSTC to offer education at a distance. According to the responses, over two thirds (69%) of the participants were unaware if any previous market analysis had been accomplished. Eleven percent stated that an analysis had been accomplished, and the remaining 20% indicated that no market analysis had been completed.

The differences between the groups were negligible. The Chi Square value was 0.817, far below the Critical Value of 5.991. No further testing was required. Table 5 depicts the specific responses for each category.

Table 5

Summary of Results with Chi Square Value for Survey Item B (N=169; 1 missing): Has there been a market analysis to determine the need for distance education?

Leadership Group	n	Yes	No
Administration	46	5 11%	16 35%
Department Chairs	95	7 7%	13 14%
Staff Support	28	3 11%	5 18%
Total	169	19 11%	34 20 %
Chi Square = 0.817			Critical Value = 5.991

Note: The "I Don't Know" responses were not included in the table nor considered in the computation of the Chi Square value.

Mission of the College

In the third question, respondents registered their perception of whether or not the college would be well served by distance education. Over 80% of the total population stated that the college would be well served through the implementation of distance education courses. The administration's response was highest at 98%, followed by staff support at 85% in favor. Only 73% of the department chairs indicated that they believed the college's mission would be well served by distance education, with 8% stating "No" and 19% responding with "I Don't Know." The Chi Square value was computed at 5.498, below the Critical Value of 5.991, consequently; no further tests were required. Table 6 provides a more detailed description of the responses to survey item C.

Table 6

Summary of Results with Chi Square Value for Survey Item C (N=168; 2 missing): Would the mission of your college be well served through the implementation of distance education courses?

Leadership Group	n	Yes	No
Administration	46	45 98%	0
Department Chairs	95	69 73%	8 8%
Staff Support	27	23 85%	1 4%
Total	168	137 82%	9 5%

Chi Square = 5.498 Critical Value = 5.991

Note: The "I Don't Know" responses were not included in the table nor considered in the computation of the Chi Square value.

Policies or Regulations

Each of the participants was asked to indicate if he/she believed there were policies or regulations that might serve as barriers to the success of distance education. Overall, only about one fourth (27%) believed that policies or regulations existed that might serve as barriers. The largest percentage was from the administrative group (46%), with the department chairs showing the lowest portion at 17%.

Just over one half of those surveyed did not know if there might be barriers to distance education courses caused by policies or regulations. Of this group, the administration was the lowest (30%), and the department chairs were the highest (64%). The Chi Square value for this survey item was 3.854, below the critical value; therefore, no further testing was required. Table 7 presents a more detailed analysis of the results.

Table 7

Summary of Results with Chi Square Value for Survey Item D (N=170; 0 missing): Are there any policies or regulations that might serve as barriers to the success of distance education courses?

Leadership Group	n	Yes	No
Administration	46	21 46%	11 24%
Department Chairs	96	16 17%	18 19%
Staff Support	28	9 32%	3 11%
Total	170	46 32%	3 11%

Chi Square = 3.854 Critical Value = 5.991

Note: The "I Don't Know" responses were not included in the table nor considered in the computation of the Chi Square value.

In conjunction with the question on barriers, the participants were asked to list what policies or barriers they believed might hinder the success of distance education. Table 8 lists the responses with the number of times each item was mentioned. While some of the responses are directly related to specific policies and regulations, many were the respondents' perceptions as to the circumstance that might serve as barriers to distance education.

Course Evaluations

With question F, the survey asked the population whether or not distance education courses should be evaluated differently than traditional courses. Of the total, 47% of those responding said "Yes," another 35% said "No," and the remaining listed "I Don't Know" (18%). The administrative group had the highest percentage (58%) answering "Yes" while the department chairs and staff support groups answered in the affirmative 43% and 44% of the time, respectively. The number of "No" responses was very similar for the administrative (33%) and staff support (37%) groups with only 19% of the department chairs stating "No" to this question. Approximately one fourth (27%) of the total population chose the "I Don't Know" response. The Chi Square value (1.224) was lower than the Critical Value; consequently, no further tests were required. The specific results are listed in Table 9.

Curricular and Cost-Effectiveness Issues

The second and third portions of the survey contained 11 items total. Six of the items sought responses related to distance education curricular issues and the remaining five addressed distance education cost-effectiveness. All of the items in this section were

Table 8

Items Listed as Policies or Barriers to the Success of Distance Education Courses

Texas Higher Education Coordinating Board course approval, rules, and regulations--20
Admission requirements including TASP--7
Access to and administration of labs--7
Relationships or conflicts with community colleges--6
Cost/economics--6
Lack of instructor acceptance (resistance)--4
Distribution of tuition/contact hours--4
Availability, funding, and qualifications of support staff--4
Boundaries or territories--3
Faculty workload/overload--2
Residency--2
Financial Aid issues--2
Quarter hour versus semester hour system--2
Lack of policies--2
Enrollment/class size--2
Interaction/personal attention--2
Out of state tuition
Reporting information by census date
Payment plans

Table 8---Continued

Attendance policies

Some courses require an instructor

These courses work better with academics

Not good with technical courses

Training of faculty

Americans with Disabilities Act (ADA)

The mission of the college

Testing requirements

Security/integrity

Lack of administrative support; not being a priority

If a class is too long, for example a nursing course for eight hours, we are not allowed access to distance learning; nursing loses out on the benefits of distance learning.

Internal politics

Scheduling policies

Communication

Not enough information to the appropriate personnel

Requirements for Higher Education approval

Department of Education--Title IV

Technological changes not upgraded

Note: The number following the statement indicates the total times this response was made if more than once.

Table 9

Summary of Results with Chi Square Value for Survey Item F (N=167; 3 missing): Should distance education courses be evaluated differently than traditional courses?

Leadership Group	n	Yes	No
Administration	46	27 58%	15 33%
Department Chairs	94	40 43%	18 19%
Staff Support	27	12 44%	10 37%
Total	167	79 47%	43 26%
Chi Square = 1.224			Critical Value = 5.991

Note: The "I Don't Know" responses were not included in the table nor considered in the computation of the Chi Square value.

Likert-type with five responses, ranging from strongly agree to strongly disagree. The midpoint value was for neutral responses.

The specific findings for these survey items are briefly discussed in the following pages and also displayed in table form with the specific number of responses and commensurate percentages. All five responses were used in calculating a Chi Square value to determine if there was a statistically significant difference. The Critical Value was based on eight degrees of freedom at an alpha level of 0.05. When the calculated Chi Square values exceeded the Critical Value, Residual values were calculated when necessary to determine which groups were significantly different.

Academic Performance

When asked for their perception about the levels of academic performance of students enrolled in distance education courses as compared to non-distance courses, less than one half (42%) of all respondents agreed that there were no differences. One third of the total population surveyed provided a neutral response, and 25% of the respondents disagreed with there being no statistically significant difference in the academic performance for the two delivery methods.

The individual percentages for each of the groups were similar to the overall totals. The administration and instructional department chairs had nearly the same percentage of responses agreeing with the statement; however, the department chairs provided less neutral responses and a slightly higher percentage of disagree responses. The staff support responses were very similar to those of administration (see Table 10 for specific details). The Chi Square Value for this item was 4.031, significantly below the Critical Value of 15.507; therefore, no additional tests were required.

Changes in Faculty Teaching Patterns

The responses to survey item H, "Will distance education technologies cause faculty to change their teaching patterns?" varied significantly between "Agree" and "Strongly Agree." Even though there were significant differences at these two, the combination of the "Agree" and "Strongly Agree" responses was quite similar and ranged from 82% for department chairs, to 87% for administration, to 90% for the staff support group. The proportions in disagreement were also similar, with 7% to 10% signifying some level of disagreement. Table 11 provides a detailed presentation of all responses.

Table 10

Summary of Results with Chi Square Value for Survey Item G (N=168; 2 missing): There are no significant differences in academic performance for students in distance education courses and non-distance classroom courses.

Leadership Group	n	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Administration	46	2 4%	17 37%	18 39%	8 18%	1 2%
Department Chairs	95	8 8%	34 36%	27 29%	20 21%	6 6%
Staff Support	27	2 7%	8 30%	11 41%	5 18%	1 4%
Total	168	12 7%	59 35%	56 33%	33 20%	8 5%
Chi Square = 4.031						Critical Value = 15.507

Table 11

Summary of Results with Chi Square Value for Survey Item H (N=170; 0 missing): Distance education technologies will cause faculty to make changes in teaching patterns.

Leadership Group	n	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Administration	46	26 57%	14 30%	2 4%	4 9%	0
Department Chairs	96	36 37%	34 36%	8 8%	8 9%	1 1%
Staff Support	28	3 10%	22 79%	1 4%	2 7%	0 0%
Total	170	65 38%	79 46.5%	11 6.5%	14 8%	1 1%
Chi Square = 20.419						Critical Value = 15.507

The Chi Square value for survey item H was 20.419, higher than the Critical Value of 15.507; consequently, the Residuals were calculated to determine where leadership groups differed. There was significant disagreement between the staff support group and the department chairs in both of the agreement categories. The administration showed significant disagreement with the department chairs in the "Strongly Agree" category only. See Table 12 for a complete illustration of the Residuals.

Table 12

Standard Residuals for Survey Item H

Chi Value = 20.419				Critical Value = 15.507	
Leadership Group	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Administration	2.0	-1.6	-0.6	0.1	-0.5
Department Chairs	-0.1	-0.2	0.7	0	0.6
Staff Support	-2.4	2.5	-0.6	-0.2	-0.4

Interaction Between Faculty and Students

When asked about interaction between faculty and students in a distance education classroom, administration and department chairs both responded slightly above 50% in agreeing that the interaction would be limited. For the staff support group, 61% agreed that it would be limited. The department chair and staff support groups had lower percentages of disagreement than administration; however, they displayed a higher number of neutral responses. Overall, 55% of the respondents agreed that the interaction between faculty and students would be limited and 27% disagreed. The calculated Chi

Square value for this survey item was below the Critical Value, so no additional tests were required. Table 13 illustrates the specific responses by category.

Table 13

Summary of Results with Chi Square Value for Survey Item I (N=169; 1 missing): The interaction between faculty and students is limited with distance education courses.

Leadership Group	n	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Administration	45	8 18%	15 33%	3 7%	17 37%	2 4%
Department Chairs	96	20 21%	34 36%	16 17%	19 20%	8 8%
Staff Support	28	3 11%	14 50%	5 18%	6 21%	0
Total	169	31 18%	62 37%	24 14%	42 25%	10 6%
Chi Square = 12.240						Critical Value = 15.507

Prepackaged Courses

The issue of nationally marketed, prepackaged courses generated the highest number of responses (52%) in the "Neutral" category, with administration being at the extreme with 67%. Department chairs and staff support were neutral 47% and 44% of the time, respectively.

The department chairs had the highest rate of agreement at 13%, with staff support agreeing 11% of the time and administration only 4%. The department chairs and staff support also showed the highest percentage of disagreement at 40% and 45%, respectively. The Chi Square value (14.501) for survey item J fell below the Critical

value; therefore, no additional tests were required. Table 14 compares the responses for each of the categories.

Table 14

Summary of Results with Chi Square Value for Survey Item J (N=166; 4 missing): The nationally marketed, prepackaged courses are equal in quality to the courses prepared by the faculty on our campus.

Leadership Group	n	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Administration	45	0	2 4%	31 67%	10 22%	2 4%
Department Chairs	94	3 3%	9 10%	44 47%	23 24%	15 16%
Staff Support	27	0	3 11%	12 44%	11 41%	1 4%
Total	166	3 2%	14 8%	87 52%	44 27%	18 11%
Chi Square = 14.501						Critical Value = 15.507

Incentives

One of the most sensitive points in distance education curricular issues is whether or not incentives should be provided for faculty to participate in distance education courses. The findings for all three leadership groups on this topic were quite similar. The highest percentage of agreement was at the staff support level (82%), with administration signifying agreement at a 78% rate, and department chairs agreeing 74% of the time.

Only 10% of the total population disagreed with the need for incentives, with staff support also having the highest percentage (14%), and the department chairs showing the lowest level of disagreement (8%). The Chi Square value of 5.225 was not significant;

consequently, no additional analysis was required. Table 15 provides a more complete look at the results for this survey item.

Table 15

Summary of Results with Chi Square Value for Survey Item K (N=168; 2 missing): Incentives are needed to encourage faculty to participate in teaching distance education courses.

Leadership Group	n	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Administration	45	13 29%	22 49%	5 11%	3 7%	2 4%
Department Chairs	95	28 30%	34 36%	17 18%	7 7%	11%
Staff Support	28	7 25%	13 47%	4 14%	4 14%	0
Total	168	48 29%	77 46%	26 15%	14 8%	3 2%
Chi Square = 5.255						Critical Value = 15.507

Faculty Preparation Time

Also controversial as a curricular issue is the concern for faculty needing additional time for preparing and planning distance education lessons. Approximately three fourths (76%) of those surveyed agreed with the need for additional faculty preparation time. The department chairs displayed the highest level of agreement at 82%, with staff support at 71%, and administration agreeing 67% of the time. An even 10% of the total population disagreed with the need for additional preparation time, and 14% were neutral.

Even though the Chi Square value indicated a higher difference among the leadership for faculty preparation time than the need for faculty incentives, it was not

significant at 9.447. There were no other tests required. The complete results for survey item L are shown in Table 16.

Table 16

Summary of Results with Chi Square Value for Survey Item L (N=167; 3 missing): Teaching distance education courses requires additional time for preparing and planning lessons.

Leadership Group	n	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Administration	45	16 36%	14 31%	10 22%	5 11%	0
Department Chairs	94	43 46%	34 36%	10 11%	6 6%	1 1%
Staff Support	28	8 28%	12 43%	3 11%	4 14%	1 4%
Total	167	67 40%	77 46%	23 14%	15 9%	2 1%
Chi Square = 9.447					Critical Value = 15.507	

Cost-Effectiveness of Distance Education Courses

The survey asked all of the participants whether or not they thought distance education courses could be cost-effective. The administration showed the highest level of agreement at 87%, with the remaining responding as neutral. The staff support leadership group also showed a high percentage of agreement at 82%, with the remaining 18% also responding as neutral. The percentage of agreement for the department chairs was only 62%, with 34% responding as neutral, and 4% in disagreement. Table 17 shows specific figures for survey item M.

Table 17

Summary of Results with Chi Square Value for Survey Item M (N=169; 1 missing): Distance education courses can be cost-effective.

Leadership Group	n	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Administration	46	20 43.5%	20 43.5%	6 13%	0	0
Department Chairs	95	15 16%	34 36%	32 34%	3 3%	1 1%
Staff Support	28	1 4%	22 78%	5 18%	0	0
Total	169	36 21%	77 46%	43 25%	3 2%	1 1%
Chi Square = 30.275						Critical Value = 15.507

The Chi Square value was significantly higher than the Critical Value. The Residuals for each group were subsequently computed to determine which groups were significantly different. The Residual values indicated that the significant difference was with administration at the "Strongly Agree" level (3.3) and with the staff support group at the "Strongly Agree" (-2) and "Agree" (2.1) levels (see Table 18 for the Residual values).

Table 18

Standard Residuals for Survey Item M

Chi Value = 30.275					Critical Value = 15.507
Leadership Group	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Administration	3.3	-0.7	-1.7	-0.9	-0.5
Department Chairs	-1.2	-0.6	1.6	1.0	0.6
Staff Support	-2.0	2.1	-0.8	-0.7	-0.4

Costs and Benefits Comparison

In survey item N, the population considered whether both the costs and benefits should be computed to determine the cost-effectiveness of distance education courses. The respondents were in overwhelming agreement (89%) with the need to compute both the costs and the benefits. Both the administration (96%) and staff support (95%) leadership groups showed a high response rate at the "Agree" and "Strongly Agree" levels. The department chairs were in agreement 85% of the time, with 15% responding as neutral. The Chi Square value of 12.706 was less than the Critical Value; therefore, no additional tests were required. Table 19 illustrates the responses to survey item N.

Table 19

Summary of Results with Chi Square Value for Survey Item N (N=168; 2 missing): Both costs and benefits of distance education courses should be computed to determine the cost-effectiveness of distance education courses.

Leadership Group	n	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Administration	46	17 37%	27 59%	2 4%	0	0
Department Chairs	94	27 29%	34 36%	14 15%	0	0
Staff Support	28	9 32%	18 64%	0	1 4%	0
Total	168	53 31%	77 46%	16 10%	1 1%	0
Chi Square = 12.706						Critical Value = 15.507

Comparison of Cost Structures

Survey item O stated that cost structures for distance and traditional education were so different that it would be difficult to compare the two delivery systems. While only a few strongly agreed (1%) or strongly disagreed (4%) with this statement, the remaining respondents were evenly split between "Agree," "Neutral," and "Disagree." More department chairs agreed with the statement (37%) than the other leadership groups. Conversely, more administrators (48%) disagreed with the statement than the remaining leadership groups.

The Chi Square value for this survey item was 10.906, not significant when compared to the Critical Value of 15.507; therefore, no additional tests were required. The specific information for survey item O is listed in Table 20.

Table 20

Summary of Results with Chi Square Value for Survey Item O (N=168; 2 missing): Cost structures of distance and traditional education are so different that it is difficult to compare the two delivery systems.

Leadership Group	n	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Administration	46	0	14 30%	10 22%	19 41%	3 7%
Department Chairs	95	1 1%	34 36%	33 35%	25 26%	2 2%
Staff Support	27	1 4%	5 18%	11 41%	8 30%	2 7%
Total	168	2 1%	53 32%	54 32%	52 31%	7 4%
Chi Square = 10.906					Critical Value = 15.507	

Cost-Effectiveness for Staff Development

The next survey item addressed the cost-effectiveness of distance education technologies for staff training and development. Overall, 72% of those surveyed agreed with the statement, while 26% responded as neutral, and 2% disagreed with the statement. The administration had the highest percentage of agreement at 87%, with the remaining people responding as neutral. Department chairs agreed 77% of the time, and the staff support group selected "Strongly Agree" or "Agree" in 67% of their responses. Even though the staff support group had the lowest level of agreement, none were in disagreement.

The Chi Square value of 13.968 indicated that there was not a significant difference in the responses among the three leadership groups. No additional tests were required. Table 21 provides a complete analysis of survey item P.

Table 21

Summary of Results with Chi Square Value for Survey Item P. (N=167; 3 missing): Distance education technologies can be cost-effective for staff training and development.

Leadership Group	n	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Administration	46	19 41%	21 46%	6 13%	0	0
Department Chairs	94	18 19%	34 36%	28 30%	3 3%	0
Staff Support	27	4 15%	14 52%	9 33%	0	0
Total	167	41 24%	77 46%	43 26%	3 2%	0
Chi Square = 13.968						Critical Value = 15.507

Benefit to Faculty, Staff, and Students

The final item in the cost-effectiveness portion was to determine the leadership's perception of distance education technology as a benefit to faculty, staff, and students. Overall, 77% of those surveyed agreed that distance education technologies were of benefit to faculty, staff, and students, and only 6% disagreed. The remaining 21% of those surveyed responded as neutral.

When comparing the three groups, there was a significant difference within the levels of agreement. While 96% of the administration agreed that distance education technologies would be of benefit to faculty, staff, and students, only 64% of the department chairs and 67% of the staff support were in agreement with the statement. Both the department chairs and support staff groups listed "Neutral" more than 25% of the time, as opposed to only 4% of the administration being neutral. Nine percent of the department chairs disagreed with the statement (see Table 22 for a detailed analysis).

The Chi Square value was 33.292, significantly higher than the Critical value of 15.507. The Residuals for each group were computed and they verified that the significant differences were between the administration and the other two groups in the strongly agree and neutral categories (see Table 23 for the specific Residual values).

Survey participants responded to 16 questions and statements about their awareness and perception of distance education. These sixteen items were designed to answer research questions one and two, relating to the planning, curricular, and cost-effectiveness issues of distance education. Table 24 summarizes the results for each of

Table 22

Summary of Results with Chi Square Value for Survey Item Q (N=167; 3 missing): The investment in distance education technologies is a benefit to faculty, staff, and students.

Leadership Group	n	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Administration	46	29 63%	15 33%	2 4%	0	0
Department Chairs	93	21 23%	34 36%	25 27%	8 8%	1 1%
Staff Support	28	6 21%	13 46%	8 29%	1 4%	0
Total	167	56 33%	66 40%	35 21%	9 5%	1 1%
Chi Square = 33.292						Critical Value = 15.507

Table 23

Standard Residuals for Survey Item Q

Chi Value = 33.292					Critical Value = 15.507
Leadership Group	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Administration	3.5	-0.7	-2.7	-1.6	-0.5
Department Chairs	-1.9	0.2	1.4	1.3	0.6
Staff Support	-1.1	0.6	0.9	-0.4	-0.4

the questions and statements. The table compares the Chi Square value to the commensurate Critical Value and identifies whether or not there was a significant difference between the three leadership groups involved in this study. Only three of the sixteen survey items (H, M, & Q) showed a statistically significant difference when tested at the 0.05 alpha level.

Table 24

Summary of Survey Items A, B, C, D, F, G, H, I, J, K, L, M, N, O, P, and Q with Determination of Significance

Survey Items	Chi Square	Critical Value	Significance at Alpha Level 0.05
Section I: Distance Education Planning			
A. Is there a need for distance education courses at your college?	4.383	5.991	No Significant Difference
B. Has there been a market analysis to determine the need for distance education?	0.817	5.991	No Significant Difference
C. Would the mission of your college be well served through the implementation of distance education courses?	5.498	5.991	No Significant Difference
D. Are there any policies or regulations that might serve as barriers to the success of distance education courses?	3.854	5.991	No Significant Difference
F. Should distance education courses be evaluated differently than traditional courses?	1.224	5.991	No Significant Difference
Section II: Distance Education Curricular Issues			
G. There are no significant differences in academic performance for students in distance education courses and non-distance classroom courses.	4.031	15.507	No Significant Difference
H. Distance education technologies will cause faculty to make changes in teaching patterns.	20.419	15.507	Significant Difference

Table 24---Continued

I. The interaction between faculty and students is limited with distance education courses.	12.24	15.507	No Significant Difference
J. The nationally marketed, prepackaged courses are equal in quality to the courses prepared by the faculty on our campus.	14.501	15.507	No Significant Difference
K. Incentives are needed to encourage faculty to participate in teaching distance education courses.	5.255	15.507	No Significant Difference
L. Teaching distance education courses requires additional time for preparing and planning lessons.	9.447	15.507	No Significant Difference
Section III: Distance Education Cost-Effectiveness			
M. Distance education courses can be cost-effective.	30.275	15.507	Significant Difference
N. Both costs and benefits of distance education courses should be computed to determine the cost-effectiveness of distance education courses.	12.706	15.507	No Significant Difference
O. Cost structures of distance and traditional education are so different that it is difficult to compare the two delivery systems.	10.906	15.507	No Significant Difference
P. Distance education technologies can be cost-effective for staff training and development.	13.968	15.507	No Significant Difference
Q. The investment in distance education technologies is a benefit to the faculty, staff, and students.	33.292	15.507	Significant Difference

Campus Awareness

The survey included three questions to determine the awareness levels of the current status of distance education at the seven campuses. The results of these questions provided data in support of the third research question: What are the awareness levels of the leadership role groups at the seven TSTC colleges regarding the current status of distance education courses offered and received at their respective colleges? The intent of the third research question was only to assess the current awareness levels and not the specific differences; consequently, there were not any statistical tests required as there were for the previous two research questions.

One question asked those surveyed if they knew whether or not their campus produced any distance education courses. Another question asked survey participants if their campus received any distance education courses. Finally, the participants were asked how the distance education courses produced or received on their campus were administered. The specific results are presented, by campus, in the following pages. Data tables are included when there was a mixed response to the questions.

Abilene

All of those surveyed at the Abilene campus responded that they were aware of the fact that their campus was producing and receiving distance education courses. Additionally, nine of the people from the Abilene campus (1 missing) were also aware that distance education courses at their campus are administered through the same department that handles the on-campus courses. Since the Abilene responses were consistent, no tables were necessary to further illustrate the range of responses.

Breckenridge

Of the seven responses received from Breckenridge, six stated that their campus did not produce any distance education courses. There was one "Yes" response. With regard to receiving distance education courses, all seven participants were aware that the Breckenridge campus was receiving courses.

When asked how courses were administered, four of the seven responded that the courses were handled through the same administrative unit as for the on-campus courses. Two responded that the administration was handled through some other department and the final response identified the courses as administered through a distance education department/division. Table 25 for Breckenridge aptly shows the variety of responses about which department manages the distance education courses.

Table 25

Summary of Results for Survey Item E for the Breckenridge Campus (n=7; 0 missing): If your college has distance education courses, how are they administered?

Response Options	Adminis-tration	Department Chairs	Staff Support	Total
Through a distance education department/division.	0	0	1	1
Through a continuing education department/division.	0	0	0	0
Through the same administrative units as the on-campus courses and programs.	2	2	0	4
Other	0	2	0	2
Total	2	4	1	7

Brownwood

The eight survey participants at the Brownwood campus provided a mixed response to the question about producing distance education courses. There were two "Yes" responses; four stated "No", and one did not know. With regard to receiving courses, all of the Brownwood respondents indicated "Yes." Their responses as to how the distance courses were administered were also consistent, with all but one person stating that distance courses were administered through the same unit as for on-campus classes. Table 26 illustrates the variety of responses for the Brownwood campus concerning the production of distance education courses. No other tables were required for the Brownwood campus.

Table 26

Summary of Results for Survey Item V for the Brownwood Campus (n=8; 0 missing): Does your campus produce any distance education courses?

Leadership Group	n	Yes	No	I Don't Know
Administration	2	1	1	0
Department Chairs	5	0	4	1
Staff Support	1	1	0	0
Total	8	2	5	1

Harlingen

According to an informal e-mail/telephone survey of the seven TSTC campuses in May 1997, the Harlingen campus was not yet producing or receiving any distance education courses, nor did they have any immediate plans to do so (Knue, 1997). However, nine responses from Harlingen (n=47) indicated that "Yes," they were

producing courses and eight stated "Yes" to receiving them. The remaining responses were nearly equally split between "No" and "I Don't Know." About one third also identified which administrative unit was responsible to manage the courses. Tables 27 and 28 illustrate the Harlingen survey results for the questions regarding producing and receiving distance education courses. No chart was required for survey item E, regarding which department administered the courses, because the survey responses were not valid in this case.

Table 27

Summary of Results for Survey Item V for the Harlingen Campus (n=47; 0 missing): Does your campus produce any distance education courses?

Leadership Group	n	Yes	No	I Don't Know
Administration	10	3	7	0
Department Chairs	29	3	10	16
Staff Support	8	3	2	3
Total	47	9	19	19

Table 28

Summary of Results for Survey Item W for the Harlingen Campus (n=47; 0 missing): Does your campus receive any distance education courses?

Leadership Group	n	Yes	No	I Don't Know
Administration	10	4	5	1
Department Chairs	29	3	10	16
Staff Support	8	1	4	3
Total	47	8	19	20

Marshall

The Marshall leadership appeared to be well aware that their campus did not produce or receive any distance courses. All responses were "No" except for a single "I Don't Know." Appropriately, no one responded to the question about which department administered the distance courses. No tables were required for the Marshall data.

Sweetwater

Leadership groups at Sweetwater were also very consistent in their answers concerning producing and receiving distance education courses. All 24 respondents knew the campus produced distance education courses and, 22 of 24 of those surveyed knew the campus received them. The remaining responses were "I Don't Know." With regard to which department administered the courses, all but two respondents were aware that it was the same department as handled the on-campus courses. No tables were required to illustrate the Sweetwater campus data.

Waco

The survey responses from the Waco campus yielded a mixed response. Even though the Waco campus produced a limited number of distance courses at the time of the study (Knue, 1997), only about two thirds of the leadership were aware of it. The remaining responded as either "No" or "I Don't Know." Equally as mixed were the responses to receiving courses. Just over half stated "Yes" while most of the remaining participants were unsure. There was also a variety of responses to the question of which department administered the distance education courses. Tables 29, 30, and 31 provide specific information for the Waco campus responses.

Table 29

Summary of Results for Survey Item V for the Waco Campus (n=63; 0 missing): Does your campus produce any distance education courses?

Leadership Group	n	Yes	No	I Don't Know
Administration	19	13	4	2
Department Chairs	30	21	2	8
Staff Support	13	7	3	3
Total	63	41	9	13

Table 30

Summary of Results for Survey Item W for the Waco Campus (n=63; 0 missing): Does your campus receive any distance education courses?

Leadership Group	n	Yes	No	I Don't Know
Administration	19	8	3	8
Department Chairs	32	19	1	12
Staff Support	12	5	3	4
Total	63	32	7	24

Summary

The data analysis presented here provided a basis for developing the conclusions and recommendations that follow in the next chapter. All 170 usable surveys were analyzed and the respective information was discussed in narrative form and presented in tables when appropriate. The five sections of this chapter provided an in-depth look at the campus leadership response rates, the characteristics of the survey population, and the specific findings for the study's three research questions.

Table 31

Summary of Survey Item E for the Waco Campus (n=63; 12 missing): If your college has distance education courses, how are they administered?

Response Options	Adminis-tration	Department Chairs	Staff Support	Total
Through a distance education department/division.	11	11	4	26
Through a continuing education department/division.	1	1	0	2
Through the same administrative units as the on-campus courses.	5	11	4	20
Other	0	2	1	3
Total	17	25	9	51

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The purpose of this chapter is to summarize the purpose, literature, methodology, procedures, and results of this study. On the basis of the results, conclusions and recommendations are provided in support of the following research questions:

1. Are there differences in the levels of awareness and perception among the leadership role groups at the seven Texas State Technical College (TSTC) colleges regarding distance education planning?

2. Are there differences in the levels of perception among the leadership role groups at the seven TSTC colleges regarding distance education curricular issues and distance education cost-effectiveness?

3. What are the awareness levels of the leadership role groups at the seven TSTC colleges regarding the current status of distance education courses offered and received at their respective colleges?

Summary

The purpose of the study was to determine if there are differences in the levels of awareness and perception concerning distance education by the leadership at the seven TSTC campuses. This study was necessary to provide the TSTC System with information related to the planning and implementation of distance education. The

review of related literature clearly outlined the support of distance education planning, curricular, and cost-effectiveness issues at the college level.

The only method used to gather information to form conclusions was a survey of the leadership at the seven campuses. A previously designed survey instrument (Appendix C) was located and permission was received to use it in this study (Appendix B). The survey participants (N=170) constituted the entire population of those in leadership positions who would be responsible for planning and implementing distance education at their respective campuses.

The survey instrument was divided into four sections: (a) planning, (b) curricular issues, (c) cost-effectiveness, and (d) background information, including demographics. The survey was administered to the three categories of campus leadership: (a) administration, (b) department chairs, and (c) staff support.

To determine if there were statistically significant differences in the levels of awareness and perception among the various leadership groups, a Chi Square value was calculated for each of 16 survey items. If the Chi Square value exceeded the Critical Value, a statistically significant difference was considered to be present. When a significant difference was present, the Residuals were calculated to determine which groups had the greatest difference. The following portions of this chapter include the conclusions and subsequent recommendations drawn from the findings.

Conclusions

Distance education surveys were mailed to 213 administrators, department chairs, and staff support personnel at the seven TSTC campuses. Valid responses were received

from 170 personnel for a usable return rate of 80%. The administrative group had the highest rate of return at 88%. The staff support group was next with 82%, and the departments chairs returned 76% of their surveys.

Of the 16 survey items that measured the differences in awareness and perception of distance education planning, curricular issues, and cost-effectiveness (research questions one and two), only three items resulted in a statistically significant difference among the leadership groups. And, even when significant differences were present, a closer evaluation determined that they were based on the difference in levels of agreement ("Strongly agree" compared to "Agree") and not a conflict resulting from agreement versus disagreement.

With regard to research questions one and two, it is the conclusion of this study that there is very little difference among the TSTC leadership in the levels of awareness and perception about distance education. The conclusion for research question three was that the leadership at only three of the seven campuses (Abilene, Marshall and Sweetwater) showed a high degree of awareness regarding the current status of distance education on their campus. The results indicated inconsistent to low levels of awareness at the remaining four colleges.

Planning for and implementing distance education will require knowledgeable and experienced leaders at all decision-making levels. The TSTC leadership displayed a solid background in education, with 66% of those surveyed having ten or more years working experience at institutions of higher education. The survey population also demonstrated a

high level of on-the-job experience at their current positions, with over one-half (54%) having five or more years experience in their current job.

The conclusions of this study were based on the data collected from the distance education survey and are assumed to be characteristic of the leadership at the seven TSTC campuses. The specific conclusions for each survey item are reported in the following three sections of this chapter: (a) distance education planning, (b) distance education curricular issues and cost-effectiveness, and (c) distance education current awareness.

Distance Education Planning

The survey included five questions specifically requesting information about the leadership's awareness and perception of distance education planning. A Chi Square value was computed for each set of responses and compared to a Critical Value based on two degrees of freedom. In none of the five cases did the Chi Square value indicate that there was a significant difference among the three leadership groups in the levels of awareness and perception about distance education planning. Specific conclusions and discussion for each of the first five questions are included below.

Need for distance education. Survey participants were asked if they felt that there was a need for distance education at their college. The overwhelming response from all three of the leadership groups was in favor of distance education. The overall response was 83% in support of distance education and only 3% opposed. The remaining 14% of those surveyed responded as neutral.

There was not a significant difference in the leadership's awareness or perception of the need for distance education. In all three groups, the number in support of distance

education was at least three-fourths of the population surveyed and only five of the department chairs responded negatively. Furthermore, the population's responses coincided with the literature. For example, the Texas Higher Education Coordinating Board (1995a) found that more institutions are participating in distance education than ever before. Additionally, TSTC's views were consistent with predictions made by the Carnegie Commission on Higher Education which estimated that by the end of the century, at least 80% of the off-campus instruction delivered by colleges would be through the use of emerging technologies (as cited in Buckland & Dye, 1991).

Market analysis. To determine if any attempts had previously been made to assess students' needs, the survey asked participants if there had been a market analysis to determine if there was need for TSTC colleges to offer distance education. Only 11% of the total population stated that a survey had been done. Another 20% responded that a survey for their campus had not been accomplished. The majority of respondents (69%) did not know if a market analysis had or had not been accomplished.

There was not a significant difference among the three leadership groups for the market analysis survey item. Even though more of the administration seemed to be aware of whether or not a survey had been completed, the proportion of "Yes" and "No" responses was similar. Additionally, in all three of the groups, the percentage of "I Don't Know" responses exceeded 50%.

Even though the literature indicated a market for distance education (Buckland & Dye, 1991; Teletraining Institute, 1996; THECB, 1996b), only a market analysis can actually determine the learning audience's needs (Wagner, 1995). Without a market

analysis to verify the need for distance education, TSTC campuses could invest valuable resources into courses or programs which may not be in demand. A needs analysis would provide that important first step in designing planned distance learning experiences (Rothwell & Sredyl, 1987).

The college mission. The survey population was also asked if the college's mission would be well served by the implementation of distance education. The responses to this question were nearly the same as in the need for distance education. In this case, 82% responded in the affirmative to distance education meeting the mission of the college, and only 5% of the total survey population responded that the mission would not be served.

As with the first survey question concerning the need for distance education, there was not a significant difference in the awareness or perception regarding distance education's relationship to the college's mission. Approximately three-fourths or more in each leadership group believed distance education would support TSTC's mission, and no more than 8% in any sub-group responded negatively.

The views of the majority of TSTC's leadership support the Coordinating Board's Master Plan for Higher Education (THECB, 1995b) in stating that all institutions should provide for increased student access through the use of technology. Additionally, the college mission would be well served through the potential increase in female enrollment as supported by the research of Rose (1995) and Coon (1996).

Policies and regulations. In the fourth survey question, the leadership was polled regarding policies or regulations that might serve as barriers to the success of distance education courses. The majority (57%) of the respondents were unsure if current policies

or regulations might hinder the success of distance education. About one-third (32%) of the people surveyed felt that there would be problems, and only 11% indicated that they believed there would be no barriers. According to the Chi Square value, there was not a significant difference among the three groups in their responses to this question. This may have been due to the high number from each group (30-64%) who responded that they did not know if there were policies or regulations that might serve as barriers to the success of distance education courses.

The survey participants were also asked to list any of those policies that they believed would serve as barriers to the success of distance education courses. Table 8 in Chapter Four provides a listing of their responses. The Texas Higher Education Coordinating Board course approval processes, rules, and regulations were identified as possible barriers three times more often than the next most prominent responses.

The next four most prominent responses were: (a) the access to and administration of lab work, (b) admission requirements, (c) relationships with other community colleges, and (d) cost. Regulation of these four circumstances is primarily under the auspices of the administration of the respective TSTC campus. Maxwell (1995) indicated that one of the most significant barriers to distance education has been the tendency for colleges to remain locked into the conventional methods that hinder the opportunity for students to pursue distance education.

Evaluation. The final question relating to distance education planning asked whether or not distance courses should be evaluated differently from traditional courses. The literature review did not provide a definitive approach to evaluating distance

education programs. Even though some literature pointed to specific evaluation of distance programs (Gibson & Gibson, 1995; THECB, 1996b), much of the literature emphasized that the evaluation of distance education programs should be part of the overall curriculum evaluation process (Phillips, 1991; Albrecht & Bardsley, 1994; Eastmond, 1994).

The results of the survey seemed to indicate that the TSTC leadership was more in favor of an independent evaluation process for distance education. Nearly half (47%) of those surveyed stated that distance education should be evaluated differently from traditional courses while just over one fourth (27%) were unsure. The remaining 26% agreed with some of the literature, in that distance education should not be evaluated differently than traditional courses. Among the three groups there was not a significant difference in the responses, as 43-58% was the range of those responding "Yes" to the question.

In summary, there was not a statistically significant difference among the three leadership groups in the levels of awareness and perception of distance learning planning at the TSTC colleges. There were, however, some differences with the results of the literature review and a significant percentage of respondents who answered "I Don't Know" to some of the survey questions. These two issues will be addressed in the recommendations.

Curricular Issues and Cost-Effectiveness

Sections two and three of the survey consisted of six items regarding curricular issues and five items considering the cost-effectiveness of distance education. There

were five possible responses for each survey item, ranging from "Strongly Agree" to "Strongly Disagree." The midpoint value was designated for neutral responses. A Chi Square value was also computed for each of the Likert items and compared to a Critical Value based on eight degrees of freedom. The findings indicated that there were differences among the groups for only three of these eleven survey items. The conclusions and related discussion follow below.

Academic performance. There was not a significant difference in the levels of perception among the three groups regarding the academic performance of students in distance learning classrooms. Less than half (42%) of the leadership agreed that there was no difference in the academic performance for students in distance learning, and one fourth (25%) disagreed. The remaining 33% were neutral.

The TSTC leadership's perceptions were not well-supported by the literature since there were many references to indicate that student academic performance in distance classrooms has equaled or exceeded that of the traditional classroom (Heinich et al., 1993; Mortensen, 1995; Hubbard, 1995, THECB, 1996b; Hanson et al., 1997). However, should the 33% of those who responded "Neutral" accept the findings in the literature on academic performance, the balance would shift significantly to the positive side.

Changes in faculty teaching patterns. According to the Chi Square value, there was a significant difference among the three groups regarding the need for faculty to change their teaching patterns. However, this may prove to be misleading when more closely examined. For example, all three groups agreed in the majority of cases (84.5%) that changes were necessary. The range of overall agreement was from 82% to 89%. The

actual differences were confined to the variances between "Agree" and "Strongly Agree." Many more administrative leaders (57%) strongly agreed with the statement than did department chairs (37%), and much more of the staff support (79%) chose "Agree" than did department chairs (45%) or administration (30%). The number in disagreement ranged from 7-10%, and the neutral responses accounted for 6.5% of all survey responses.

It appears safe to assume that even though the Chi Square value indicated a statistically significant difference, all three groups were actually in agreement that faculty will need to make some changes to their teaching patterns. This conclusion is strongly supported by the literature. Numerous studies have provided support for the need for faculty to make changes in their teaching patterns for distance education instruction (Lacy & Wolcott, 1988; Willis, 1993; Thach & Murphy, 1995b; Dyrli & Kinnaman, 1996).

Faculty-student interaction. There was not an overall significant difference in the responses regarding faculty-student interaction. There was, however, a wide range of responses, with a slight majority (55%) agreeing that faculty-student interaction would be limited. Only one fourth of those surveyed believed it would not be limited.

The wide range of responses appeared to coincide with the literature in this area. For example, studies by Souder (1993), Dooley & Gruele (1995), and Granger and Benke (1995) seemed to indicate that the amount of interaction was more dependent on the actions of the faculty member and the curriculum planning than it was a result of the technology. The wide range of responses may have resulted from differences in individual styles and preferences and not from the impact of technology, as reported by Wagner (1995).

Prepackaged courses. Even though the Chi Square value for the prepackaged courses was nearly as high as the Critical Value, the differences among the three leadership groups were not considered significant. The reason for the high Chi Square value may have been that just over one half of the respondents selected "Neutral" on this survey item. The differences between the faculty and administration were not as varied as those of the staff support group. Only 10% of those surveyed agreed that prepackaged programs were equal in quality to those prepared by the TSTC faculty. Another 38% disagreed with the statement. The lack of knowledge and experience regarding prepackaged courses may have led to over one half of the respondents choosing "Neutral" and the other one third being in disagreement.

Incentives. There was not a significant difference in the leadership's perception of whether or not incentives would be needed to encourage faculty to participate in teaching distance education courses. In fact, both the administration (78%) and staff support (81%) groups showed a slightly higher level of support (agreement) for faculty incentives than did the department chairs. The range of disagreement followed a similar pattern, with only 8% of the department chairs disagreeing, and administration and staff support selecting disagreement in 11% and 14% of the surveys, respectively.

The survey responses in support of faculty needing incentives for distance learning also agreed with the literature. Reports, ranging from lessons learned (Sedlak & Cartwright, 1997) to actual Texas Higher Education Coordinating Board (1996b) recommendations, indicated that the success of distance education programs could hinge on the matter of faculty compensation. These same studies have also pointed out that

institutions vary widely in their policies regarding compensation for faculty participating in distance education.

Faculty preparation time. Even though the percentage of department chairs (82%) who believed faculty would need more time to prepare lessons for distance education courses was somewhat higher than the administration (67%) or staff support (71%) groups, there was not a statistically significant difference among leadership groups' responses according to the Chi Square value. The department chairs also had the lowest level of disagreement with the statement (7%).

In general, just over three fourths (76%) of the leadership agreed with the literature. Studies by Laney (1996) and Ridley-Smith (1996) identified the need for additional preparation time for faculty to effectively plan instruction for distance education courses. Furthermore, the Texas Higher Education Coordinating Board (THECB 1996b) made recommendations similar to Ridley-Smith regarding course development and release time for faculty.

Of the six survey items examining the perceptions of the leadership on curricular issues, only one showed a significant difference between the groups. In the significantly different item, changes in faculty teaching patterns, the overall perceptions were found to be more closely aligned than the data indicated.

Cost-effectiveness of distance education courses. The first survey item concerning cost-effectiveness sought simply to determine if leadership felt distance education would or would not be cost-effective. Even though 72% of those responding felt distance education could be cost-effective, there was a significant difference in their levels of

agreement. The administrative group responded "Strongly Agree" in 43.5% of the cases, whereas the department chairs and staff support groups strongly agreed in 16% and 4% of the cases, respectively. The staff support group had a significantly higher percentage (78%) of "Agree" responses than did the administration (43.5%) or the department chairs (46%). There was also a large difference between the administration and department chairs in "Neutral" responses. The department chairs were neutral 34% of the time, and administration in only 13% of their responses.

The overall high agreement (72%) with distance education being cost-effective is supported by numerous studies, including Moore (1993), Thach and Murphy (1995a), and The Teletraining Institute (1996). However, the overall question of cost-effectiveness has yet to be fully validated by the literature.

Costs and benefits comparison. There was not a significant difference in the levels of perception regarding the computation of costs and benefits for distance education. The large majority (89%) of all three groups believed that both costs and benefits should be computed to determine the overall cost-effectiveness of distance education.

The overall agreement by the leadership in comparing both costs and benefits is well supported by the literature (Mortensen, 1995; Multimedia Training, 1995; Chandra, 1996). The literature also supports the TSTC System's potential to capitalize on distance education by distributing its expertise in otherwise scarce program options such as lasers and semiconductors as a cost to benefit option.

Comparisons of cost structures. In the realm of comparing the cost structures of distance education with traditional courses, the leadership did not show a significant

difference in its responses. There was a wide and near equally-divided range of beliefs when considering all three groups' responses. Thirty-three percent agreed that distance education cost structures were too different to compare, while 32% were neutral and 35% disagreed. When comparing the individual groups, the range was also divided evenly though not as equally.

These results for this survey item corresponded closely with the literature. The literature showed that cost structures between distance and non-distance methods are difficult to compare (Threlkeld & Brzoska, 1994; THECB, 1996b). However, just as some respondents believed, there have been instances where cost comparisons have been made (Hubbard, 1995).

Cost-effectiveness for staff development. There was a higher number of administrators who believed that distance education could be cost-effective for staff training and development; however, the difference was not enough to be considered significant when comparing the Chi Square value to the Critical Value. Overall, 72% of those responding believed that distance education was a cost-effective method for staff training and development, with only 2% in disagreement.

According to the literature, there may not yet have been enough research to verify whether or not distance learning can be a cost-effective method for staff development. There were only a few references that effectively compared cost structures to the effectiveness of staff training using distance technologies (Weitman, 1993; Timura, 1996). The fact that nearly three fourths of the TSTC leadership believed it could be a

cost-effective method for staff development may indicate a willingness to utilize the technology in hopes that it would prove to be cost-effective.

Benefit to faculty, staff, and students. The final cost-effectiveness survey item sought to determine if the investment in distance education was considered to be of value to faculty, staff, and students. The results yielded a significant difference in the levels of perception by the three leadership groups. Even though 73% of all those surveyed agreed that the investment in distance education would be a benefit, the percentage of agreement at the administrative level (96%) was significantly higher than for department chairs (63%) and staff support (77%). The significant disagreement was most evident in two areas. First, the administration (63%) had a much higher percentage of respondents who strongly agreed than did the department chairs (23%) and the staff support group (21%). Secondly, only 4% of the administrative leadership were neutral in their response to this item, versus 27% and 29% for the other leadership groups. Only 6% of the total population disagreed with the statement. If the majority of those responding as neutral were to move to the agreement side, this item would receive overwhelming support.

The literature supported the 73% of those surveyed who agreed that the investment in distance education could be a benefit to faculty, staff, and students. Studies by Menges (1994), Cartwright, (1995), Dyrli and Kinnaman (1996b), and The Teletraining Institute (1996) all identified situations where faculty, staff, and students derived benefit from distance education courses. The faculty and staff can gain from the expanded access to formal education, leading to improved curriculum, instruction, and support for the students.

Of the five survey items regarding cost-effectiveness, two showed a statistically significant difference among the responses of the leadership groups. However, just as with the earlier significant difference, the division appeared to be more a matter of difference in the levels of agreement than it did as an issue of agreement versus disagreement among the groups.

Campus Awareness

Three of the survey items were designed to assess the leadership's awareness regarding the current status of distance education at their respective campus (research question three). Each person surveyed was asked if his or her campus produced or received any distance education courses, and if so, how they were administered. The conclusions for the third research question follow here. They are organized in alphabetical order by campus.

Abilene. The awareness level at the Abilene campus was high, based on the following results. All 10 people surveyed at the Abilene campus were aware that the campus produced and received distance learning courses. Nine (1 missing) of those responding were also aware that the courses were administered through the same unit as the on-campus courses.

Breckenridge. The awareness level at the Breckenridge campus regarding the current status of producing and receiving distance education was inconsistent. Six of the seven people surveyed knew that the campus did not produce any courses and all seven were aware that the campus was currently receiving distance education courses. However, the responses concerning how the courses were administered showed some

inconsistencies. As Table 25 in Chapter Five illustrated, there were differing opinions as to which department administered the distance education courses.

Brownwood. The awareness level concerning the current status of distance education was also inconsistent at the Brownwood campus. Even though all of those surveyed (n=8) were aware that the campus received distance education courses, only two were aware that courses were also produced from that location (Knue, 1997). Seven of the eight responses from Brownwood did know that the distance education courses were administered by the same department that handled the on-campus courses.

Harlingen. According to a telephone and e-mail survey accomplished in May, 1997, the Harlingen campus was not producing or receiving any distance courses and had no immediate plans to do so (Knue, 1997). However, when asked about producing and receiving distance courses, 9 of the 47 people surveyed said "Yes," their campus was producing courses and 8 stated that the campus was receiving distance education courses. All of the remaining responses were evenly divided between "No" or "I Don't Know." Additionally, 17 of the Harlingen survey participants identified which department was administering the distance learning courses. These 17 responses also varied as to which department was responsible for administering the courses. It seemed evident that many of the Harlingen leaders were not fully aware of their campus' current status regarding distance education.

Marshall. The leadership at the Marshall campus was fully aware of its current distance education status. All 11 people surveyed knew that the campus did not produce any courses, and 10 of the 11 were aware that the campus did not receive any.

Appropriately, no one at Marshall answered the question (survey item E) concerning how the distance learning courses were administered.

Sweetwater. With only two exceptions, the awareness level of distance education at the Sweetwater campus was high. All of those surveyed (n=24) knew the campus produced distance education courses, and most of those surveyed (22 of 24) were aware that the campus was receiving courses. The remaining two responses were "I Don't Know." All but one respondent (missing) at the Sweetwater campus was aware that distance learning courses were handled by the same administrative unit as on-campus courses.

Waco. The results from the Waco campus indicated inconsistencies in the leadership's awareness of the status of distance education at that location. Of the 63 people responding, two thirds (41) were aware that Waco was producing distance courses while nine stated "No." Even though Waco was not yet receiving any courses at the time of the survey, just over half (32 of 63) stated "Yes" to that question in the survey, and only seven listed "No." In both cases, "I Don't Know" was the second highest response. The Waco responses demonstrated the same inconsistent level concerning which department administered the distance education courses (see Tables 29, 30 and 31 for specific findings).

Of the seven campus surveyed, only three, Abilene, Sweetwater, and Marshall, demonstrated a high level of awareness with regard to their current status of producing and receiving distance education courses. The awareness levels at the remaining four campuses were either low or inconsistent, with much of the leadership appearing

uniformed or misinformed about the current status of producing and receiving distance education courses.

Recommendations

The results of this study have determined that there is very little difference in the levels of awareness and perception by the TSTC leadership with regard to distance education planning, curricular issues, and cost-effectiveness. The study has identified, however, the need for some specific actions to be taken by the college leadership to improve the levels of awareness and perception of distance education and subsequently enhance the implementation of distance education programs and courses. The following seven recommendations have been made as a result of this study:

1. First and foremost, there is a need to conduct a distance education market analysis for either the entire TSTC System or, at a minimum, one for each of the campuses which has not yet done so. Even though there appears to be a need for distance education, it is essential to determine what programs or courses are actually in demand and should be offered. This study has determined that each of the seven TSTC campuses is currently offering distance education courses or has plans to do so in the near future. However, not all campuses have yet identified which programs and courses are in demand by potential students. In the instances where a market analysis has already been accomplished, administration needs to ensure that all those serving in a leadership positions are aware of the results of the analysis.

2. It is recommended that the Breckenridge, Brownwood, Harlingen, and Waco campuses improve their campus communication processes to better inform the leadership,

and all employees, of their current status regarding offering and receiving distance education courses and how those courses are administered. The study identified numerous inconsistencies as well as low levels of awareness regarding the current status of distance education at these four campuses.

3. The third recommendation is for the TSTC campuses to develop specific policies and procedures concerning faculty training, preparation time, and compensation or incentives for participation in distance education. The supporting literature has identified the probability that faculty teaching patterns will need to change for them to be effective in a distance education classroom. The results of the survey indicated that there were differences in perception regarding the need for changes in the faculty teaching patterns; consequently, these differences should be addressed. The literature as well as the results of the study have also indicated that faculty preparation time will be impacted, most likely requiring faculty release time, additional compensation, or both.

4. It is recommended that all TSTC policies and procedures be reviewed to determine if any of the current regulations will need to be amended so as not to serve as a barrier to the success of distance education courses. Additionally, the Texas Higher Education Coordinating Board policies and processes for course approval should also be reviewed to determine how to best avoid any potential barriers to the success of distance education.

5. Recommendation five is to determine how distance education courses are to be evaluated as compared to traditional courses. The literature does not indicate a clear

preference for the type of distance education course evaluation, only that evaluation needs to be an integral part of the planning process, regardless of which method is selected.

6. It is recommended that an additional study be conducted to determine the feasibility of developing, or purchasing, and offering prepackaged courses as a method of distance education. The results of this study indicated that over half of the leadership was unsure of the value of using prepackaged courses.

7. Finally, it is recommended that a process be devised to evaluate the cost-effectiveness of the distance education programs for TSTC. Two of the five survey items showed a significant difference in the levels of awareness among the leadership regarding the cost-effectiveness of distance education. The literature indicated more research is necessary for determining the actual cost-effectiveness of distance education as a means of offering college courses.

APPENDIX A

SAMPLE ANNOUNCEMENT LETTER TO

CAMPUS PRESIDENT/DEAN

September 2, 1997

Fred Williams, Ed.D.
President
Texas State Technical College
3801 Campus Drive
Waco, TX 76705

Dear Dr. Williams:

As you are aware, the Interim Chancellor has granted me permission to conduct a System-wide survey of the TSTC leadership to determine the levels of awareness and perception regarding distance education (see attached letter). The research will aid me in completing my doctoral dissertation at the University of North Texas and will also serve as a benchmark for TSTC in regards to distance education planning and implementation. I will provide a copy of the research to your office upon completion--projected for Spring 1998.

The survey will include about 70 members of the Waco campus--administrators, department chairs and assistants, and key staff positions. The anonymous survey contains 23 items and will take only about 10-15 minutes to complete. This survey has already been validated in previous research and was pilot-tested in August at the Marshall campus.

I anticipate conducting the survey in the last two weeks of September. There should not be any disruption or expense to the Waco campus. If this would be a problem, please contact me at extension 3302.

Thanks in advance for your support in this project, and I hope you will encourage those identified above to participate.

Sincerely,

John Knue
Staff Development Officer

(Actual letters prepared on TSTC letterhead.)

APPENDIX B

SURVEY PERMISSION LETTER

Administrative Services
1701 East Front St.
Traverse City, Michigan 49686
Phone 616-922-1045
Fax 616-922-1541

May 21, 1997

John Knue
816 E. Ward
Waco, Texas 76706

Dear John:

I appreciated your phone call yesterday and have enclosed a complete copy of the dissertation, and also a copy of the survey instrument. Please feel free to use the instrument or amend it in whatever ways that would be most appropriate for you.

I hope that this information will be of help to you. If I can be of any assistance, please let me know. Good luck as you work through your doctorate program.

Sincerely yours,

Douglas H. Lape, Ed.D.
Vice President

DHL/hjg
Enclosures

APPENDIX C

TEXAS STATE TECHNICAL COLLEGE SYSTEM

DISTANCE EDUCATION SURVEY

Texas State Technical College System
Distance Education Survey

SECTION I: Distance Education Planning

Please blacken in the circle for each item choosing the one that best represents your knowledge, perception, or understanding. Write in the information as requested when applicable.

A. Is there a need for distance education courses at your college?
○Yes ○ No ○ I Don't Know

B. Has there been a market analysis to determine the need for distance education?
○Yes ○ No ○ I Don't Know

C. Would the mission of your college be well served through the implementation of distance education courses?
○Yes ○ No ○ I Don't Know

D. Are there any policies or regulations that might serve as barriers to the success of distance education courses?
○Yes ○ No ○ I Don't Know

If yes, please list what the policies or barriers might be:

1_____ 2_____

3_____ 4_____

E. If your college has distance education courses, how are they administered? (Select one)
○ Through a distance education department/division.
○ Through a continuing education department/division.
○ Through the same administrative units as the on-campus courses and programs.
○ Other.

F. Should distance education courses be evaluated differently than traditional courses?
○Yes ○ No ○ I Don't Know

SECTION II: Distance Education Curricular Issues

G. There are no significant differences in academic performance for students in distance education courses and non-distance classroom courses.

○	○	○	○	○
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

H. Distance education technologies will cause faculty to make changes in teaching patterns.

○	○	○	○	○
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

I. The interaction between faculty and students is limited with distance education courses.

○	○	○	○	○
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

J. The nationally marketed, prepackaged courses are equal in quality to the courses prepared by the faculty on our campus.

○	○	○	○	○
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

K. Incentives are needed to encourage faculty to participate in teaching distance education courses.

○	○	○	○	○
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

L. Teaching distance education courses requires additional time for preparing and planning lessons.

○	○	○	○	○
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

SECTION III: Distance Education Cost-Effectiveness

M. Distance education courses can be cost-effective.

○	○	○	○	○
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

N. Both costs and benefits of distance education courses should be computed to determine the cost-effectiveness of distance education courses.

○	○	○	○	○
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

O. Cost structures of distance and traditional education are so different that it is difficult to compare the two delivery systems.

○	○	○	○	○
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

P. Distance education technologies can be cost-effective for staff training and development.

○	○	○	○	○
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

Q. The investment in distance education technologies is a benefit to the faculty, staff, and students.

○	○	○	○	○
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

SECTION IV: Background Information

R. Please indicate in which category you are employed.
- ○ Administration (president, dean, manager, director)
- ○ Department/Program Chair, Assistant, or Lead Instructor
- ○ Support Role (library, media, student services, etc.)

S. How many years do you have in your current position?
- ○ One to five years
- ○ Five to ten years
- ○ Ten to twenty years
- ○ More than twenty years

T. How many years have you been in education (count all institutions)?
- ○ One to five years
- ○ Five to ten years
- ○ Ten to twenty years
- ○ More than twenty years

U. Please indicate at which campus you are employed.
- ○ Abilene
- ○ Breckenridge
- ○ Brownwood
- ○ Harlingen
- ○ Marshall
- ○ Sweetwater
- ○ Waco

V. Does your campus produce any distance education courses?
○Yes ○ No ○ I Don't Know

W. Does your campus receive any distance education courses?
○Yes ○ No ○ I Don't Know

APPENDIX D

SAMPLE ADVANCE NOTICE SENT BY ELECTRONIC MAIL TO SURVEY PARTICIPANTS

Sample content of the electronic mail sent to all survey participants with an email account a week in advance of distributing the survey.

Dear TSTC Employee:

I am an employee at the Waco campus and doctoral student at The University of North Texas. With approval from the TSTC System Office, I am conducting a survey of the leadership at each TSTC campus and extension center to determine the awareness and perception of distance education. This study will aid me in completing my doctoral dissertation and serve as a benchmark to the TSTC campuses for future distance education planning and implementation.

In about a week, you will receive a two-page survey in your campus mail. I know this is a busy time for you, but I hope you will be able to take a few minutes to complete it and return it to your campus contact person in the envelope provided. It should take no more than 10-15 minutes to complete the survey.

****
There is a special gift included with the survey just for you.
****

The survey is completely anonymous, so please be assured that neither your name nor your department will be used in the analysis or reporting of results.

Thanks in advance for your assistance.

John Knue
TSTC-Waco

APPENDIX E

SAMPLE FOLLOW-UP NOTICE SENT BY ELECTRONIC MAIL TO SURVEY PARTICIPANTS

Sample content of the electronic mail sent to all survey participants with an email account a week in advance of distributing the survey.

Dear TSTC Employee:

About two weeks ago, you should have received a survey, in a brown manila envelope, titled Texas State Technical College System Distance Education Survey. It should take less than 15 minutes to complete the survey.

If you have already completed the survey and returned it to me in the self-addressed envelope, thanks very much for completing it.

****

I hoped you liked the leather TSTC coaster included with the survey.

****

If you have not completed the survey, I hope you can do so within the next week. The results of this survey are important to both me and TSTC. Without your valued input, the TSTC campuses may not be able to make competent decisions concerning planning and implementation for distance education.

Thanks,

John Knue
TSTC Waco

APPENDIX F

SAMPLE ADVANCE NOTICE SENT BY U.S. MAIL TO SURVEY PARTICIPANTS WITHOUT ELECTRONIC MAIL

September 8, 1997

Dear TSTC Employee:

I am an employee at the Waco campus and doctoral student at The University of North Texas. With approval from the TSTC System Office, I am conducting a survey of the leadership at each TSTC campus and extension center to determine the awareness and perception of distance education. This study will aid me in completing my doctoral dissertation and serve as a benchmark to the TSTC campuses for future distance education planning and implementation.

In about a week, you will receive a two-page survey in your campus mail. I know this is a busy time for you, but hope you will be able to take a few minutes to complete it and return it to your campus contact person in the envelope provided. It should take no more than 10-15 minutes to complete the survey.

The survey is completely anonymous, so please be assured that neither your name nor your department will be used in the analysis or reporting of results.

Thanks in advance for your assistance.

John Knue
Staff Development Officer

There will be a special gift with the survey just for you.

(Actual letters prepared using TSTC letterhead.)

APPENDIX G

SAMPLE OF COVER LETTER INCLUDED WITH SURVEY

September 15, 1997

Dear TSTC Employee:

I am an employee at the Waco campus and a graduate student at The University of North Texas. With the approval of the TSTC System Office, I am conducting a survey of the TSTC leadership at all campuses to determine the levels of awareness and perception about distance education. I am sending this survey to each administrator, department/ program chair and assistant, and staff member who may have an active part in planning and implementing distance education at his or her campus.

The results of this survey will be provided (without the use of names) to each campus to aid in determining how the various levels of understanding and perception might influence planning and implementation of distance education. Your assistance will greatly enhance the success of this project and the completion of my graduate studies. Attached is a 23-item survey that will take approximately 10-15 minutes to complete. Please accept the leather TSTC coaster as token of my appreciation for participating in this survey.

- Your participation in this study is strictly voluntary--you may withdraw at anytime without penalty, prejudice, or loss of benefit.
- Please do not sign your name to the survey. All survey information will be kept confidential, and no information will be released that could identify you in any manner.
- This is a one-time request for information; no additional surveys will follow.

Instructions for completing the survey (***Please return in the provided envelope by September 30***):

1) Complete the questionnaire. Answer all of the questions to the best of your knowledge.
2) Place the questionnaire in the self-addressed envelope provided and seal the envelope.
3) Place the envelope in the campus mail for return to the campus contact person who will in-turn mail them to me in Waco.

There is no personal risk for responding to this survey because neither your name nor your department can or will be included with the information collected or reported. Please address any questions to me at (254) 867-3302. Thank you for your time and participation.

Sincerely,

John Knue
Staff Development Officer

This project has been reviewed and approved by the University of North Texas Committee for the Protection of Human Subjects (940) 565-3940.

(Actual letters prepared using TSTC letterhead.)

APPENDIX H

SAMPLE FOLLOW-UP LETTER SENT BY U.S. MAIL TO SURVEY

PARTICIPANTS WITHOUT ELECTRONIC MAIL

DATE: September 30, 1997

TO: (Participants name and department address)

FROM: John Knue, Staff Development Officer

SUBJECT: Distance Education Survey

If you have already completed the distance education survey I sent earlier this month, I appreciate your support. If you have not yet had a chance to complete the survey, I hope you will be able to do so soon and return it to Brenda Parker in Instructional Development Services. It only takes about 10 minutes to complete. Your participation is valuable to both my graduate studies and future distance learning planning at TSTC Harlingen. Thanks again for your time.

By the way, I hope you liked the leather TSTC coaster.

(Actual letters prepared using TSTC letterhead.)

APPENDIX I

DEFINITIONS ATTACHED TO EACH SURVEY

Definitions to aid in completing this survey.

1. ***Distance education***. For this survey, distance education occurs when students are located in one place and their teacher(s), peers, or other instructional resources are located in another place.

2. ***Traditional or non-distance courses***. These are courses that are taught on campus, in a classroom or lab, where students and instructor are in the same proximity.

3. ***Distance Education technologies***. The use of videotape, interactive TV, satellite broadcast, the Internet, etc., to communicate between instructor and student, and student to student.

4. ***Nationally marketed, prepackaged courses***. These are pre-developed courses purchased and offered to students for credit in lieu of attending a traditional course.

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