PERCEPTIONS OF ADMINISTRATIVE STRATEGIES AND FACULTY SATISFACTION OF INTERNET-BASED ACADEMIC COURSES IN TEXAS TWO-YEAR COLLEGES

by

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ABSTRACT

The late 1990s saw an explosion of new information technologies including the emergence of a means of linking widely distributed computer networks together to form a global network of networks called the Internet. Higher education has been pressured to adopt this technology as a means of remote, high-speed course delivery. Within the realm of two-year public colleges in Texas, faculty and administrators are becoming increasingly concerned with the burdens placed upon their institutions to develop and conduct distance education courses using the Internet as the primary means of course delivery. This study investigated the perceptions faculty and administrators at two-year public colleges in Texas have of the policies and guidelines currently in place at their institutions and the level of satisfaction these faculty and administrators have regarding institutional and administrative support of online courses.

An instrument was devised for this study to assess faculty and administrator perceptions of policies and guidelines at two-year colleges in Texas. The 59-item web-based survey collected both quantitative and qualitative data.

In general, the results suggested that faculty and administrators were aware of policies and procedures in place at their institutions and that two-year college administrations provided a stable environment both administratively and technologically for the delivery of Internet-based courses. Full-time faculty members expressed less satisfaction with administrative support of Internet-based courses than administrators and part-time faculty, but overall satisfaction was expressed by all three groups. The results of the study indicate that the lack of time to develop online instructional materials, lack of

timely technical support, and lack of "face-to-face" interaction were significant obstacles to conducting Internet-based courses. Major advantages to Internet-based courses included the ability to reach more students, improved student participation, and greater access to new opportunities for learning and teaching.

Some implications of the study included: (1) Establish documented technology plans, reliable technology delivery systems, and centralized systems of support for building and maintaining distance education infrastructure; (2) Establish definite benchmarks for course development, teaching/learning, course structure, student and faculty support; and (3) Develop a standardized evaluation process for online course effectiveness and teaching/learning processes using a variety of methods.

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CHAPTER I

INTRODUCTION

This dissertation is comprised of five chapters. The first chapter is an introduction to the study, describing the conceptual framework relating to the emergence of Internet-based courses. This chapter also states the problem addressed by the study, the purpose for conducting the research, the study's research questions, the need for the study, the scope of the research based on delimitations of the study, assumptions held by the researcher entering the study, and useful definitions of terms.

The second chapter is a review of relevant literature in the field. This chapter reviews literature dealing with the emergence of the Internet and its effect on the changing nature of work, the development of the Internet and related technologies, research in the area of teaching and technology, the role of two-year colleges and their faculty, and perspectives concerning the benefits of and barriers to the use of the Internet as a primary delivery mechanism for teaching.

The third chapter describes the methodology of the study. Included in this chapter are the elements of the research design, population and sample, variables, and a discussion of the instrument used for data collection.

The fourth chapter discusses the results of the study conducted by the researcher. This chapter includes a review of the demographic data gathered in the study and a discussion of each section of the study as the responses relate to the research questions.

The final chapter summarizes the findings from the research study and presents conclusions based upon these results. Recommendations and suggestions for further study conclude the chapter.

Need for the Study

The traditional two-year college teaching environment that emerged early in the twentieth century was originally conceived for an industrial society. International competition and a decline in national productivity have created a new economic order for the industrialized world. Information technologies are rapidly changing the nature of work and how individuals are educated. Access to knowledge, rather than raw materials, has become the crucial resource for modern economies (Thurow, 1992).

The late 1990s saw new information technologies, such as the Internet and the World Wide Web, develop into essential tools for doing business and becoming a primary means of accessing information. These new technologies have been touted as a means to improve education and prepare students for the twenty-first century. Computer and telecommunications use in elementary and secondary education has risen at dramatic rates (Berman, 1988; Presti, 1996). Students entering college are arriving with ever-increasing levels of computer literacy, and they expect continued use of this technology in their own learning experiences (Estabrook & Roddy, 1994). This trend is having a tremendous impact on two-year colleges, as they enroll the majority of the nation's first-time college students, minorities, and women (U.S. two-year colleges, 1995). As increased use of the Internet alters the way individuals communicate and access information, higher education is confronted with a shift in emphasis from the computer as

a desktop tool to the computer as a communications gateway to colleagues and access to content residing on distance electronic networks (Green & Gilbert, 1995a).

Information technologies are expected to improve higher education and make it more cost-effective. From one point of view, these technologies will improve learning strategies and thinking skills by making these skills and strategies more collaborative and contextual (Hunter, 1993). Another school of thought proposes that information technologies will increase faculty productivity and help reduce the cost of instruction (Green & Gilbert, 1995b). Still others propose that these technologies will act as a catalyst for fundamental changes in teaching, learning, and how education is delivered (Kozma & Johnston, 1991).

As more and more two-year colleges seek to maximize the use of the Internet as a delivery mechanism for teaching academic courses, the role of the faculty as teachers is changing drastically. College faculty members are expected to have the technical expertise to create and direct learning through an electronic environment. They must also have the knowledge that the Internet culture is a dynamic and constantly evolving environment. The small but spirited core of faculty members who have made computing and Internet use an integral part of their professional lives must expand to include mainstream faculty (DeSieno, 1995).

As two-year colleges in Texas reach out through the electronic media to serve more and more students, administration of these courses places new and often unexpected burdens upon college faculties and administrators (Findley & Findley, 1997). Over the past several years, Internet-based courses have opened doors for two-year colleges to reach students who might not travel to the home campus (Watkins, 1996).

Administrators and instructors are now faced with a group of students who may never set foot on the home campus, may never meet their instructor face-to-face, and may not reside in the same geographic area (Distance Education: Challenges and Opportunities, 1996). Issues must be resolved regarding what fees should be charged if the student does not live in the college district, how will registration be handled for electronic courses, how is attendance or participation in the course to be evaluated (Carnevale, 2000a), how is the copyright issue to be dealt with when working in an electronic media (Copyright, 1999; Gasaway, 1998), and, a major issue under discussion on many campuses all over the nation, how is student testing to be conducted (Carnevale, 1999; Chadwick, 1997). Even the traditional process of course development requires a new way of thinking (Gibson & Herrera, 1999).

A large volume of literature is available dealing with Internet-based courses in terms of types of courses available, ease of enrollment, and accessibility to institutions offering these courses. Several studies exist which describe enrollment statistics and degrees of participation in different categories of academic and vocational studies (Birnbaum, 1991). However, very little seems to be available in the literature dealing with administrative issues that deal directly with Internet-based courses. The additional administrative burdens brought about by dealing with students who never set foot on campus is a concern only recently being addressed by institutions of higher education.

Available literature places great emphasis on the need for a higher level of planning by instructors to counter the lack of face-to-face contact with the student (Galvin & Ogawa, 1992). The literature also mentions the need for the institution to

justify the course offerings to governing agencies by demonstrating appropriate learning outcomes and adequate contact-hour equivalencies.

For administrators in two-year colleges, the need to reach more students is a primary concern. Contact hour funding, continuation of programs, and the very existence of the college are tied to numbers, the most important of which is enrollment. Two-year college administrators eager to find new ways to compete in the college market of the future will read with great anticipation new studies that can suggest ways in which Internet-based courses can be administered effectively.

Background of the Problem

Policy efforts to make colleges more inclusive in terms of gender, race, and ethnicity accompanied the peak expansion period of higher education systems during the 1960s and 1970s. Close behind this growing diversity in student demographics came increasing numbers of "non-traditional" students–those who are older, have families, and work–often full-time. These students were faced with the challenges of juggling work and family responsibilities while attending school. As a result, the non-traditional students have become consumer-oriented by necessity. Rather than choosing a college for quality, they were forced to locate a college based on price and convenience, as well as for quality.

Fundamental changes in the nature of work hold important implications for the preparation of students entering the workforce. Numerous reports, commissions, and announcements have noted that the globalization of business and industry and the explosive growth of computer and electronic technology are rapidly transforming the

workplace (SCANS, 1991). Education is not keeping up with the global economic forces that are altering both the world and the workplace. One early report entitled A Nation at Risk (A Nation at Risk, 1983), became a call to arms for administrators and policymakers and ushered in the first wave of educational reform for K-12. Unfortunately, subsequent research has shown that the standardization attempts of this first wave did little to improve education despite great effort and significant increases in funding (SCANS, 1991).

Despite the changes in student demographics, the college campus has not changed dramatically since the turn of the twentieth century. Dr. Joseph Burke, Interim Chancellor of the State University of New York, remarked in a speech at a conference on instructional technologies:

> Higher education remains trapped in a time warp—in a pre-Gutenberg era where instructional information is mostly transmitted by word of mouth, at a time when the outside world is rushing down a super-highway toward a global village where information is instantly available on a worldwide web of data bases. (Burke, 1994, lines 23-27)

Teaching techniques and curriculum have remained much the same as they were a hundred years ago, despite the fact that technology as an educational tool has been embraced by educators. From the slate tablet of Socrates to the space mission of Christa McAuliffe, teacher-turned-Challenger astronaut, teachers have integrated technology into their methods of instruction in efforts to enhance student learning (Michels, 1996).

Many twentieth-century innovations, including radio and television, were heralded as having the potential to revolutionize teaching. If technology has the potential to improve teaching and learning, why do many technological breakthroughs begin with a roar, stall, and finally fade (Geoghegan, 1994). The computer became the hope of the

future in the 1960s, and now in the twenty-first century, the spotlight is on the Internet and the World Wide Web (Michels, 1996). Will these new information technologies be simply another fad? Or has a real revolution in teaching and learning actually begun?

Such revolutions are not new in history. The development of the written language is often referred to as the first communications revolution. Some 10,000 years later, the printing press brought about the second communications revolution. Gutenberg's press made it possible for the common person to own a book. With the invention of moveable type and printing presses, teachings could be recorded and distributed widely. A mere five hundred years later, some are calling the evolution of the computer and the Internet the third communications revolution (Toffler, 1980).

Two-year colleges should be vitally concerned with improving the learning process for students. Investment in information technology—computing, networking, and telecommunications—to support instruction and improve personal and organizational communication in two-year colleges is no longer an option; it is a necessity. Teaching is no longer restricted to the classroom. Information technology and its teaching could potentially radically alter education in two-year colleges, and the Internet is already allowing teaching and learning activities to transcend geographical and physical boundaries.

Until just recently, research on different forms of information technologies has focused on their use in the corporate world or in K-12 educational programs. The implication of the use of new technology by students has been the primary focus in the great majority of this research. The impact of technology on teachers has been largely ignored. How and why the medium is used and the degree of satisfaction with it becomes

more and more important as increasing numbers of faculty and administrators in two-year colleges adopt this technology.

Leaders in higher education institutions are faced with an enormous challenge: improve the quality and accessibility of teaching and learning while controlling costs and integrating new instructional applications of information technology. They hope to solve both problems by embracing new technologies to deliver instruction, yet many of them may fail to understand the kinds of planning, support services, and other resources involved in making the transition from old technology to new technology successful.

The transformation of higher education through the integration of instructional technologies is not only inevitable; it is taking place in higher education institutions all over the world, not just the United States (Kostopoulos, 1999). Significant new applications of information technology cannot be integrated successfully with an institution without both the commitment of the institution to the relative infrastructure and the commitment of the individual faculty members to the new application ("Distance Learning May Soar," 1999; "Distance Learning on the Rise," 1999). Faculty members must have the information, motivation, resources, and institutional support in order to succeed with these new approaches (Gibson & Herrera, 1999; Holt, 1998). Effective strategies must also exist at the institutional level in order to infuse information technology into the academic life of the institution (Keegan & Rumble, 1982; Langhorst, 1995; LaRose & Hoag, 1996).

Statement of the Problem

Two-year colleges have devoted considerable time and energy to improving instruction in spite of declining revenues and increasing demands on both instructor time and institutional resources (Michels, 1996). The problem of this study was to examine: (a) the perceptions faculty and administrators in public two-year institutions in Texas have towards the administration of Internet-based academic courses and (b) the satisfaction levels these same administrators and faculty members had towards policies and support mechanisms in place at their institutions. For purposes of this study, administration of Internet-based academic courses is defined generally as the manner in which policies and guidelines concerning Internet-based academic courses are documented and administered at the institution.

Little is known about how faculty in two-year colleges use the Internet as a primary means of instructional delivery, the levels of institutional support they receive, and how faculty and administrators perceive usage of the Internet to be affecting their teaching performance. The degree to which these courses are successful as perceived by the instructors and by the administrators of Internet-based distance education programs was examined in this study.

The role of the college administration is vital to the success of Internet-based courses at the two-year college level. However, faculty must bear most of the brunt of planning and conducting Internet-based courses. Institutional policies and guidelines must represent all forms of educational delivery and must by adjusted regularly to meet the changing needs brought about by new technologies and new concepts. Therefore, cooperation and support provided by the college administration must be efficient and

appropriate for the success of these courses (Findley & Findley, 1997). Administrations at all public two-year institutions of higher education must combine the best policies and procedures governing traditional classroom courses with policies and guidelines aimed at meeting the needs of new forms of distance education such as Internet-based courses.

Research Questions

Major questions asked in the study were:

1. Are administrators and faculty in two-year colleges in Texas aware of procedures and policies dealing with the administration of Internet-based courses at their institutions?

2. Are faculty and administrators satisfied with procedures and policies currently in place to deal with the administration of Internet-based courses in two-year colleges in Texas?

3. What do faculty and administrators in Texas two-year colleges perceive to be the benefits and barriers to the use of Internet-based courses in two-year colleges?

Purpose of the Study

The purpose of this study was to profile faculty and administrator perceptions of and satisfaction with existing administrative policies which govern the delivery of Internet-based courses at two-year colleges in Texas. The study was also intended to highlight those constraints and benefits, which faculty and administrators perceive from the use of the Internet as a means of instructional delivery as affecting their institution and their professional development. The results of the study were intended to provide a series of recommendations for the implementation of policies and guidelines at all public

two-year institutions of higher education in Texas that will promote development and support of Internet-based academic courses.

Anticipated Benefits

College leaders will benefit from the study by having a better understanding of the unique nature of Internet-based courses and the problems encountered with the administration of such courses. Administrators will be able to better formulate policy and guidelines for the use of electronic courses and will be more comfortable incorporating them into the existing structure of the institution. Educators will benefit through learning more about what other institutions of similar size and scope are accomplishing in the area of Internet-based course administration. Students will indirectly benefit from the study based upon improvements to Internet courses as a result of administrators' and instructors' utilization of the results of the study. Funding and design decisions concerning future investments in these technologies will be improved by a better understanding of how computer and networking technologies are being used in two-year colleges. Identification of successful administrative policies and procedures related to the administration of Internet-based courses will advance the development and utilization of the Internet as an effective learning medium for two-year colleges in Texas.

Definition of Terms

Academic course – Instructional course of study leading to credit towards an associate degree.

Chief Academic Officer – In most two-year colleges, this position is either the Vice-President for Instruction or the Dean of Instruction. The function of the individual

in this position, regardless of the title, is that of the primary point of contact and authority for all matters related to instruction including curriculum development and faculty personnel issues.

Distance education – A formal education process in which the majority of the instructional interaction occurs when student and instructor are not in the same place (Distance Education Policy, 2000).

Faculty – Full-time and part-time faculty currently teaching in a two-year college.

Information technology – Includes equipment (computers, data storage devices, networks, communication devices), applications (software), and services (end user computing, help desk, applications development) that are used by organizations to deliver data, information, and knowledge to individuals (Michels, 1996).

Internet – The convergence of computer, mass media and telecommunications technologies, thereby creating a high speed "network of networks" containing more than 100,000 networks representing millions of individual computer users (LaRose & Hoag, 1996). The Internet is global with connections in over 200 countries worldwide. Other terms used to describe the Internet include the "Net," the "Information Superhighway," the "Infobahn," and "cyberspace" (McLaren, 1997).

Internet-based credit course – A for-credit college academic course of instruction, a majority of which is conducted over the Internet. The course may use any or all of the following features: e-mail, chat rooms, gopher, FTP, electronic bulletin boards, traditional telephone, regular mail, or, depending upon the nature of the course and the inclination of the instructor, face to face (Townley, 1997).

Public two-year college – Two-year, publicly supported post-secondary educational institutions, including community colleges, junior colleges, technical colleges, technical and community colleges, and two-year branch campuses of four-year colleges (Michels, 1996).

Virtual College of Texas – a collaboration of the fifty community college districts in Texas plus the Texas State Technical College System. Its goal is to facilitate the sharing of distance learning courses among member colleges through the Internet, telecourses, and two-way interactive video.

World Wide Web – An information server on the Internet composed of interconnected sites and files, accessible with a browser.

Delimitations

This study was limited in scope to include:

1. Only postsecondary educational institutions in Texas defined as associate degree awarding institutions of higher learning were included in the study. The results cannot be generalized to other states or other countries and other types of degree awarding institutions.

2. Only college credit courses administered via the Internet and their counterpart classroom equivalent courses were included in the study. The results cannot be generalized to non-credit or credit-free courses.

3. Data were gathered strictly relating to Internet-based courses. The results of the study cannot be generalized to all forms of instructionor to other types of delivery.

4. Survey participants were full-time faculty, part-time faculty, and administrators. Faculty were identified either as faculty currently teaching or having taught Internet-based courses through their institution's involvement with the Virtual College of Texas. Administrators were identified as administrators of Internet-based course programs through the Virtual College of Texas or by personal contact with their institutions.

Assumptions

Assumptions that underlie this study included:

1. Effective academic administration of Internet-based courses is crucial to the success of participating academic programs and to the mission and success of the institution itself.

2. All two-year colleges in Texas participating in the Virtual College of Texas have been accurately identified.

3. The two-year college officer ultimately responsible for administration of Internet-based courses is the Chief Academic Officer. An individual who reports to this officer may perform the actual routine administration of Internet-based courses. This may, and in many instances, will include the actual instructor of the Internet-based course.

4. Identification of successful administrative policies and procedures related to the administration of Internet-based courses will advance the development and utilization of the Internet as an effective learning medium for two-year colleges in Texas.

Summary

This chapter provided a statement of the problem and the purpose of the study. The questions addressed in the research, the basic need for the study, and the significance of the anticipated results of the study were discussed. Delimitations in scope and assumptions regarding the study were also listed.

The next chapter contains a review of the literature related to the development, administration, and use of the Internet for instructional purposes at the two-year college level. In this chapter the researcher also expands on themes introduced in the first chapter, including discussions of changes in the nature and concept of work brought about by the emergence of the Internet, a history of computing and networking technologies as they relate to the use of Internet-based courses, and prior research on the benefits and perceived non-benefits of Internet related technologies used in two-year college teaching by faculty and administrators.

CHAPTER II

REVIEW OF THE LITERATURE

This review focuses on literature relating to the administration of Internet-based academic courses in two-year colleges. The chapter is concerned with administration of Internet-based courses and administrative benefits and obstacles to the implementation of these courses into teaching at two-year colleges.

Historical Perspective

The computer has played an important role in higher education since its first appearance in the 1950s. Following the Soviet launch of the Sputnik satellite, national security concerns prompted increased governmental promotion and funding of campus-based research endeavors related to the advancement of computing. Computer networking technologies were a direct result of this effort. This made it possible for computers to communicate electronically with other computers linked to the network. Early computer networks, dominated by higher education, evolved into the global "network of networks" now known as the Internet. In the early 1990s, the electronic frontier became open to the private sector. It grew at an exponential rate, prompting the government to issue a promise for a "National Information Infrastructure" to provide universal access to computer networks. With its future assured, the Internet will assuredly continue to be a major influence on education, business, and industry in the twenty-first century.

The Carnegie Commission on Higher Education in 1972 predicted that "new technology may provide the greatest single opportunity for academic change on and off

campus," and that by the year 2000, "a significant proportion of instruction in higher education may be carried on through information technology—perhaps in a range of 10 to 20 percent" (The Fourth Revolution, 1972, p. 1).

Interest in the use of new technology in education is fostered by the desire to reform education and increase student learning (Means et al., 1993) and the desire to lower instructional delivery costs by making teaching more productive (Massy & Zemsky, 1996). The first goal is normally highly favored by faculty, while the second goal tends to bring forth more skepticism. Somewhere in the middle are those who would like to transform teaching and learning by expanding the Internet and developing a national learning infrastructure (Twigg, 1994b). The end result would be increasing access while controlling costs and improving quality. Twigg (1994a) also suggests that three possible benefits for higher education will emerge from the development of computer-mediated learning environments: increased access, improved quality, and controlled costs.

Internet Potential

Instructional use of the Internet has been the focus of several broad educational studies. Many teachers use the Internet simply because it is available. Often little compelling pedagogical reason exists for using this technology in the classroom (C. D. Maddux, 1994). Other teachers refuse to use the Internet until they are convinced it is beneficial to their professional development (Gallo & Horton, 1994).

Faculty members in higher education use technology in their teaching for a number of reasons: (1) to accomplish tasks they cannot do by themselves; (b) to

accomplish tasks that technology can do better than they can do by themselves; (c) to perform routine teaching tasks that they would prefer not to do; (d) to prepare students for the world of work; (e) to enhance faculty and/or student productivity; and (f) to transcend time and place (Lewis, R. J., & Wall, 1988).

A 1993 study dealt with which computer-mediated applications were most likely to be prevalent in higher education in the next three to five years. The four highest consensus items were those that utilized electronic means to conduct or enhance normal classroom activities. Two of the activities, "the electronic distribution of announcements, handouts, and syllabi" and "sending and receiving assignments via e-mail", focused on the use of e-mail as a substitute for traditional paper-based activities. The third and fourth consensus applications emphasized communication: "e-mail communication between teachers and students to clarify instruction and answer questions," and "using electronic bulletin boards to structure collaborative/cooperative student work and facilitate discussion." Two additional items from the study rated moderately high also used electronic media in the normal classroom environment: "academic counseling via electronic mail" and "electronic administration of exams" (Holden & Wedman, 1993, pp 5-24).

College Faculty and the Internet

Technology-based instructional innovations are bringing about fundamental changes in the role of faculty and the processes by which teaching and learning activities occur (Mandinach & Cline, 1992; Sandholtz, Ringstaff, & Dwyer, 1990; Sheingold & Hadley, 1990). The importance of faculty and faculty relationships with instructional

technology has been largely neglected in research (Beaudoin, 1990; Knupfer, 1993). Little research has been done about using the Internet as a primary mode of instruction in two-year colleges (Bane & Milheim, 1995; Carnevale, 2000a; Knupfer, 1993; Spotts & Bowman, 1995). The primary reason for this lack of research is the newness of the process itself. The technology is still evolving and most research appears to be focused on development efforts.

Faculty attitudes and behaviors are crucial to the successful adoption of instructional technology into teaching practices (Geoghegan, 1994). Attitudinal issues—how people perceive and relate to technology—are far more important that any structural or technical obstacles in influencing the use of new technology in higher education (McNeil, 1990). Some faculty resist change, while others encourage it. Some erect barriers to technological implementation, but "it is the teacher who lives with the innovation and it is ultimately the teacher who will accept or reject, implement successfully, or fail to implement technology" (Knupfer, 1987, p. 171).

The Internet is extending and expanding what is possible in traditional classroom practice. Through the use of the Internet as an instructional media, teachers are no longer tied to the classroom or the time restrictions of schedules. Online courses permit students to work at their own pace using network-based materials and diagnostic tools. Efficient networks are being developed to support new types of communication devices and increased volume of interactions (Charp, 2000). Students are more involved in project-oriented learning (Dwyer, Ringstaff, & Sandholtz, 1991); group learning is on the increase (Lowther & Sullivan, 1994); the faculty role is shifting from the being center of the classroom to being more of a mentor or guide for students (Knupfer, 1993; Twigg,

1994a); and a greater willingness on the part of students to assume responsibility for their own learning (Davis, Bagozzi, & Warshaw, 1989; Hardy, 1992; Hooper, 1992; Hooper & Hannafin, 1991; Laridon, 1990b; McIlhenny, 1991).

Faculty Attitudes towards Technology

The rate of adoption of advances in information technologies such as the Internet and the World Wide Web is far slower in higher education than in business and industry (Gunawardena, 1992). There are many attempts to explain this reluctance. Some blame "...attitudinal issues --how people perceive and react to these technologies—are far more important now than structural and technical obstacles in influencing the use of technology in higher education" (McNeil, 1990, p. 2).

General attitudes towards computer use directly influence the intent to use, and ultimately, the actual use of the computer (Davis et al., 1989). Other more specific attitudes related to computer use include the attitudes of faculty who resist technological change and oppose altering their teaching methods (Cuban, 1986; Dillon, 1989; Holden & Wedman, 1993). This resistance to change is not new. Plato, in Phaedrus, argued against the use of writing as a primary mode of discourse, stating that writing "will create forgetfulness in the learners' souls, because they will not use their memories; they will trust to the external written characters and not remember of themselves" (Plato, 1995, lines 1714-1716). History shows that writing did indeed supplant oral discourse as the primary mode of communication.

Perhaps the problem of failed technological applications in education does not lie with the technology or with those who are charged with implementing them, but rather

with the entire system of education (Perelman, 1992). Some fear that advances in computer technology will do away with the need for schools in the traditional concept.

Technical Innovation in Two-Year Colleges

Research on the diffusion of innovations provides perspectives on the slow spread of technology into education. The innovation process typically, "...begins with an individual or set of individuals, recognizing that their organization is facing a 'performance gap' between their expectations and reality. This problem recognition sets off a search for new alternatives, one of which may be an innovation" (Rogers & Adhikarya, 1979, p. 75).

Diffusion of innovation refers to tracing the spread of an innovation over time to members of a social system. Much of the literature related to this theory can be traced back to principles developed and articulated by Everett M. Rogers, an early writer on the subject.

> The essence of the diffusion process is the human interaction in which one person communicates a new idea to another person. Thus, at the most elemental level of conceptualization, the diffusion process consists of (1) a new idea, (2) individual A who knows about the innovation, and (3) individual B who does not yet know about the innovation. The social relationships of A and B have a great deal to say about the conditions under which A will tell B about the innovation, and the results of this telling. (Rogers & Adhikarya, 1979, p. 68)

The adopter of an innovation could either be an organization, defined as a stable system of individuals working together to achieve common goals, or an individual within this system. Rogers identified five attributes of innovations that influence their adoption. High levels of perceived compatibility, observability, relative advantage, and trialability

are associated with increased likelihood of adoption while high levels of complexity are associated negatively with adoption system (Rogers, 1995).

Further elaborations on Rogers' theory suggest that additional factors affect the decision to adopt an innovation. Different studies have added concerns about the effects of a new approach on established patterns of work and different levels of commitment to the innovation (Hall & Hord, 1984; Hall & Loucks, 1978; Rogers, 1995).

The greatest potential for failure of adoption was at the point of passage from the visionary "early adopters" to the mainstream faculty (Moore, 1991). If this occurred, it was unlikely that adoption would take place in more than 15% of the group. In 1994, fewer than 5% of American higher education faculty had adopted information technology into their teaching (Geoghegan, 1994).

Mainstream users do not normally adopt an innovation until they learn of their colleagues' successful experiences with it. Positive experiences by the early adopters influence mainstream colleagues. When a critical mass of users has been reached, the rate of adoption becomes self-sustaining and feeds off its own momentum. The rate of adoption of an innovation for a class of potential users typically plots as an "s-shaped" curve reflecting a slow beginning with few adopters, followed by a rapid rise in use throughout the group, and finally capped by a leveling off as full diffusion is reached (Williams, Rice, & Rogers, 1988).

More recent data suggests that the use of information technology is moving past the early adopters and into the ranks of mainstream faculty. Computer ownership is rising among college students—about 33%, and faculty—over 50% (Green, 1996). The proportion of college courses using some form of information technology in instruction is

growing dramatically (The Condition of Education, 1999; "Distance Learning on the Rise," 1999; Ganser, 1999). In 1995, only six percent of all two-year and four-year college courses used Web-based resources. The data in Green's survey concerning two-year colleges tells us that, in spite of the apparent good news, two-year colleges have a long way to go.

However, the "itinerary of adoption" for the Internet appears to be unique among communications media (LaRose & Hoag, 1996). Complex innovations such as the Internet have closely related technology clusters. Distinct elements within the Internet include computers, modems, networking, and enabling software (Rogers, 1995). The interactive nature of the Internet makes these unique elements even more complex. The Internet entails inter-actions between one individual and many others rather than a one-on-one innovation involving only one individual.

Figure 2.1 illustrates that the slope of the "s-curve" which charts the rate of adoption of interactive technologies and shows that it is different for usual innovations. The rate of adoption appears to be slower at first, but it gains momentum and then levels out. Unlike the adoption of a device such as the toaster, which is not dependent on other people using the innovation to toast bread, the unequal rate of adoption of such interactive innovations as telephones, e-mail, and the Internet are dependent upon the adoption of the innovation by other people. Without a critical mass of users, an insufficient amount of people would exist to perform the communication or exchange of ideas necessary for adoption of these innovations.

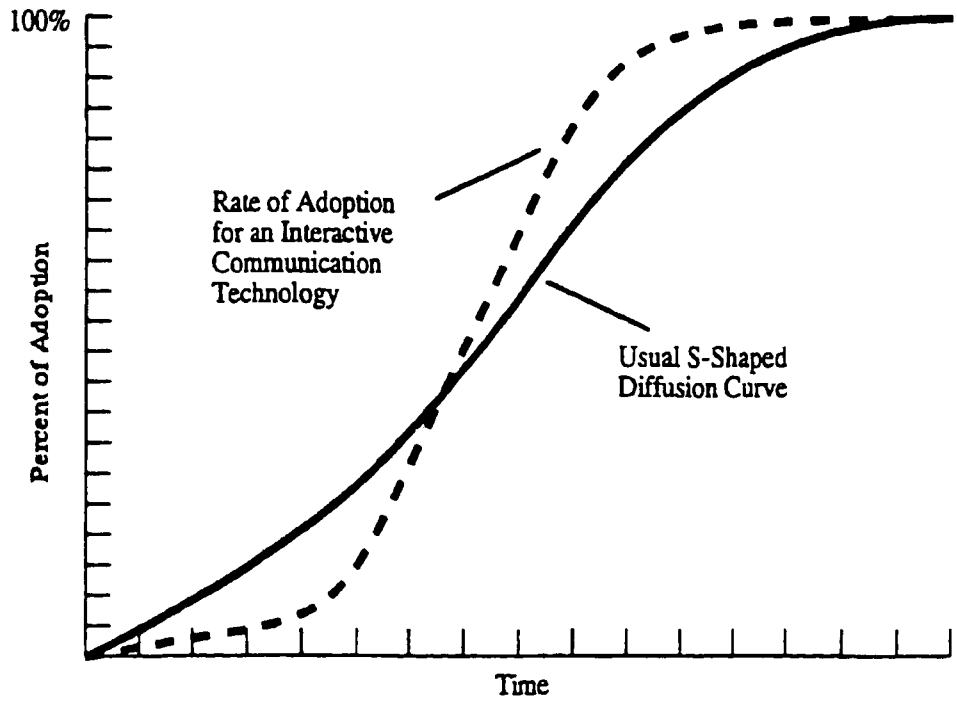

Figure 2.1

Rate of Adoption for Interactive and Usual Technologies

(Williams et al., 1988)

Although different innovations are adopted at different rates, the key to the adoption or rejection of any innovation lies with the individual user. This innovation-decision process includes a number of steps: (a) knowledge—the exposure to the existence of an innovation and the basic understanding of how it functions; (b) persuasion—the formation of a favorable or unfavorable attitude toward the innovation; (c) decision—pursuing activities that lead to a choice to adopt or reject the innovation; (d) implementation—actually using the innovation and modifying to adapt to specific needs; and (e) reinforcement—seeking reinforcement of a decision already made or

reversing a former acceptance or rejection decision (Rogers, 1995). This brief description of the steps involved in the innovation-decision process illustrate Roger's framework of four primary elements for successful diffusion: innovation, communication, adoption over time, and social system. These elements form the beginning of understanding those factors and processes that affect the adoption, implementation, and utilization of the Internet as a mode of instructional delivery by faculty members in two-year colleges.

Barriers and Benefits

Understanding the change process is necessary for improvement processes and implementation of new concepts and technologies in schools and colleges. Through this understanding, change facilitators can take actions to facilitate change more effectively (Hall & Hord, 1984). The diffusion model discussed previously provides a means of identifying the sources and causes of real and perceived barriers that tend to inhibit the change process. Since barriers increase the complexity associated with an innovation, reducing barriers enhances the innovation's compatibility, and therefore increases its chances for adoption. Identification of barriers is often the most difficult step in the process. Once identified, those whose job it is to manage and implement policy to minimize or overcome these barriers can formulate strategies. The "interventions" are any "action, or event or a set of actions that influences the use of innovation" (Hall & Hord, 1984, p. 283).

Faculty tend to view the benefits and barriers to using the Internet as a mode of instructional delivery in terms of three distinct categories: technological factors,

organizational factors, and individual factors. These categories impact the usefulness of Internet-based courses as an effective and efficient mode of instruction.

Technological Factors

Technological benefits or barriers to the use of the Internet involve hardware and software, access and availability, and ease of use.

Hardware and Software. The major benefit related to hardware and software is that computers have become faster and more powerful over the past twenty-five years, growing from simple word-processing tools to sophisticated multi-media stations running everything from color graphics to sound and video over the Internet. While the expense of purchasing a single computer has actually decreased substantially over the same time period, the expense to colleges is still a major consideration and often a barrier to implementation of the new technology. Computers and related peripheral equipment become obsolete within a matter of one or two years. Sound business practice dictates that obsolete equipment be replaced in order to remain competitive and up-to-date, but the short technology lifespans often come as a real shock to institutional planners as they attempt to balance budgets and limited resources. Many colleges that invested heavily in computers in the 1990s are now faced with rooms full of outdated computers and an urgent need to replace them. Technology plans in two-year colleges require considerable foresight and planning to counter the expensive remedies for obsolete technology (Michels, 1996).

Another barrier is brought about by faculty dissatisfaction with hard ware and software. The greatest source of faculty dissatisfaction is with insufficient hardware and

obsolete software (Estabrook & Roddy, 1994). Replacing obsolete hardware and software is a top institutional concern (Green, 1996), and the most critical success factor in acquiring funds for information technologies was in the allocation of money necessary for hardware and software replacements and upgrades. (Boettcher, 1993). Other barriers related to hardware and software include issues put forth most often by faculty members dealing with portability across hardware platforms, flexibility, reliability, and generalizability (K. Maddux, 1997).

Access and Availability. Internet access on the campus, by students, and by faculty is lower at public and private two-year colleges than at public and private four-year colleges and universities (Green, 1996). Equipment availability is the greatest barrier to effective use of technology in higher education. Eighty-six percent of university faculty indicated that availability of equipment was the most important factor influencing their use of instructional technology (Spotts & Bowman, 1995). Greater network access will be the next major factor affecting future instructional network applications (Schrum, 1998).

Because the Internet is neither time- nor location-bound, access afforded by the Internet is of particular importance to non-traditional students (Massy & Zemsky, 1996). Non-traditional students are typically employed and have family responsibilities that often limit their ability to attend a traditional class on a regular basis.

Although the Internet is time and place independent (Proksay, 1991), economic and social situations may actually serve to increase inequity of access (C. D. Maddux, 1994). Inequality of access may occur between urban and rural educational institutions serving economically and socially disadvantaged populations and institutions enjoying

higher tax bases or hefty endowments that can afford the software and hardware needed for widespread Internet use.

Ease of Use. Two-thirds of university faculty involved in a 1993 study indicated ease of use was an important factor influencing their use of instructional technology (Spotts & Bowman, 1993). An individual's attitudes regarding the ease of use of a computer and the overall usefulness of the computer directly affect attitudes towards use of the computer (Davis, Bagozzi, & Warshaw, 1992).

Organizational Factors

The Internet has implications for higher education as institutions expand courses both on and off campus, re-tool administrative services and functions, and link with other institutions around the world. Preparation for the future involves planning:

> Making an academic information-resources plan forces one to concentrate on trends and goals, since only a fool would try to predict what technology tools he will need a few years hence. An institution's plan has to be linked to its mission, because only the mission provides grounds for rejecting interesting but irrelevant technological tools. (Stuckey, 1996, lines 457-461)

Benefits or barriers to using the Internet from an organizational perspective include planning, time, training, resources, climate and culture, and reward structures.

Planning. Three major reasons exist for colleges and universities to plan for and invest in information technologies in the future: competitive position; teaching, learning, and curriculum enhancement; and preparing students for the workforce. An institution's level of technology implementation and integration will be a major factor in college selection by students. Competition with other institutions will force colleges to invest in technology. College-bound students are more and more technologically adept and expect

the college to match or exceed the skills they acquired at home, school, or through part-time employment (Alvarez, 1996).

Institutions are slow to plan for the growth in information technologies taking place on college campuses. In a 1996 higher education computing survey, no significant change in planning efforts and support provided by institutions was noted between 1994 and 1995 (Green, 1996). Only a third of the campuses surveyed had a formal institutional plan for integrating computers into the curriculum. More recent studies show that growth in this area is moving at a slow but steady rate (Lynch, 2000; Phillips, 1998).

Acquisition, utilization, and evaluation of technology should be of major concern to any institution desiring to invest in that area. Unfortunately, change in higher education is most often precipitated by external pressures rather than anticipated by internal planning (Lindquist, 1978). Planning for instructional technology seems to be much more important to chief academic officers of two-year colleges. Two-year colleges are much more likely to have formal plans for the integration of computers and technology into the curriculum and for using Internet and World Wide Web resources in instruction than four-year colleges and universities (Green, 1996). In addition, administrative and academic computing are less likely to be integrated into a single function at two-year campuses than at four-year campuses. This suggests that the primary focus of two-year colleges is on teaching (Cohen, 1988). However, two-year colleges were less likely to include faculty support for developing instructional courseware in their long-range organizational planning than their counterparts at four-year colleges and universities (Green, 1996).

Time. The most frequently cited barrier to the use of instructional technology was the lack of time to learn and use the technology (Spotts & Bowman, 1995). Other barriers include the lack of time and resources to develop instructional materials and the need for release time to attend workshops (Estabrook & Roddy, 1994; Holden & Wedman, 1993; Levin, 1995).

Some theorists in instructional technology predict that use of the Internet will alter how faculty members use their time. Faculty will be able to spend more time designing and planning instruction and less time on actual delivery. In a student centered, technology-based learning system, the term "faculty load" will take on a new meaning. The old concept of "faculty teaching load" was based upon the number of courses, credits, or hours taught. This restrictive approach does not allow the new technology to be used to its full potential since administrators at many higher education institutions do not consider technology-based learning systems as part of the traditional "faculty teaching load" (Proksay, 1991; Gladieux & Swail, 1999; (Distance Education Policy, 2000).

Technology may even reduce the number of faculty by increasing student-faculty ratios beyond what individual faculty are prepared to deal with (DeSieno, 1995). Although attitudes change slowly, more recent studies indicate that increased faculty ratios do not appear to affect quality of online instruction (Carnevale, 2000b; Fleischauer & Lucivero, 2000). Faculty resistance to change in traditional academic norms of class size, teaching loads, and faculty-student ratios will inhibit the full adoption of the Internet as an alternate mode of instructional delivery (Massy & Zemsky, 1996).

Additional frustration exists over the lack of distinction and recognition given with regard to traditional on-campus instruction and distance teaching. Early researchers contend that if faculty are not provided with incentives for the extra amount of time and effort required to plan and teach, motivation to continue this method of instruction will wither (Gunawardena, 1992). More recent research reveals that instructors can live without incentives and rewards as long as adequate institutional support is provided and sufficient time is allowed for course development (Carnevale, 2000b; Carr, 2000).

Training. "The introduction of technology into the workplace necessarily must have training implications" (T. Lewis, 1992, p. 34). Instructors who are going to teach with technology need to be taught to teach with technology, and they must have adequate time to experiment with the technology in order to acquire the requisite skills (C. D. Maddux, 1994). A strong development program for teacher technology training is absolutely necessary (Bitter & Yohe, 1989). The key for the adoption of technology by faculty in two-year colleges lies in the development of a professional development program designed to provide not only the necessary skills, but also the pedagogical skills necessary to teach in a technology-mediated environment (Beaudoin, 1990; Blackerby, 2000).

While most faculty members are receptive to innovation and to learning a variety of new skills, individual consultancies with technical support specialists familiar with individual disciplines and systems are becoming more and more popular (Estabrook & Roddy, 1994). Intel and Microsoft recently announced a "Teach to the Future" initiative to address the barriers teachers still face in effectively applying computer technology to

improve student learning. This effort will attempt to train more than 400,000 classroom teachers in 20 countries around the world.

Resources. Availability of resources within an organization is positively and consistently related to the adoption of an innovation (Rogers, 1995). Faculty members need on-site support to help implement new programs and to provide follow-up assistance. Help with setting up hardware, installing and troubleshooting software, anticipating and discussing future technological developments, and answering technical questions, as well as simply providing encouragement, are necessary to keep faculty interested and focused on the new process (Fleischauer & Lucivero, 2000; K. Maddux, 1997). The rapid rate of technological obsolescence must be kept in mind. Inadequate administrative support and insufficient curriculum support to develop ideas and teaching methods are major barriers that teachers face in developing technology-based instruction (Hadley & Sheingold, 1993; Holden & Wedman, 1993; C. D. Maddux, 1994).

Technical support to establish and maintain Internet connectivity, coupled with curricular support, is necessary to make use of the Internet educationally relevant. Since the Internet is constantly changing, these areas of support are made increasingly difficult.

Climate and Culture. The climate of an organization is one of the most important considerations for initiating and sustaining change. Organizational climate is defined as "a set of characteristics specific to an organization that can be defined by the way in which the organization relates to both its members and to its environment" (Campbell, Dunnetis, Lavler, & Weick, 1970). The perception members of an organization have regarding organizational features, events, policies, and practices have significant bearing on the deterrence or promotion of innovative behavior. When an organization is

perceived as providing support for communication, freedom, and idea generation—while recognizing individual contributions—its culture is conducive to innovation (Ellison, James, & Carron, 1970).

Chris Argyris, the James Bryant Conant Professor Emeritus of Education and Organizational Behavior at Harvard University, states that organizations fail because they have created cultures that inhibit their ability to learn (Kurtzman, 1998). Professor Argyris's view is that two types of organizations exist. The first type, which he refers to as Model I, has an institutionalized form of self-censorship that is defensive and limits real communication. Because self-censorship does not go away when an organization is in distress, the ability of the organization to repair itself is impeded by the same forces that got it into trouble in the first place. Model II organizations, on the other hand, manage their communications better. They promote knowledge and get it heard. They are also more able to assess reality correctly and solve problems as they occur. Real learning takes place when an organization refines its theories and assumptions about the way things work. Breakthroughs then occur when theories are overturned, updated, or replaced. Then, managers can go about their real business, which is managing an organization's knowledge, through its people (Argyris, 1993).

Reward Structures. Early research indicated that faculty interested in using and developing material for instructional technologies were not adequately rewarded (The Fourth Revolution, 1972). In a 1993 study, more than half of the institutions of higher education surveyed indicated that they provided assistance to help faculty develop instructional resources, but only fifteen percent gave rewards or provided incentives (Green & Eastman, 1994). More recent research reveals that incentives and rewards are

not extremely important as long as adequate institutional support is provided and sufficient time is allowed for course development (Carnevale, 2000b; Carr, 2000).

University faculty surveyed in 1993 rated a number of incentives to the use of instructional technology as important: monetary reward (76 percent), recognition from higher education community (76 percent), merit pay (67 percent), and contribution to tenure and promotion (63 percent) (Spotts & Bowman, 1995). Some colleges have gone so far as to link instructional use of technology with promotion and tenure (DeSieno, 1995).

Individual Factors-User Characteristics

Individual factors related to adoption of technological innovations can be divided into two categories-user characteristics and user perceptions (Farquhar & Surry, 1994). User characteristics include age and gender, motivation, anxiety, knowledge base, prior experience, and skill level. User perceptions include compatibility, complexity, observability, relative advantage, and trialability (Rogers & Shoemaker, 1971).

Age and Gender. Most college and university teachers who use instructional technology are between the ages of 40 and 49 (Hadley & Sheingold, 1993). The same study revealed that 58 percent were women and 42 percent men. However, more men than women use the Internet for instructional purposes (CommerceNet, 1995; Demographics of the Internet, 1996; Pitkow & Kehoe, 1996).

The majority of studies examining gender differences in computer-related behavior provide confusing results. These results fall into three broad areas: attitude, aptitude, and use (Kay, 1992). The willingness to adopt new technology is influenced by

attitudes toward the new technology based upon past experience with emerging technologies and by advance information about the new technology. Prior experience with similar hardware and software, existing knowledge of the processes involved in adopting programs requiring new technologies, and the general ease with which an instructor or an administrator adapts to new or changing situations affects their willingness to adopt and implement new technologies.

The belief that technology has an effect on modes of thinking is a view held by feminist scholarship (Rothschild, 1983). In the 1980s, the world of computing was heavily dominated by males (Kiseler, Sproull, & Eccles, 1985). It was predominately men who designed video games, wrote computer programs, sold computers, and taught computing courses. Computer textbooks often featured males in roles as supervisors, administrators, and analysts (Cunningham, 1994).

In Western culture, technical competence symbolizes the key element in the male formative process. Once acquired, it becomes a man's social property (Cockburn, 1985). Using a computer conveys meanings of potency, male prowess, control, legitimacy, efficacy, expertise, and achievement. In open computer labs, women are far less aggressive than male students in obtaining and retaining computer time (Frenkel, 1990).

On the other hand, one author argues that computer-mediated communication neutralizes social status clues such as appearance, voice, organizational status, and age (Kiseler, 1992). He also contends that peripheral members of an organization do well on computer networks because indicators of race, age, and physical ability disappear over the network. Gender remains, since the name and signature can indicate the sex of the writer.

Motivation. Adults learn because of an increase in self-esteem, a sense of pleasing and impressing others, and certain pleasures or satisfactions (Tough, 1971). Faculty motivation improves as they gain experience with instructional technologies.

Computer anxiety is thought to reduce the willingness of an individual to devote time to computer-related activities, thus reducing the ability to use the computer effectively. Gender and age are significantly related to computer anxiety. In one study, females and older individuals reported greater computer anxiety than do men (Cambre & Cook, 1985), while another study conducted nine years later showed that older adults were less computer anxious than younger adults and no significant relationship existed between gender and computer anxiety (Dyck & Smither, 1994). The different outcomes of the two studies may be related to the time interval between them. Several studies noted that lower levels of computer anxiety were directly associated with higher levels of computer experience (Dyck & Smither, 1994; Jones & Wall, 1989). Internet use can even increase the self-esteem of teachers and improve their attitudes towards computers and education (Gallo & Horton, 1994).

Knowledge and Skill. Use of technology in the classroom requires different instructional skills than those encountered in "traditional" lecture-based instructional techniques. Competencies with computer-mediated communication skills vary significantly from communication skills in the traditional classroom. These competencies involve: (a) the ability to interface with technology, (b) the ability to understand the unique strengths and weakness of technology, and (c) the ability to use technology to effectively communicate with learners (Gunawardena, 1992).

Early studies in the field of distance education found that the majority of faculty using distance education were full-time (LaRose & Hoag, 1996), 82 percent of faculty had been at their institutions for six years or more (Dillon, 1989), three-fourths were from the arts, sciences, and engineering fields, while one-fourth were from professional fields such as education and resource management (Clark, Soliman, & Sungaila, 1985). Three-quarters of teachers widely known for integrating computing technology into their teaching had been teaching for 13 years or more (Hadley & Sheingold, 1993).

Experience with Computers. As teachers gain experience, they become more comfortable with computers and tend to use more computer applications as part of their instructional technique. Only sixty percent of teachers with less than two years college teaching experience use word processing, compared with more than eighty percent for those with five to six years' experience (Hadley & Sheingold, 1993). A 1995 study found that faculty had the highest level of knowledge and experience with word processing with 77 percent rating themselves as good to expert in its use. Just 32 percent of faculty surveyed rated their experience with electronic mail as good to expert, and only 23 percent of faculty surveyed rated themselves as good to expert with computer-assisted instruction (Spotts & Bowman, 1995). The skills required of faculty in two-year colleges will shift from instructional delivery skills to instructional design skills as new digital technologies impact the teaching and learning process. If instructors do not have the conviction that they have the capabilities and resources necessary to implement these changes, they are unlikely to attempt them in the first place.

Professional Development. As an individual user characteristic, professional development includes reduced isolation, currency and access to information, commitment to student learning, and the revitalization of teaching (Michels, 1996).

The use of e-mail technology allows faculty and administrators to communicate more directly. Existing patterns of one-way, top-down communication are weakened. Networks which link faculty to students and colleagues will break the old patterns of isolation and parochialism and lead to greater collegiality (Tobin & Dawson, 1992).

Electronic mail and computer conferencing enables individuals to communicate directly with others in the same or related fields (Hellerstein, 1985). Computer-mediated communication (CMC) allows time- and location-independent interactions, the discovery of new ideas and new colleagues, and the establishment of cooperative work groups. Computer-mediated communication allows those who have common areas of interest to communication with each other on an informal basis (Kaye, 1989).

Computer conferencing permits the updating of information related to research, activities, and issues (Kaye, 1989). The tremendous potential of the Internet lies in access to enormous quantities of information (Massy & Zemsky, 1996). New resources become available almost instantaneously (Pool, Blanchard, & Hale, 1995). More and more options and opportunities are becoming available to instructors for the use of technology in education (Sharp, 2000).

The most important factor influencing faculty's use of technology is their need to be certain that the technology will contribute to improved student learning (Spotts & Bowman, 1995). One of the key factors in teachers' commitment to using computers in

their teaching is the strong commitment to student learning and the inspiration teachers receive from their students' accomplishments (Hadley & Sheingold, 1993).

Instructors, as well as students, receive positive benefits through the use of information technologies. Faculty interest in pedagogical principles is aroused and their teaching is revitalized (Boettcher, 1993). Teachers are motivated and enthused about computer technology from what they see happening in their classrooms. The classroom as a learning environment has become more student-centered, thus enabling students to work independently, create products, and do more thinking and interpreting (Hadley & Sheingold, 1993).

Individual Factors-User Perceptions

User perceptions include compatibility, complexity, observability, relative advantage, and trialability. Technological innovation will diffuse faster if it is perceived as having: (a) relative advantage over the methods it supercedes in terms of economics, convenience, social prestige, or satisfaction; (b) a high degree of compatibility with existing values, past experiences, and needs of potential adapters; (c) a low degree of complexity; (d) a high degree of "trialability" before commitment is required, and (e) a high degree of visibility to other potential adopters (Rogers & Shoemaker, 1971). The more positive faculty attitudes are toward the Internet, the more likely they will use it.

Compatibility. Compatibility is "the degree to which an innovation is perceived as consistent with the existing values, past experiences and needs of the receivers" (Rogers & Shoemaker, 1971, p. 145). The greater the compatibility of an innovation, the greater the likelihood it would be adopted (Paul, 1977). The compatibility of

instructional technology with existing course materials was very to critically important to 58 percent of the faculty at a Midwest university (Spotts & Bowman, 1993).

Computers and networking technology are bringing about changes in when and where learning takes place, who is doing the learning, and what the learners need to learn (Twigg, 1994a). The emerging system of teaching and learning in a student-centered curriculum allows for the expansion of just-in-time learning, electronic collaboration, and self-paced, independent study. "There is no way we can possibly transmit enough information to educate our students. We can, at best, teach them where to find it for themselves, so they will be able to get what they need. Electronic resources are the most up-to-date and most easily accessible" (Frazier & Frazier, 1994, p. 37). As business and industry continue to computerize, there is an increased demand on college graduates to be familiar with technology (Albright & Graf, 1992; Boettcher, 1993). With so much to choose from, instructors and administrators are faced with an increased demand to utilize technology that is compatible with the courses being taught. Using new technology simply because it exists does not necessarily mean that its use is appropriate for the type of study involved.

Collaborative learning is "the process of learning in groups" (Kiseler, 1992, p. 149). Teachers believe cooperative learning and small-group techniques are effective instructional techniques (Lowther & Sullivan, 1994). Collaborative learning shifts the teaching focus away from individual performance (Kort, 1992). "Technology has helped us move away from a view of learning as an individual act done in isolation toward learning as a collaborative activity" (Kozma & Johnston, 1991, p. 17). The teacher is

faced with using the appropriate type and amount of new technology to bring about an effective cooperative learning experience.

A 1994 study reported that teachers agreed with the idea that motivation and learning increase when students are given more control over their instruction (Lowther & Sullivan, 1994). They also agreed that computer-delivered instruction enables students to manage their own learning.

Use of the Internet empowers students to have greater control over when, how, and what they learn. It also gives them greater control over how that learning will be certified (Massy & Zemsky, 1996). Seventy percent of teachers in a 1993 survey responded that they were able to spend more time with individual students and 61 percent said that they were better able to tailor students' work to individual student needs (Hadley & Sheingold, 1993). Instructors using these techniques have to ensure that the computer-delivered instruction is appropriate for the course of study involved.

The student is an "active and interactive researcher, problem-solver, and strategist" (Siegel & Sousa, 1994, p. 50). The teacher is seen as a facilitator, not someone who knows everything, but who knows how to locate and access the information (Hadley & Sheingold, 1993; Knupfer, 1993). Using this approach, the teacher becomes only one of a number of resources available to the student (Gunawardena, 1992). In their new roles as guides, coaches and facilitators, faculty allow students to discover the answers to difficult questions and go beyond original lesson expectations (Michels, 1996). Students are therefore more willing to assume responsibility for their own learning (Hardy, 1992; Hooper, 1992; Laridon, 1990a, 1990b; McIlhenny, 1991).

John Dewey in 1916 proposed, "the best learning environment was where students were active and self-directed learners" (Dewey, 1995/1916, online). Technologies such as the Internet have the potential to make this type of learning environment possible by promoting the development of self-directed learners (Lieberman & Linn, 1991) and facilitating cooperative learning activities (Holden & Wedman, 1993). Students in electronic classrooms tend to be active learners and exert a greater amount of control in problem-solving and decision-making (Rossman, 1992). The adoption of information technology is facilitating the change in the student role from that of passive receptor to being an active participant in the construction of knowledge (Knupfer, 1993; Kozma & Johnston, 1991). The instructor's role is that of keeping the student focused and on track through the appropriate use of learning resources and compatible technologies.

Complexity. Complexity is "the degree to which an innovation is perceived as relatively difficult to understand and use" (Rogers & Shoemaker, 1971, pp. 154-155). The more complex an innovation, the less likely it is to be adopted (Paul, 1977). Innovations that are easily understood within existing contexts are often more easily adopted because they do not disrupt existing social patterns (Bandura, 1982).

Complexity can take the form of "information overload" (C. D. Maddux, 1994, p. 39). The Internet presents an overwhelming amount of information that can paralyze users attempting to locate and sort through vast collections of resources to find the most useful and appropriate piece of information.

A problem facing faculty with regard to the Internet is the rapidity with which the Internet and the resources located on the Internet are changing. The Internet is a dynamic

and constantly changing technological world. Instructions, directories, books, and documentation often become obsolete before they are printed.

Observability. Observability refers to "the degree to which the results of an innovation are visible to others" (Rogers & Shoemaker, 1971, pp. 155-157). Internet use is clearly visible in new modes of computer-assisted communication, electronic communities, and on-line colleges.

Early research in the development of computers found that computers were used to serve social needs such as initiating new friendships and communicating with others (Hellerstein, 1985). From an administrative perspective, computer networks increase organizational efficiency and productivity, aid decision-making, and coordinate dispersed groups of co-workers (Hiltz & Turoff, 1993). Communication via computer networks is changing the way large organizations function (Sproull & Kiesler, 1991). Although, computer networks allow access to the vast informational resources of an organization (Zuboff, 1988), considerable concern exists about the quality of information available to scholars (Marcus, 1996).

Electronic mail has become a "core tool" for use in academe (Green, 1996). Traditional scholarly research was accomplished through collegial exchanges and face-to-face meetings. Scientific researchers and scholars are turning, with increasing regularity, to electronic networks to conduct their academic collaborations. A growing number of scholarly publications are now available on-line, many offering full text volumes for little or no cost to the researcher (Marcus, 1996).

Faculty use computer networks for discussions, information exchange, and delivery of course materials. Computer networks encourage learning and interaction

between students by allowing student responses, questions, and opinions to be made public (Waggoner, 1992). Students benefit by more frequent communication with faculty on academic matters (Boettcher, 1993). The social networking advantages of computer-mediated communication overlap in the areas of teaching, professional collaboration, and even administration (Kaye, 1989). Overcoming geographic isolation is one of the social benefits attributed to student use of computer networks. This social phenomenon occurs through a combination of chance encounters to new ideas and unknown people and through the enlarging of networks of professional contacts.

The Internet and other forms of computer networking bring groups of people together in close intellectual partnership so that their ideas can come into contact (Michels, 1996). Long before the Internet came into being, researchers predicted that computer networking as a form of communication would have a marked impact on both the individual and society (Licklider, Taylor, & Herbert, 1968). They also predicted that people would be able to select other individuals to interact with more by commonality of interests than by accidents of proximity. A machine would be able to make communication not only more effective and productive than face-to-face communication, but more enjoyable.

Electronic, or virtual communities are geographically dispersed computer users who create a closely-knit sense of community and culture on-line (Michels, 1996). Electronic networks are the greatest resource ever developed for community-building and the free expression of ideas (Rheingold, 1993). These communities were envisioned more than thirty years ago as "geographically separated members, sometimes grouped in small clusters, and sometimes working individually. They will be communities not of

common location, but of common interest" (Licklider et al., 1968, p. 30). A web-based college course is a short-term electronic, or virtual, community lasting only for the duration of the course of instruction. Often, however, students and instructors who participate in an on-line course continue to communicate with members of the class and with individual from other classes or institutions with similar interests (Palloff & Pratt, 1999).

Knowledge and visibility of web-based Internet courses has expanded in recent years as several states have taken the lead in forming both on-line colleges and communities of two-year colleges collaborating to enhance learning. Consortiums designed to provide access via instructional technologies to quality instruction and support to students regardless of geographic, distance, or time constraints. The Virtual College of Texas is a collaborative effort of Texas' fifty community college districts and the Texas State Technical College System. Its goal is to facilitate the sharing of distance learning courses among member colleges. Delivery media include the Internet, telecourses (tape recorded courses), and two-way interactive video. Since the Virtual College of Texas became operational in the fall of 1998, member colleges have enrolled more than 1,385 students in over 200 courses (Joyner, 2000).

The Pennsylvania Virtual Community College Consortium is another online consortium made up of Pennsylvania's fifteen community colleges. Its purpose is to allow Pennsylvanians to take courses from any member college through Internet and video technology. Through its World Wide Web site, the consortium offers approximately 800 online courses from the fifteen member institutions through the Internet, video, and television. In 1999, approximately 16,000 college students statewide

took nearly 700 distance-learning courses. Consortium organizers predict that 43,000 students will be taking distance-learning courses through the consortium by the year 2004 (Lords, 2000).

Relative Advantage. Relative advantage "is the degree to which an innovation is perceived as being better than the idea it supercedes" (Rogers & Shoemaker, 1971, p. 138). The potential impacts of technology may be either amplifying or transforming. Some changes are amplifying, "making it possible for people to do what they have before, but more accurately, quickly, or cheaply" (Kiseler, 1992, p. 148). Transformative effects bring about "qualitative changes in how people think about the world, in their social roles and institutions, in the ways they work, and in the political and economic challenges they face" (Rogers & Shoemaker, 1971, p. 138). In a 1993 study, the advantages of information technology offered over traditional delivery methods was a factor rated as very to critically important by 72 percent of the faculty surveyed (Spotts & Bowman, 1993).

Using information technology in teaching provides advantages over traditional learning by allowing for more frequent student-faculty communication and improved student-teacher relationships (Boettcher, 1993). Traditional learning in the two-year college classroom involves interactions between the faculty member and students almost always within certain prescribed times—class times and office hours. During class time, faculty normally strive to cover a set amount of course material. Minimal time is available for student-faculty interaction. Office hours are also a problem for working students or when faculty are unable to meet their scheduled office hours.

Using electronic mail and computer conferencing, class members can participate in discussions at the convenience of each member of the class. The "window of opportunity" is now open for improved faculty-student interactions. Problems can be posed, responses elicited, and assistance given without the traditional constraints of time and place. Group members are better able to conduct group work when meeting electronically. They are not inhibited by narrow windows of time when the entire group can meet. Low cost and speed are additional advantages the Internet and e-mail have over telephone calls, postal mail, and fax transmissions (Wilson, 1992).

The Internet permits faculty who may be a continent away to work with colleagues in other countries as if they were in adjoining offices (Wilson, 1992). Traditional collaboration with faculty in other geographical locations required long delays and impersonal communications. The world of the Internet and on-line communications transcends physical boundaries, connecting participants through interest and intellect (Michels, 1996). Computer networks foster a sense of connection between learners and more democratic participation than physical classrooms, where discussion is often dominated by a few students (Cunningham, 1994).

Use of computer software has a transformative effect on the learning process not readily found in traditional classroom instruction. Computer software is used as a "'...cognitive enhancer,' permitting students to focus on complex concepts" (Lambrecht, 1993, p. 506). Effective computer use requires understanding subject matter or employment-related concepts, recognizing problems, and judging which software or application might be helpful for solving the problem. As students become more involved in the learning process, they are more prepared to explore subjects in depth.

Trialability. Trialability is "the degree to which an innovation may be experimented with on a limited basis" (Rogers & Shoemaker, 1971, p. 155). Administrators should allow faculty to test software products and develop expertise in producing their own courseware (Beaudoin, 1990).

Summary

This review of literature traced the emergence of a new economic order in the United States springing from rising global competition and declining national productivity. Technological innovations, especially the Internet and computer networks, now permeate work, education, and everyday life to the extent that a new communications revolution has taken place. The information age, or whatever name the media chooses to give it, is not about computer alone. Computing, networking, and telecommunications have converged into what are now called information technologies. Global economics are becoming more and more dependent on knowledge and information, rather than on raw materials.

The Internet is rapidly becoming an integral part of the practices and activities of two-year colleges. It is no longer the sacred domain of universities and researchers. The growing awareness of the potential for this technology is awakening curiosity in many teaching environments. Literature describing connectivity and use at two-year colleges shows that progress is well underway in the use of the Internet as a primary mode of instructional delivery. While connectivity is moving forward at a rapid pace, the number of faculty actually involved in the use of Internet-based course delivery is still lacking. Economic competition in the twenty-first century will demand that educational

institutions be on the cutting edge of technology and its use in educating and training the workforce of the future.

Most of the literature reviewed dealt with the manner in which teachers in four-year colleges and universities utilized computers, electronic networking, and the Internet in teaching and learning. Some of the literature reviewed included elementary and secondary school use of these technologies. Literature specific to two-year colleges was lacking, especially in areas related to the actual development, implementation, and administration of on-line courses. Current practices in two-year colleges present obstacles related to the preparation of faculty to use the technology, how they actually use the technology, and internal and external factors influencing technology integration. Additional research on faculty use of the Internet as a mode of instructional delivery is needed in order to develop policy and inform faculty and administrators.

CHAPTER III

METHODOLOGY

This chapter contains a description of the methods that were used to complete this study. The chapter begins with the rationale for the research methodology and a description of the procedure to be used for selecting the population and sample. A summary of the procedures used to develop the survey instrument is presented next. The actual survey method is then described by the author and he closes the chapter with a description of the statistical procedures that were used to analyze the data.

The role of the college administration is vital to the success of Internet-based courses at the two-year college level. Most two-year colleges do not have sufficient funding to hire staff whose primary purpose is to administer or to develop special classes. Therefore, faculty must often bear most of the burden of planning and administering Internet-based courses.

Cooperation between faculty and college administration must be efficient and appropriate for the success of these courses. The researcher felt that it is highly important for two-year college administrators to be able to determine that courses taken online possess the same degree of planning and preparation as that going into traditional classroom courses. It is also important that the quality of these courses and student outcomes are consistent with traditional classroom courses.

Research Design

The principal objective of this study was to investigate the perceptions and satisfaction levels of faculty and administrators in two-year colleges in Texas concerning

policies and procedures governing Internet-based academic courses as they go about the tasks of developing, presenting, and administering these courses.

The research questions that were answered in this study are:

1. Are administrators and faculty in two-year colleges in Texas aware of procedures and policies dealing with the administration of Internet-based courses at their institutions?

2. Are faculty and administrators satisfied with procedures and policies currently in place to deal with the administration of Internet-based courses in two-year colleges in Texas?

3. What do faculty and administrators in Texas two-year colleges perceive to be the benefits and barriers to the use of Internet-based courses in two-year colleges?

Research Methodology

Both quantitative and qualitative data were collected for this study. Quantitative data were collected using a 55-item questionnaire. Qualitative data were collected in the form of four open-ended questions designed to elicit additional data from the respondents. These responses were then used to provide additional context that the quantitative questions may have missed.

Instrumentation

In order to examine the perceptions of faculty and administrators of two-year colleges in Texas concerning their use of the Internet as a primary mode of instructional delivery, an electronically distributed questionnaire was used. The questionnaire used in

the survey was developed as an automated Web survey using the SurveyGold™ Version 6.2 software produced by Golden Hills Software of Colorado Springs, Colorado.

Development of the Survey Instrument

A questionnaire was developed to assess the perceptions of faculty and administrators as they seek to develop, implement, and administer Internet-based academic courses. Qualitative data were gathered to guide the development of the research instrument using documents available on the Internet. These documents included reports, articles from online journals, conference papers, and other information describing the use and administration of the Internet and the World Wide Web as a mode of instructional delivery.

After a review of the relevant literature, two survey instruments were located containing questions dealing with the assessment of the areas of interest for this study. The two surveys from which this survey instrument was adapted were the Survey on Distance Education Courses Offered by Higher Education developed by the U. S. Department of Education National Center for Education Statistics (Survey on Distance Education Courses, 1994) and the National Education Association report on the quality in Internet-based distance learning (Fleischauer & Lucivero, 2000). Duplicate items were removed, wording was modified slightly to emphasis Internet-based courses as opposed to all forms of distance education, and open-ended questions were added. The complete survey is found in Appendix A.

The questionnaire consists of fifty-five forced-choice questions grouped into nine separate sections organized around themes identified in the literature. Four open-ended

questions at the end of the questionnaire were developed by the researcher after a review of the related literature revealed that respondents to surveys are more willing to respond if they have the opportunity to make comments on issues contained in the survey (Dillman, 2000).

Respondents were asked to indicate their level of agreement with items in the survey. Response to the first forty questions received a numerical weight based upon a Likert scale of 1 to 5. In questions one through thirty-three, "Disagree completely" received a weight of 1, "Disagree somewhat" received a weight of 2, "Neither agree nor disagree" received a weight of 3, "Agree somewhat" received a weight of 4, and "Agree completely" received a weight of 5.

Responses to questions thirty-four through forty received a numerical weight based upon a Likert scale of 1 to 5 with "Always" receiving a weight of 5, "Almost always" receiving a weight of 4, "Sometimes" receiving a weight of 3, "Almost never" receiving a weight of 2, and "Never" receiving a weight of 1. A sixth option of "Don't know" was also available for questions thirty-four through forty to permit administrators and part-time faculty the opportunity to respond without having had previous hands-on experience with Internet courses. This option received a numerical weight of 0 (zero).

Questions forty-one through forty-five were general demographic questions concerning the individual respondent. Questions forty-six through fifty-five were questions related to each respondent's personal experiences with past or current Internet courses. The final four open-ended questions allowed respondents to comment on advantages and disadvantages of teaching Internet courses.

Table 3.1 illustrates the grouping of survey questions by category. The first and second groups of items were concerned with levels of support given Internet-based courses by the institution and institutional guidelines related to course development. Section three, four and five were concerned with student/faculty interaction, student preparation for Internet-based courses, and support services provided to students taking Internet-based courses. Section six was concerned with faculty use of and preparation of Internet-based courses. Sections seven and eight contained items on testing and evaluation of students enrolled in Internet-based courses and on evaluation of Internet-based courses by students and instructors. The ninth section asked the respondent to provide personal demographic information and pedagogical information related to each of their institutions. The final section provided respondents the opportunity to comment on what they felt were the advantages and disadvantages of Internet-based courses.

Table 3.1

Structure of the Data Collection Instrument

Research Question	Survey Section	Section Title	Number of Items
1	1	Institutional Support	7
1	2	Course Development	4
1	3	Teaching / Learning	3
2	4	Course Structure	6
2	5	Student Support	3
2	6	Faculty Support	5
2	7	Course Evaluation and Assessment	5
2	8	Student Evaluation and Testing	7
n/a	9	Demographics and Pedagogical Information	15
3	10	Comments	4

Advantages of Electronic Surveys

A major benefit of electronic surveys is that the participants can be rapidly targeted and the survey can be distributed quickly to a large number of participants (Mitchell-Powell, 1995). Completing the survey is much easier than the traditional pencil and paper questionnaire since it can be delivered answered and returned via computer. In addition, the processing and assembling of data into a computerized database can be easily automated using this process.

Electronic mail is instantaneous, arriving seconds after being sent, and able to be accessed from any geographic location, providing the proper hardware and software is in place. The capability to respond to an e-mail virtually immediately upon receipt provides the recipient of an e-mail survey request with the opportunity to link to the web-based survey, complete it within a few minutes, and forget about it. Paper forms do not clutter up the recipient's desk, pen and ink are not required, and the physical acts of completing, folding, and mailing an envelope are eliminated. The ease and simplicity of responding to an e-mail or a web-based survey enhances the recipient's willingness to respond to the survey, and, consequently, improves the response rate for the survey (Dillman, 2000).

Validation of Survey Instrument

Content validity of the instrument was checked by asking several recognized experts, supervisors of Internet-course content at a local community college, to review the instrument. Responses to this request indicated strong content validity.

To better understand how respondents would interact with the survey instrument, a pre-test was conducted using the faculty and administrators at a 7,500-student

community college in West Texas. Nineteen instructors and six administrators at this institution who were involved with Internet-based instruction during the 2000-2001 academic year were sent an e-mail message asking them to participate in the survey. The e-mail message directed the respondent to access the survey by activating their Internet browser and accessing the survey on the South Plains College web site.

The selection of these individuals was based on identification of faculty at the community college who taught, were currently teaching, or were scheduled to teach an online course during the Fall 2000 or Spring 2001 semesters. Administrators invited to participate included the Dean of Continuing and Distance Education, Associate Dean of Continuing and Distance Education, Dean of Arts and Sciences, Dean of Admissions and Records, Associate Dean of Admissions and Records, and the Chairman of the Computer Information Systems Department.

Pre-test respondents were asked to complete the survey questionnaire and give comments concerning confusing questions, poor wording, and provide an estimate of the time taken to answer the questions. Comments provided by respondents to the pre-test survey provided useful information in identifying modifications necessary to improve the questionnaire and to clarify inaccurate wording.

Data Collection

Participants in the survey were full-time faculty and part-time faculty who actively utilized the Internet as a mode of instructional delivery for the teaching of college-level courses and administrators at these same institutions who were involved in administrative activities related to these courses.

Population

The population for this study consisted of full-time faculty, part-time faculty, and administrators in Texas public two-year institutions of higher education who have been involved in the administration or teaching of Internet-based courses offered through the Virtual College of Texas. The Fall 2000 and Spring 2001 online semester catalogs of courses offered through the Virtual College of Texas were used to identify the Internet courses taught by this population. This population was selected for its convenience of access and for its appropriateness to the study. Names of instructors teaching Internet courses through the Virtual College of Texas along with correct e-mail addresses were readily available through the Virtual College of Texas web site and course catalogs. Since the Virtual College of Texas exists as a consortium exclusively for the purpose of administering Internet-based courses, one hundred percent of the faculty teaching these courses met the requirements for inclusion in this study. In addition, the Virtual College of Texas maintained a current directory of administrators responsible for Internet-based courses at each of the participating institutions.

Of the fifty community colleges districts in Texas and the Texas State Technical College System committed to support the Virtual College of Texas, thirty-six of these institutions have participated directly by providing access to Internet courses through the Virtual College of Texas. All faculty and administrators from participating institutions were identified through communication with the Virtual College of Texas through its Internet web site and through personal contact with the Director of Projects at the Virtual College of Texas. All instructors teaching the courses listed with the Virtual College of Texas Fall 2000 and Spring 2001 online catalogs were invited to participate in this

survey. These catalogs listed 369 instructors and 39 administrators from 28 public two-year institutions of higher education.

Survey Delivery

An e-mail message was sent explaining the study and requesting participation of the two-year college faculty and administrators at the two-year colleges identified as participants in the Virtual College of Texas Consortium. The complete e-mail message is found in Appendix B. This e-mail message contained the Uniform Resource Locator (URL), or World Wide Web address, of the survey questionnaire. Participants were asked to activate their Internet browser and open the survey. In order to avoid sending large numbers of e-mails through the South Plains College server at one time, e-mails to the participants were sent out one college at a time over a period of three days.

While the primary intended means of response to the survey was through the use of the on-line survey, participants were given the opportunity to request and complete a printed version of the questionnaire. Participants wishing to respond in this fashion either e-mailed, faxed, or mailed the completed survey back to the researcher.

Ten working days were allowed for initial response to the survey. A follow-up e-mail was sent to those participants who had not responded at the end of the initial ten-day period. The complete follow-up e-mail is found in Appendix C. The follow-up e-mail included a closing date for the survey participants to respond. The closing date for the survey was six calendar weeks from the date of the initial invitation to participate.

Response Rate Concerns

All survey research is plagued by concern over rates of return. When using computer networks for distribution of and electronic questionnaire, wrongly addressed or out-dated e-mail addresses are not automatically reported to the sender. This often results in a considerable amount of undeliverable electronic mail. Some studies utilizing electronic survey techniques have reported low response rates and high numbers of invalid e-mail addresses (Hellerstein, 1985; Kettinger, 1992; Kovacs, Robinson, & Dixon, 1995). By using the Virtual College of Texas as the primary source for the e-mail addresses of the faculty and administrators involved in the survey, a high degree of accuracy and currency of e-mail addresses was anticipated. The respondent's institution was contacted whenever an incorrect or out-dated e-mail address was identified and a new e-mail invitation was sent to the corrected address.

Some response rate concerns with other e-mail surveys were not anticipated to be a problem with this study. While many individuals do not read their e-mail messages on a regular basis, the individuals participating in this study have made e-mail a part of their daily life and read their messages on a routine basis. These individuals find ways to check their e-mail even when away from their computers for long periods of time, especially during the summer months when many take vacations away from home. Since the survey was conducted during the fall, this situation was not a concern for this study. Unlike the instructors and administrators invited to participate in this study, there are some individuals who simply do not care for e-mail and choose not to check their messages unless compelled to do so by an outside force, such as their spouse or boss (Dillman, 2000). Individuals involved in this study use e-mail as a major tool in their

courses and are set up to check e-mail regularly from students and to chat electronically with class members.

The only likely real concern regarding response to this study involved those individuals who routinely discard e-mails without reading the entire message. Many of the individuals who teach Internet-based courses receive large numbers of e-mail messages daily. Their selection of which e-mail messages to read is often based on the subject line of the message. Considerable care was taken to make the subject line of the initial e-mail attractive and interesting enough to persuade the respondent to go beyond the subject line into the body of the e-mail itself.

Timing also sometimes impacts response rates if the survey is sent at a time during the school term when faculty are most busy such as at the beginning of the semester or at the very end of the semester during final exams (Schuldt & Totten, 1994). Surveys sent to electronic mailing lists often suffer low response rates when subscribers received a daily digest; a single message consisting of all messages posted that day, which can be deleted without sufficient investigation of the specific messages within the digest. Filters are often used to discard messages that contain words or phrases predetermined to be of little interest to the receiver. It was anticipated that the timing of this survey would encourage response by taking place at a time when the Fall semester is well underway and respondents had ample time available to thoroughly review their daily e-mail lists.

Studies comparing e-mail surveys to mail surveys were few, and none were located within the past five years. Widely distributed electronic surveying is a relatively new field. Survey techniques employed in these surveys differ greatly from survey to

survey. Interpretation of data collected from these surveys should be regarded carefully until a greater volume of information can be accumulated and analyzed.

Rapid advances have been made in web-based surveys over the past five years. More recent survey information regarding web-based surveys needs to be gathered and evaluated. E-mail from 1986 to 1995 was not as user-friendly as today and required considerable time and effort to complete. Further study including the results of web-based surveys compared with traditional e-mail and postal mail surveys is necessary.

Electronic surveys are also prone to low response rates because of poor use of page layout and font selection (Carroll, 1994). For some respondents, manipulating cursor keys to enter a response on an electronic survey is more difficult than paper-pencil mail surveys (Mehta & Salvidas, 1995). The software used for this study, SurveyGold™, permitted the researcher to draw from a variety of attractive and easy-to-read templates and formats. While the primary input tool for the survey was the mouse, the SurveyGold™ software permitted the respondent to use either the mouse or cursor keys to select responses to the survey questions.

E-mail surveys are normally self-administered like traditional mail surveys. Respondents complete and return the questionnaire on their own. This may lead to sampling bias (Tse et al., 1995). A number of established methods exist to estimate the impact of self-selection bias on survey results. One of the simplest of these is to compare results from surveys using different incentives and sampling methodologies. While these concerns do not invalidate an e-mail survey, they do tend to place constraints on the generalizability of the results to the entire population.

Effective mail surveys with consistently high response rates consist of five elements which have individually been shown to significantly improve response to mail surveys in most situations. These include: (1) a respondent-friendly questionnaire, (2) up to five contacts with the questionnaire recipient, (3) inclusion of stamped return envelopes, (4) personalized correspondence, and (5) a token financial incentive that is sent with the survey request (Dillman, 2000).

E-mail surveys do not lend themselves to the inclusion of stamped return envelopes or token financial incentives included with the survey, but the remaining three elements are particularly applicable to e-mail and web-based surveys. Design of the survey plays an extremely important role in the recipient's willingness to respond. A respondent-friendly questionnaire must be clear and easy to comprehend, question order must suggest high salience to the respondent, and the layout must allow for comprehension and easy response. Utilization of the SurveyGold™ software accomplished this with little additional effort.

Personalizing the initial and follow-up e-mails by including the potential respondent's name, how the potential respondent was identified for inclusion in the survey, and how each potential respondent is crucial to the success of the survey can increase survey response rates from 5% to 10%. Multiple contacts with non-respondents and follow-up notes of appreciation also are an integral part of effective web-based surveys and were used extensively in this study. Response rates of 70% have been produced consistently using this approach for general public populations. While response rates as high as 70% were found feasible for some specialized populations, response rates

of 35% or higher were considered acceptable in most cases (Dillman, 2000; Tse et al., 1995).

Data Analysis

The analysis of data was designed to comply with the stated purpose of this investigation in order to answer each of the three research questions.

Data Selection Procedures

A process was designed for the electronic distribution of the survey instrument and for the tracking of returned and undeliverable surveys. As completed surveys were received, each was checked for e-mail transmission errors and for discrepancies in responses to determine if follow-up was needed.

Statistical Procedures

Data were entered into a spreadsheet using Microsoft® Excel 2000. The statistical capabilities of the SurveyGold™ Version 6.2 software used to perform the majority of the data analysis. Descriptive statistics for rated questions included calculation of percentages, mean, median, mode, and standard deviation where appropriate.

Section ten of the survey included four open-ended questions in which respondents were asked to indicate Internet activities used in the development or implementation of their Internet courses. Respondents were invited to add information regarding personal experiences with the administration of Internet-based courses and suggestions to facilitate implementation of Internet-based courses into the curriculum.

Any other comments the respondents wished to add were included at this point. Written responses were transcribed and analyzed for themes that were then used to expand on the quantitative findings.

Anticipated Findings and Conclusions

The researcher anticipated that the perceived level of satisfaction by faculty and administrators in two-year colleges involved in the teaching or administration of Internet-based courses would be found to be directly related to the perceptions of those same faculty and administrators towards the institutional support given to their courses. While the needs, requirements, and mission of each college and remote campus vary from institution to institution, many community colleges have developed guidelines and policies for the effective administration of Internet-based courses. It is important to the success the Internet as a primary means of course delivery that general guidelines and policies for the effective administration of Internet-based courses be developed, disseminated, and understood by faculty and administrators in all institutions of higher education.

Two-year college leaders will benefit from the study by having a better understanding of the unique nature of Internet-based curriculum and the problems encountered with the administration of such curriculum. Administrators will be able to better formulate policy and guidelines for the use of electronic-based courses and will be more comfortable incorporating it into the existing structure of the institution. Educators in two year-colleges will benefit through learning more about what other institutions of similar size and scope are accomplishing in the area of Internet-based courses.

Summary

This chapter contained a description of the research methodology and procedures used in this study. The process used to select the research sample was explained and the study sample presented. Next, the process used to develop and pre-test the survey instrument was discussed. The data collection technique to be used and the statistical procedures to be employed were outlined. Finally, anticipated findings and conclusions were discussed.

CHAPTER IV

DATA ANALYSIS

This study investigated the attitudes and perceptions of two-year college faculty and administrators who used the Internet for the development and presentation of for-credit academic and technical courses. Data were collected through the use of a web-based survey instrument specifically designed to measure these variables. Demographic data were collected to provide information on various characteristics of the survey participants. Pedagogical data were collected to provide information on factors influencing course design and development. Qualitative data were collected through the use of open-ended questions concerning benefits and barriers to the use of the Internet as a primary means of educational course delivery. This chapter will report the results of this study and address each of the research questions through analyses of responses to survey items.

This chapter begins with a restatement of the research questions of this study. Next, demographic and pedagogical data are presented. Third, results for each of the research questions are reported. The chapter concludes with a summary of key findings.

Restatement of Research Questions

A review of related literature yielded major themes from which the three research questions were developed and subsequently used as the organizational framework for this study. In addition to demographic and pedagogical data, the researcher attempted to answer the following questions:

1. Are administrators and faculty in two-year colleges in Texas aware of procedures and policies dealing with the administration of Internet-based courses at their institutions?

2. Are faculty and administrators satisfied with procedures and policies currently in place to deal with the administration of Internet-based courses in two-year colleges in Texas?

3. What do faculty and administrators in Texas two-year colleges perceive to be the benefits and barriers to the use of Internet-based courses in two-year colleges?

Demographic and Pedagogical Information

The participants in this study consisted of administrators and instructors of Internet-based courses in community colleges in Texas selected from the Fall 2000 and Spring 2001 online course catalogs of the Virtual College of Texas. E-mail invitations to participate in the survey were sent to 408 individuals at 28 public community colleges in Texas. Initial and follow-up e-mail invitations to participate in the survey are shown in Appendices C and D. Faculty and administrators successfully responding to the web-based survey totaled 153. Seventeen (17) individuals attempted to respond to the web-based survey but were unable to complete their responses due to computer or Internet submission problems. One of these individuals requested and completed an e-mail version of the survey. The total number of usable responses to the survey, 153 from 26 of the 28 community colleges participating in the Virtual College of Texas, represents a return rate of 37.5%. The list of participating institutions and number of participants from each is shown in Appendix D.

Section 9 of the survey instrument gathered personal characteristics from respondents regarding gender, age, education level, community college experience, teaching experience, level of computer experience, and institutional responsibility. Also reported in this section was pedagogical information relating to Internet course enrollments, maximum class size limits, Internet course organization, instructor-student interaction, preparation time, amount of writing required, and level of satisfaction with teaching Internet-based courses.

Gender and Age

A summary of the gender and age of survey participants is shown in Table 4.1. More women than men responded to the survey, with 56.9% (87) of the participants female and 43.1% (66) male. Participants were asked for their ages within a range of years rather than by specific age. The largest number of participants was in the 41-50 age range with 34.0% (52). The 51-60 age range was next with 29.4% (45).

Table 4.1

Summary of Responses for Gender and Age (N = 153)

	Age											
	21-30		31-40		41-50		51-60		60+		Total	
Gender	n	%	n	%	n	%	n	%	n	%	n	%
Female	2	1.3	24	15.7	29	19.0	25	16.3	7	4.6	87	56.9
Male	1	0.7	13	8.5	23	15.0	20	13.1	9	5.9	66	43.1
Total	3	2.0	37	24.2	52	34.0	45	29.4	16	10.5	153	100.0

Role in the Institution

The role of the survey participants in their institutions was an important component of this study. Of the 153 respondents to the survey, 111 (72.5%) characterized their role as full-time faculty and 22 (14.4%) as part-time faculty. Two participants responded "other" to this question but were listed by the Virtual College of Texas as administrators. These two sets of responses were added to those of the other participants who classified themselves as administrators. A total of 20 (13.1%) of the participants were classified as administrators.

Although gender and age were not considered major factors in this particular study, a summary of gender with relationship to the participant's role is shown in Table 4.2. A summary of age with relationship to the participant's role is shown in Table 4.3. Further analysis of the survey utilizes "role" (i.e., full-time faculty, part-time faculty, or administrator) as the primary basis for comparison.

Table 4.2

Summary of Responses for Gender and Role (N = 153)

	Role							
	Administrator		Full-time Faculty		Part-time Faculty		Total	
Gender	n	%	n	%	n	%	n	%
Female	7	4.6	68	44.4	12	7.8	87	56.9
Male	13	8.5	43	28.1	10	6.5	66	43.1
Total	20	13.1	111	72.5	22	14.4	153	100.0

Table 4.3

Summary of Responses for Role and Age (N = 153)

	Age											
	21-30		31-40		41-50		51-60		60+		Total	
Role	n	%	n	%	n	%	n	%	n	%	n	%
Administrator	1	0.7	3	2.0	7	4.6	7	4.6	2	1.3	20	13.1
Full-time	2	1.3	28	18.3	40	26.1	32	20.9	9	5.9	111	72.5
Part-time	0	0.0	6	3.9	5	3.3	6	3.9	5	3.3	22	14.4
Total	3	2.0	37	24.2	52	34.0	45	29.4	16	10.5	153	100.0

Level of Education

Participants were asked to state their level of education. At the community college level, instructors in the academic fields are usually required to have a Master's degree, and instructors in most vocational areas are usually required to have a Bachelor's degree. Some vocational fields exist, however, that have no specific college educational requirements. Rather, faculty have a designated, measurable skill level and professional work experience as credentials for employment. Of the full-time faculty and part-time faculty participants in the survey (133), the Virtual College of Texas Fall 2000 and Spring 2001 course catalogs identify 53.4% (71) of participants as instructors of academic courses and 46.6% (62) as instructors of vocational courses.

Instructors choosing to instruct via the Internet fall roughly into the same educational levels as community college instructors in general with 21.6% having earned doctorate degrees. Approximately 15% of faculty in general at community colleges have acquired doctorate degrees (Community College enrollment, 1995). A summary of level of education with relationship to the participant's role is shown in Table 4.4.

Table 4.4

Summary of Responses for Role and Level of Education (N = 153)

	Level of Education (Type of degree)									
	Associate's		Bachelor's		Master's		Doctorate		Total	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	0	0.0	3	2.0	12	7.8	5	3.3	20	13.1
Full-time	1	0.7	7	4.6	79	51.6	24	15.7	111	72.5
Part-time	0	0.0	3	2.0	15	9.8	4	2.6	22	14.4
Total	1	0.7	13	8.5	106	69.3	33	21.6	153	100.0

Community College Experience

Experience at the college level does not appear to be a major influence on using the Internet as a means of instructional delivery. Table 4.5 shows that 38.5% (59) of participants had less that eight years experience. Eight or more years experience was reported by 61.5% (94) participants. Of these, 23.5% (36) of participants had more then nineteen years experience at the community college level. Full-time faculty accounted for 75.0% (27) of the participants with more than nineteen years experience at the community college level.

Table 4.5

Summary of Responses for Role and Level of Experience (N = 153)

	Level of Community College Experience													
	0-3 years		4-7 years		8-11 years		12-15 years		16-19 years		19+ years		Total	
Role	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Administrator	3	2.0	4	2.6	2	1.3	1	0.7	4	2.6	6	3.9	20	13.1
Full-time	15	9.8	26	17.0	16	10.5	16	10.5	11	7.2	27	17.6	111	72.5
Part-time	5	3.3	6	3.9	3	2.0	3	2.0	2	1.3	3	2.0	22	14.4
Total	23	15.0	36	23.5	21	13.7	20	13.1	17	11.1	36	23.5	153	100.0

Experience Teaching Internet Courses

Table 4.6 shows that the experience level of administrators and instructors with Internet courses is fairly well distributed. No previous experience with Internet courses was reported by 28.1% (42) of the participants. Some of these instructors were teaching their first online course at the time they responded to the survey, and others were preparing to teach their first Internet-based course in the Spring 2001 semester. Those instructors with limited experience, having taught 2-4 Internet courses, accounted for 33.3% (51) of survey participants, while 38.6% (59) had taught more than four Internet courses.

Table 4.6

Summary of Responses for Role and Experience Teaching Internet Courses (N = 153)

	Internet Course Experience									
	None		This is my first course		4-Feb		More than 4		Total	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	10	6.5	3	2.0	4	2.6	3	2.0	20	13.1
Full-time	1	0.7	24	15.7	36	23.5	50	32.7	111	72.5
Part-time	1	0.7	4	2.6	11	7.2	6	3.9	22	14.4
Total	12	7.8	31	20.3	51	33.3	59	38.6	153	100.0

Level of Technical Expertise

Participants' perceptions of their own levels of technical expertise are illustrated in Table 4.7. The majority (56.9%, 87), of instructors and administrators felt that their level of experience included a medium level of proficiency in word processing, spreadsheets, Internet browsers and other similar software packages. Only 28.1% (43) of

the participants felt that their level of technical expertise involved a high level of proficiency in the DOS environment, Windows 95/98, HTML for the Internet and a wide range of other software. While most administrators have varying levels of technical expertise, nine administrators plus one full-time faculty member chose the "administrator" option rather than attempt to rate their technical expertise as "limited," "medium," "high," or "expert." This may indicate that the role of these individuals may be more clerical than technical in nature.

Table 4.7

Summary of Responses for Role and Technical Expertise (N = 153)

	Technical Expertise											
	Limited Experience		Medium Experience		High Level of Experience		Expert		Administrator		Total	
Role	n	%	n	%	n	%	n	%	n	%	n	%
Administrator	1	0.7	6	3.9	1	0.7	3	2.0	9	5.9	20	13.1
Full-time	11	7.2	70	45.8	19	12.4	10	6.5	1	0.7	111	72.5
Part-time	1	0.7	11	7.2	8	5.2	2	1.3	0	0.0	22	14.4
Total	13	8.5	87	56.9	28	18.3	15	9.8	10	6.5	153	100.0

Course Enrollment

The researcher felt that class size, or course enrollment, had considerable impact on the approach faculty took towards development and delivery of Internet-based courses. For example, an instructor might base the level of interaction or the level of written work required on the basis of anticipated class size. Based upon past and current teaching and administrative experiences, participants were asked to provide an estimate

of the average enrollment in Internet courses they have taught or are currently teaching. Administrators were given the option of not responding to this question by checking the "admin" box. Table 4.8 shows a fairly even distribution of class sizes with the most common sizes being 10-15 (25.5%) and 16-20 (22.9%). Only 14.4% (n =22) of participants indicated class enrollments in excess of 30 students.

Participants were also asked whether or not enrollment in Internet-based courses was limited by the institution to a clearly defined maximum number of students. This is sometimes referred to as "capping" the course. Results of the survey indicated that institutions tend to limit class size for Internet-based courses. Of the 153 participants in the survey, 81.0% (124) responded that class sizes were limited, 13.1% (20) of the participants responded that the institution did not limit class sizes, and 5.9% (9) of participants did not know whether or not the institution limited class sizes. Because of the small number of participants (9) in this last group, this question was considered by the researcher to be an informational item rather than a policy awareness issue.

Table 4.8

Summary of Responses for Role and Course Enrollment (N = 153)

	Class size													
	Less than 10		10-15		16-20		21-30		More than 30		Admin		Total	
Role	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Administrator	0	0.0	3	2.0	1	0.7	4	2.6	0	0.0	12	7.8	20	13.1
Full-time	14	9.2	33	21.6	24	15.7	19	12.4	20	13.1	1	0.7	111	72.5
Part-time	4	2.6	3	2.0	10	6.5	3	2.0	2	1.3	0	0.0	22	14.4
Total	18	11.8	39	25.5	35	22.9	26	17.0	22	14.4	13	8.5	153	100.0

Course Development

Internet courses fall into a broad range of applied technologies beginning with simple e-mail courses where assignments and instructor communication are handled primarily using e-mail, but no real effort is made to utilize World Wide Web structure or HTML programming. At the other end of the Internet course spectrum are those courses that utilize complex Web pages including sound and brief video presentations. These are constructed to take full advantage of the vast resources of the Internet. Internet video conferencing may even by utilized for enhanced interaction and proctoring of examinations. Most of the faculty participants (85.6%, 113) in this study identified their courses as being the traditional text-based form, using e-mail as the means to transmit text from student to instructor, or a combination of text-based and other Internet-based features, again using e-mail to transmit text from student to instructor. Only 9.1% (12) reported that they had developed online courses that were entirely web-based or "stand alone." Table 4.9 shows the summary of responses to the general construction of the Internet-based courses involved in this study.

Table 4.9

Summary of Responses for Role and Course Structure (N = 132)

	Internet Course Structure									
	Text-based		Stand Alone		Combination		Other		Total	
Role	n	%	n	%	n	%	n	%	n	%
Full-time	63	47.7	10	7.6	32	24.2	5	3.8	110	83.3
Part-time	9	6.8	2	1.5	9	6.8	2	1.5	22	16.7
Total	72	54.5	12	9.1	41	31.1	7	5.3	132	100.0

Faculty and administrators participating in the study perceive student–instructor interaction to be an important aspect of effective teaching. Participants were asked whether they felt that the level of interaction between the students and the instructor had changed in their Internet courses. Table 4.10 illustrates that responses to each level of interaction were evenly distributed with 43.2% (57) of participants stating that interaction increased and 41.1% (53) of participants responding that interaction decreased to some degree. Administrators were given the option of not responding to this question.

Table 4.10

Summary of Responses for Role and Interaction with Students (N = 132)

	Amount of Interaction											
	Much more		Somewhat More		About the Same		Somewhat Less		Much Less		Total	
Role	n	%	n	%	n	%	n	%	n	%	n	%
Full-time	27	20.5	24	18.2	18	13.6	20	15.2	21	15.9	110	83.3
Part-time	2	1.5	4	3.0	4	3.0	5	3.8	7	5.3	22	16.7
Total	29	22.0	28	21.2	22	16.7	25	18.9	28	21.2	132	100.0

Most faculty surveyed felt that more time was required to teach an Internet-based course than a traditional classroom course. Of the 132 respondents to this question, 74.2% (98) felt that more time was required to prepare and teach an Internet-based course. Only 10.6% (14) of the participants felt that less time was required and 15.2% (20) of the participants felt that the amount of time required in the preparation and teaching of Internet-based courses was basically the same as that of a traditional classroom course. The summary is shown in Table 4.11. Administrators again were given the option of not responding to this question.

Table 4.11

Summary of Responses for Role and Amount of Time Spent Teaching (N = 132)

	Amount of Time Spent Teaching Internet Course											
	Much more		Somewhat More		About the Same		Somewhat Less		Much Less		Total	
Role	n	%	n	%	n	%	n	%	n	%	n	%
Full-time	48	36.4	33	25.0	17	12.9	8	6.1	4	3.0	110	83.3
Part-time	8	6.1	9	6.8	3	2.3	2	1.5	0	0.0	22	16.7
Total	56	42.4	42	31.8	20	15.2	10	7.6	4	3.0	132	100.0

The amount of writing required in an Internet-based course is another factor considered in this study. As shown in Table 4.12, most faculty teaching Internet-based courses feel that a considerable amount of writing is required. Of the 132 faculty participating in the study, 57.5% (76) responded that the amount of writing required in their Internet-based courses exceeded 50% of course requirements. Only 24,2% (32) of the participants responded that their courses required more than 90% writing.

Table 4.12

Summary of Responses for Role and Amount of Writing Required (N = 132)

	Amount of Writing Required in Internet Course											
	Less than 25%		25-50%		50-75%		75-90%		More than 90%		Total	
Role	n	%	n	%	n	%	n	%	n	%	n	%
Full-time	26	19.7	20	15.2	21	15.9	16	12.1	27	20.5	110	83.3
Part-time	8	6.1	2	1.5	4	3.0	3	2.3	5	3.8	22	16.7
Total	34	25.8	22	16.7	25	18.9	19	14.4	32	24.2	132	100.0

Instructor Satisfaction

Instructors responded to questions about instructor satisfaction in a highly positive manner. Table 4.13 shows that 84.7% (111) of the 132 full-time and part-time faculty participants felt that teaching an Internet-course was more satisfying than teaching the same course in the traditional classroom. Only 18.2% (24) of the participants felt that the experience was extremely rewarding.

Table 4.13

Summary of Responses for Role and Instructor Satisfaction (N = 132)

	Level of Satisfaction											
	Extremely		Very		Somewhat		Not very		Frustrating		Total	
Role	n	%	n	%	n	%	n	%	n	%	n	%
Full-time	19	14.4	39	29.5	34	25.8	13	9.8	5	3.8	110	83.3
Part-time	5	3.8	8	6.1	6	4.5	2	1.5	1	0.8	22	16.7
Total	24	18.2	47	35.6	40	30.3	15	11.4	6	4.5	132	100.0

Most instructors had an overall feeling of satisfaction professionally and personally with using the Internet as an instructional method of delivery. Table 4.14 illustrates that 86.3% (113) of the 131 faculty participants said that the likelihood of their teaching another Internet-based course was very high. Only 12.4% (19) participants indicated that they were somewhat likely to teach another Internet-based course, and 1.3% (2) said that it is unlikely that they would ever teach another Internet-based course. No responses were received stating that an instructor would absolutely never teach another Internet-based course.

Table 4.14

Summary of Responses for Role and Likelihood of Teaching Again (N = 132)

	Likelihood of Teaching Another Internet Course									
	Very likely		Somewhat likely		Not very likely		Never teach another one		Total	
Role	n	%	n	%	n	%	n	%	n	%
Full-time	93	70.5	16	12.1	1	0.8	0	0.0	110	83.3
Part-time	20	15.2	1	0.8	1	0.8	0	0.0	22	16.7
Total	113	85.6	17	12.9	2	1.5	0	0.0	132	100.0

Demographics Summary

More females (56.9%) responded to the survey than males (43.1%). The largest number of respondents were in the 41-50 age group (34.0%). Respondents were either full-time faculty (72.5%), part-time faculty (14.4%), or administrators (13.1%). Most of the respondents (90.9%) had at least a Masters degree. A majority of respondents (61.5%) had eight or more years experience teaching at the community college level. Most respondents (71.9%) had taught more than one Internet course. The majority (56.9%) of respondents felt that their level of experience included a medium level of proficiency in word processing, spreadsheets, Internet browsers, and other similar software packages. The most common class size indicated by survey participants was in the 10-15 range. A large majority of participants in the study (85.6%) identified their courses as being the traditional text-based form, using e-mail as the means to transmit text from student to instructor. Most faculty surveyed (74.2%) felt that more time was required to teach an Internet-based course than a traditional classroom course.

Research Question 1

Research question 1 asks, "Are administrators and faculty in two-year colleges in Texas aware of the procedures and policies dealing with the administration of Internet-based courses in their institutions?" In the first three sections of the survey, Institutional Support, Course Development, and Teaching/Learning, faculty and administrators were asked to evaluate their awareness or level of satisfaction with how their institutions supported Internet-based courses through institutional policies and procedures and through institutional support of course development and review. Participants were asked to rate their level of agreement or disagreement with each of the survey items. The extent of support for each of the statements in these sections was determined by having participants rate each item on a five-point Likert-type scale with responses of "I agree completely," "I agree somewhat," "I neither agree nor disagree," "I disagree somewhat," and "I disagree completely" with the statement. In addition, each statement was summarized by the role of the participant in the institution. All questions were summarized based on total participants (N = 153), administrators (20), full-time faculty (111), and part-time faculty (22). In each of the survey items in these sections, the level of agreement for administrators is consistently slightly higher than the level of agreement for full-time and part-time faculty.

Institutional Support

Table 4.15 summarizes the responses of faculty and administrators to their perceptions of institutional support of Internet-based courses based on survey item 1,

"My institution has a documented technology plan that includes electronic security measures to ensure both quality standards and the integrity and validity of information." A majority (99) of the survey participants indicated either complete or somewhat agreement with this statement.

Table 4.15

Summary of Responses for Documented Technology Plan (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	4	2.6	11	7.2	3	2.0	2	1.3	0	0.0
Full-time	34	22.2	37	24.2	18	11.8	13	8.5	9	5.9
Part-time	6	3.9	7	4.6	4	2.6	5	3.3	0	0.0
Total	44	28.8	55	35.9	25	16.3	20	13.1	9	5.9

Reliability of the technology system is an important factor to instructors and administrators of Internet-based courses. Of the survey participants, 66.7% (102) agreed that the reliability of the technology delivery system at their institution is as failsafe as possible. Only 5.2% (8) of the participants disagreed completely with this statement. Table 4.16 illustrates the summary of responses to the survey item regarding reliability of technology systems.

Table 4.16

Summary of Responses for Reliability of Technology System (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	4	2.6	11	7.2	2	1.3	3	2.0	0	0.0
Full-time	24	15.7	53	34.6	15	9.8	11	7.2	8	5.2
Part-time	2	1.3	8	5.2	6	3.9	6	3.9	0	0.0
Total	30	19.6	72	47.1	23	15.0	20	13.1	8	5.2

Faculty and administrators were asked their perceptions of the distance education infrastructure at their institution. Support for this survey item was strong with 80.4% (123) of the participants stating agreement that their institution has a centralized system of support for building and maintaining the distance education infrastructure. Only 17.7% (27) disagreed. The summary of these responses is shown in Table 4.17.

Table 4.17

Summary of Responses for Distance Education Infrastructure (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	8	5.2	9	5.9	2	1.3	0	0.0	1	0.7
Full-time	50	32.7	37	24.2	1	0.7	14	9.2	9	5.9
Part-time	13	8.5	6	3.9	0	0.0	2	1.3	1	0.7
Total	71	46.4	52	34.0	3	2.0	16	10.5	11	7.2

Overwhelming agreement was demonstrated by faculty and administrators to their perceptions of institutional policies and guidelines aimed at making educational opportunities more convenient and more affordable to students. As shown in Table 4.18, 94.8% (145) of the survey participants agreed either somewhat or completely with this survey item. Only one participant, a full-time faculty member, disagreed completely with this statement.

Table 4.18

Summary of Responses for Educational Opportunities (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	14	9.2	5	3.3	1	0.7	0	0.0	0	0.0
Full-time	76	49.7	28	18.3	2	1.3	4	2.6	1	0.7
Part-time	14	9.2	8	5.2	0	0.0	0	0.0	0	0.0
Total	104	68.0	41	26.8	3	2.0	4	2.6	1	0.7

Survey participants were asked to indicate their perceptions of institutional support of Internet-based courses through their institution's policies and attitudes towards distance education in general. In Table 4.19, overwhelming agreement is also shown by faculty and administrator perceptions concerning the importance of increasing student access by making courses available at convenient locations and convenient times. Only 2.0% (3) of the participants disagreed with this survey item, while 95.4% (n =146) of the 153 participants agreed either completely or somewhat.

Table 4.19

Summary of Responses for Increased Student Access (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	13	8.5	5	3.3	2	1.3	0	0.0	0	0.0
Full-time	81	52.9	25	16.3	2	1.3	2	1.3	1	0.7
Part-time	16	10.5	6	3.9	0	0.0	0	0.0	0	0.0
Total	110	71.9	36	23.5	4	2.6	2	1.3	1	0.7

Institutional policies dealing with reducing per-student costs are important to most of the respondents to this survey. Table 4.20 illustrates that 71.9% (110) of survey participants agreed that their institutions supported this concept, while 23.5% (36) neither agreed nor disagreed. Only 4.6% (7) of the participants disagreed. Lack of awareness of student fees and instructional costs may be indicated by the 23.5% (36) of participants who neither agreed nor disagreed with this survey item.

Table 4.20

Summary of Responses for Reducing Per-student Costs (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	10	6.5	3	2.0	5	3.3	2	1.3	0	0.0
Full-time	42	27.5	40	26.1	25	16.3	3	2.0	1	0.7
Part-time	9	5.9	6	3.9	6	3.9	1	0.7	0	0.0
Total	61	39.9	49	32.0	36	23.5	6	3.9	1	0.7

Another means by which the researcher attempted to determine faculty and administrator perceptions of institutional support of Internet-based courses was through awareness of course fee structure for traditional and Internet-based courses. Faculty and administrator were asked if students enrolling in Internet classes pay the same fees as in-district students enrolling for traditional classes. Table 4.21 shows that 71.1% (109) of the survey participants agreed that fees for Internet-based courses were the same as those for traditional classroom courses. Only 15.0% (23) disagreed. Lack of awareness of students costs and fee structures may be indicated by the 13.7% (21) who neither agreed nor disagreed with this survey item.

Table 4.21

Summary of Responses for Internet Class Fees (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	10	6.5	7	4.6	1	0.7	2	1.3	0	0.0
Full-time	61	39.9	19	12.4	16	10.5	4	2.6	11	7.2
Part-time	10	6.5	2	1.3	4	2.6	5	3.3	1	0.7
Total	81	52.9	28	18.3	21	13.7	11	7.2	12	7.8

Course Development

Table 4.22 summarizes faculty and administrator response to the survey statement, "My institution has guidelines regarding minimum standards to be used for course development, design, and delivery." Of the 153 survey participants, 58.8% (90) indicated their awareness of minimum standards for course development, design, and

delivery at their institutions by agreeing with this statement. It is significant to note that 32.7% (50) participants disagreed.

Table 4.22

Summary of Responses for Internet Course Guidelines (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	5	3.3	8	5.2	3	2.0	3	2.0	1	0.7
Full-time	24	15.7	37	24.2	9	5.9	21	13.7	20	13.1
Part-time	7	4.6	9	5.9	1	0.7	4	2.6	1	0.7
Total	36	23.5	54	35.3	13	8.5	28	18.3	22	14.4

Faculty and administrators were asked whether learning outcomes rather than availability of technology determined the technology to be used to deliver course content. This survey item was included to determine whether or not survey participants felt that the administrative policies and procedures at their institutions were developed with learning outcomes the highest priority, or if their institutions tended to encourage faculty development of courses around the technology available at the institution regardless of its overall effect on learning outcomes. Table 4.23 illustrates that 60.2% (92) survey participants were aware of institutional policies and guidelines encouraging the use of learning outcomes rather available technology to determine the technology to be used in the delivery of course content and agreed with this statement, while 25.5% (39) disagreed.

Table 4.23

Summary of Responses for Learning Outcomes (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	6	3.9	7	4.6	3	2.0	3	2.0	1	0.7
Full-time	22	14.4	45	29.4	17	11.1	21	13.7	6	3.9
Part-time	7	4.6	5	3.3	2	1.3	8	5.2	0	0.0
Total	35	22.9	57	37.3	22	14.4	32	20.9	7	4.6

Faculty and administrators were asked if they felt that instructional materials at their institutions were reviewed periodically to ensure that program standards were met. Table 4.24 shows that 66.7% (102) of survey participants felt that their institutions had policies and guidelines in place for the periodic review of instructional materials to ensure the attainment of appropriate program standards. Only 24.2% (37) disagreed somewhat or completely with this survey item, while 9.2% (14) neither agreed nor disagreed.

Table 4.24

Summary of Responses for Instructional Material Review (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	6	3.9	9	5.9	3	2.0	1	0.7	1	0.7
Full-time	39	25.5	33	21.6	9	5.9	16	10.5	14	9.2
Part-time	7	4.6	8	5.2	2	1.3	3	2.0	2	1.3
Total	52	34.0	50	32.7	14	9.2	20	13.1	17	11.1

Faculty and administrators were asked to respond to the statement, "At my institution, courses are designed to require students to engage themselves in analysis, synthesis, and evaluation as part of their course and program requirements." Table 4.25 illustrates that 82.3% (126) of survey participants expressed agreement that their institutions had policies and guidelines in place regarding course design and the importance of various forms of student participation as a part of course and program requirements. Only 5.9% (9) disagreed. Interestingly, the only participant who disagreed completely with the statement was a part-time faculty member, and no administrators disagreed with this survey item.

Table 4.25

Summary of Responses for Course Design (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	6	3.9	9	5.9	5	3.3	0	0.0	0	0.0
Full-time	38	24.8	54	35.3	12	7.8	7	4.6	0	0.0
Part-time	5	3.3	14	9.2	1	0.7	1	0.7	1	0.7
Total	49	32.0	77	50.3	18	11.8	8	5.2	1	0.7

Teaching/Learning

Faculty and administrators were asked to respond to three survey items concerned with institutional policies dealing with student interaction with faculty, feedback to students, and resource availability. Table 4.26 illustrates faculty and administrative perceptions of this support at community colleges participating in this survey. Of the 153 survey participants, 96.8% (141) felt that their institutions were committed to providing

adequate technology for students in both policy and action. Only 6.6% (10) disagreed somewhat or completely. The only participant disagreeing completely was a full-time faculty member.

Table 4.26

Summary of Responses for Student Interaction Technology (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	11	7.2	8	5.2	1	0.7	0	0.0	0	0.0
Full-time	71	46.4	30	19.6	1	0.7	8	5.2	1	0.7
Part-time	13	8.5	8	5.2	0	0.0	1	0.7	0	0.0
Total	95	62.1	46	30.1	2	1.3	9	5.9	1	0.7

Faculty and administrators were asked if they felt that institutional policy concerning timeliness and constructiveness of feedback to students was appropriate at their institutions. Table 4.27 shows that 94.8% (145) of survey participants showed strong agreement with institutional policies encouraging feedback to student assignments and questions in a timely and constructive manner. Only 5.2% (8) of participants disagreed somewhat or completely. Of these, five were full-time faculty and three were administrators.

Table 4.27

Summary of Responses for Feedback to Students (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	3	2.0	14	9.2	0	0.0	1	0.7	2	1.3
Full-time	72	47.1	34	22.2	0	0.0	3	2.0	2	1.3
Part-time	12	7.8	10	6.5	0	0.0	0	0.0	0	0.0
Total	87	56.9	58	37.9	0	0.0	4	2.6	4	2.6

Faculty and administrators were asked whether or not their institutions provided instruction to students in proper methods of effective research, including assessing the validity of sources. Table 4.28 illustrates that 58.2% (89) of the participants agreed that their institutions had policies and guidelines regarding the provision of students with instruction in effective research. Only 8.5% (13) disagreed. A large number of participants (33.3%, 51) neither agreed nor disagreed.

Table 4.28

Summary of Responses for Research Methods (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	N	%	n	%	n	%
Administrator	1	0.7	9	6.0	7	4.7	3	2.0	0	0.0
Full-time	26	17.3	42	28.0	34	22.7	8	5.3	1	0.7
Part-time	4	2.7	4	2.7	10	6.7	1	0.7	0	0.0
Total	31	20.7	55	36.7	51	34.0	12	8.0	1	0.7

Research Question 2

Research question 2 asks, "Are faculty and administrators satisfied with practices, procedures and policies currently in place to deal with the administration of Internet-based courses in two-year colleges in Texas?" Sections four through eight of the survey instrument, Course Structure, Student Support, Faculty Support, Course Evaluation and Assessment, and Student Evaluation and Testing, ask faculty and administrators their satisfaction with policies and guidelines in effect at their institutions. Participants were asked to rate their level of agreement or disagreement with each of the survey items. The extent of support for each of the statements in sections four through seven was determined by having participants rate each item on the same five-point Likert-type scale as the first three sections. Levels of agreement corresponded with levels of satisfaction. A six-point Likert-type scale was used in section 8, Student Evaluation and Testing. Responses to survey items in this section included, "Always," "Almost Always," "Sometimes," "Almost Never," "Never," and "Don't Know." Each statement was then summarized by the role of the participant in the institution. All questions were summarized based on total participants (153), administrators (20), full-time faculty (111), and part-time faculty (22).

Course Structure

The researcher felt that faculty and administrators could be dissatisfied with their courses if they had to deal with large numbers of students who were not emotionally or technically prepared for their courses. Faculty and administrators were asked if students were advised about online programs prior to enrolling in an online course to determine if

they possess the self-motivation and commitment to learn at a distance. Table 4.29 illustrates that 63.4% (97) of survey participants felt satisfied that their institutions provide this type of pre-enrollment screening for students. Only 26.8% (41) of the participants disagreed with the survey item and indicated a lack of satisfaction with their institution's policies and guidelines in this area

Table 4.29

Summary of Responses for Self-Motivation and Commitment (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	5	3.3	10	6.5	3	2.0	2	1.3	0	0.0
Full-time	30	19.6	40	26.1	7	4.6	18	11.8	16	10.5
Part-time	7	4.6	5	3.3	5	3.3	1	0.7	4	2.6
Total	42	27.5	55	35.9	15	9.8	21	13.7	20	13.1

Table 4.30 shows that 83.0% (127) of the faculty and administrators participating in the study expressed satisfaction that students were being advised about the minimal technology requirements necessary to participate in an Internet-based course prior to enrolling. Only 11.8% (22) disagreed. Most administrators were favorable toward their institutional policies and practices in this survey area. Of the 20 administrators participating in the survey, 95% (19) agreed that students were advised about technology requirements.

Table 4.30

Summary of Responses for Technology Requirements (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	12	7.8	7	4.6	1	0.7	0	0.0	0	0.0
Full-time	64	41.8	28	18.3	4	2.6	12	7.8	3	2.0
Part-time	12	7.8	4	2.6	3	2.0	2	1.3	1	0.7
Total	88	57.5	39	25.5	8	5.2	14	9.2	4	2.6

Faculty and administrators were asked if students were provided with supplemental course information outlining course objectives, concepts, and ideas. Table 4.31 shows that 96.0% (147) of the survey participants were satisfied that their institutions required these forms of supplemental course information through formal policies and published guidelines. Only one full-time faculty member disagreed somewhat, and no "Disagree Completely" responses were submitted.

Table 4.31

Summary of Responses for Supplemental Course Information (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	13	8.5	5	3.3	2	1.3	0	0.0	0	0.0
Full-time	85	55.6	23	15.0	2	1.3	1	0.7	0	0.0
Part-time	13	8.5	8	5.2	1	0.7	0	0.0	0	0.0
Total	111	72.5	36	23.5	5	3.3	1	0.7	0	0.0

Faculty and administrators of Internet-based courses expressed strong satisfaction that students at their institutions were provided with a summary of learning outcomes for each course in a clearly written, straightforward statement. Shown in Table 4.32, 49.7% (76) of the survey participants agreed that this was a normal practice at their institution, required by published policies and guidelines for all departments. Only 2.7% (4) expressed dissatisfaction with this procedure on their campuses, while 12.4% (19) of the participants neither agreed nor disagreed with the statement.

Table 4.32

Summary of Responses for Summarized Learning Outcomes (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	9	5.9	6	3.9	4	2.6	1	0.7	0	0.0
Full-time	58	37.9	40	26.1	11	7.2	1	0.7	1	0.7
Part-time	9	5.9	8	5.2	4	2.6	1	0.7	0	0.0
Total	76	49.7	54	35.3	19	12.4	3	2.0	1	0.7

Results of the study indicated strong satisfaction by faculty and administrators with institutional policies and practices when asked if students at their institutions have access to sufficient library resources including "virtual libraries" accessible through the World Wide Web. Of the 153 participants in the survey, 87.6% (134) agreed with the statement regarding students having sufficient access to library resources. Only 4.6% (7) of the participants were not satisfied with access to library resources at their institutions, and 7.8% (12) had no definite opinion. Responses to this survey item are summarized in Table 4.33.

Table 4.33

Summary of Responses for Library Resources (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	12	7.8	5	3.3	2	1.3	1	0.7	0	0.0
Full-time	67	43.8	33	21.6	6	3.9	4	2.6	1	0.7
Part-time	10	6.5	7	4.6	4	2.6	1	0.7	0	0.0
Total	89	58.2	45	29.4	12	7.8	6	3.9	1	0.7

Faculty and administrators were asked to respond to the statement, "Faculty and students agree upon expectations regarding times for student assignment completion and faculty response." General satisfaction was reported by 70.0% (107) of the survey participants that policies and guidelines are in place at their institutions requiring faculty and student agreement on the time requirements for student assignment completion and faculty feedback, while 13.7% (21) expressed dissatisfaction. Only 55.0% (11) of the twenty administrators participating in the survey expressed satisfaction that this was taking place at their institutions. Table 4.34 shows the complete summary of responses to the survey item regarding time expectations

Table 4.34

Summary of Responses for Expectations Regarding Time (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	4	2.6	7	4.6	5	3.3	4	2.6	0	0.0
Full-time	37	24.2	40	26.1	18	11.8	12	7.8	4	2.6
Part-time	7	4.6	12	7.8	2	1.3	1	0.7	0	0.0
Total	48	31.4	59	38.6	25	16.3	17	11.1	4	2.6

Student Support

Faculty and administrators were asked to respond to three survey items concerning student support of online programs by their institutions. Survey participants were asked if students were informed about programs such as admission requirements, tuition and fees, books and supplies, technical and proctoring requirements, and student support services. A summary of participant responses is shown in Table 4.35. Of the 153 survey participants, 52.3% (80) felt strongly that policies and programs were in place that routinely inform students programs at their institutions, while another 32.7% (50) were satisfied to a lesser extent. Eight full-time faculty members expressed dissatisfaction with the statement.

Table 4.35

Summary of Responses for Informed About Programs (N = 153)

Role	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
	n	%	n	%	n	%	n	%	n	%
Administrator	9	5.9	9	5.9	2	1.3	0	0.0	0	0.0
Full-time	60	39.2	33	21.6	10	6.5	7	4.6	1	0.7
Part-time	11	7.2	8	5.2	3	2.0	0	0.0	0	0.0
Total	80	52.3	50	32.7	15	9.8	7	4.6	1	0.7

The second survey item in this section asked faculty and administrators their level of satisfaction with the hands-on training and information students receive to aid them in securing material through electronic databases, inter-library loans, government archives, news services, and other sources. Hands-on training appears to be offered at less than half of the institutions surveyed based upon the survey responses. Only 41.2% (63) of the participants responded that they were satisfied with the hands-on training available for students in the use of the electronic information gathering services available at their institutions, while 33.3% (51), including three administrators, expressed dissatisfaction with this survey item. Summary results are shown in Table 4.36.

Table 4.36

Summary of Responses for Hands-on Training (N = 153)

Role	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
	n	%	n	%	n	%	n	%	n	%
Administrator	1	0.7	10	6.5	6	3.9	3	2.0	0	0.0
Full-time	13	8.5	32	20.9	26	17.0	31	20.3	9	5.9
Part-time	1	0.7	6	3.9	7	4.6	4	2.6	4	2.6
Total	15	9.8	48	31.4	39	25.5	38	24.8	13	8.5

The final survey item in this section asked faculty and administrators if they were satisfied that students at their institutions had access to technical assistance, including instructions regarding the electronic media being used, practice sessions prior to the beginning of the course, and convenient access to technical support staff throughout the duration of the online course. Although 58.8% (90) of the survey participants were satisfied that their institutions provided this access to students, 29.4% (n =45) of the participants were not satisfied that access to these services was available to students at their institutions. The complete summary of responses to this survey item is shown in Table 4.37

Table 4.37

Summary of Responses for Technical Assistance for Students (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	3	2.0	9	5.9	4	2.6	3	2.0	1	0.7
Full-time	25	16.3	36	23.5	13	8.5	21	13.7	16	10.5
Part-time	6	3.9	11	7.2	1	0.7	2	1.3	2	1.3
Total	34	22.2	56	36.6	18	11.8	26	17.0	19	12.4

Faculty Support

Faculty and administrators were asked to respond to five survey items concerning institutional policies and guidelines concerning faculty and administrative support for online programs by the institution. Areas addressed included technical assistance, transition assistance, training and resources. Table 4.38 shows the summary of responses when faculty and administrators were asked if technical assistance in course development

was available to faculty. Of the 153 survey participants, 80.4% (123) expressed satisfaction that technical assistance with course development was available at their institutions. Only 16.3% (25) responded that little or no technical assistance was available.

Table 4.38
Summary of Responses for Technical Assistance for Faculty (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	N	%	n	%	n	%
Administrator	11	7.2	6	3.9	1	0.7	2	1.3	0	0.0
Full-time	50	32.7	35	22.9	3	2.0	15	9.8	8	5.2
Part-time	14	9.2	7	4.6	1	0.7	0	0.0	0	0.0
Total	75	49.0	48	31.4	5	3.3	17	11.1	8	5.2

Faculty and administrators were next asked to rate their satisfaction level to the statement, "Faculty are encouraged to use available technical assistance with course development." Results of the study showed that 79.1% (121) of the survey participants were satisfied that policies and guidelines at their institutions encouraged the use of available technical assistance with course development. Only 11.8% (18) of the survey participants felt that little or no encouragement was available from their institutions. Administrators and part-time faculty showed almost no disagreement. Table 4.39 shows the summary of responses to this survey item.

Table 4.39

Summary of Responses for Use of Technical Assistance (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	11	7.2	6	3.9	2	1.3	1	0.7	0	0.0
Full-time	53	34.6	30	19.6	11	7.2	13	8.5	4	2.6
Part-time	14	9.2	7	4.6	1	0.7	0	0.0	0	0.0
Total	78	51.0	43	28.1	14	9.2	14	9.2	4	2.6

Faculty and administrators were asked if faculty members at their community colleges receive assistance in the transition from classroom teaching to online instruction and if they are assessed in the process. Responses to this survey item were fairly evenly split with 49.0% (75) expressing satisfaction with the support given at their institutions, 37.2% (57) expressing dissatisfaction, and 13.7% (21) of the participants neither satisfied nor dissatisfied. The complete summary of responses is shown in Table 4.40.

Table 4.40

Summary of Responses for Transition Assistance (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	6	3.9	6	3.9	2	1.3	5	3.3	1	0.7
Full-time	22	14.4	31	20.3	12	7.8	25	16.3	21	13.7
Part-time	4	2.6	6	3.9	7	4.6	4	2.6	1	0.7
Total	32	20.9	43	28.1	21	13.7	34	22.2	23	15.0

Faculty and administrators were next asked if instructor training and assistance continues past the development stage and on through the duration of the online course at their institution. Slightly more than half, 52.3% (80) expressed satisfaction that instructor training and assistance continued throughout the duration of the course. Only 33.3% (51) of the participants expressed dissatisfaction, while 14.4% (22) neither agreed nor disagreed with the statement. Full-time instructors expressed the greatest dissatisfaction of the three sub-groups with 40.5% (45) responding that training and assistance did not continue throughout the duration of the online course. This compared with only 13.6% (3) of the twenty-two part-time instructors expressing dissatisfaction. Table 4.41 shows the response summary for this survey item.

Table 4.41

Summary of Responses for Continued Training and Assistance (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	8	5.2	6	3.9	3	2.0	2	1.3	1	0.7
Full-time	24	15.7	29	19.0	13	8.5	25	16.3	20	13.1
Part-time	5	3.3	8	5.2	6	3.9	1	0.7	2	1.3
Total	37	24.2	43	28.1	22	14.4	28	18.3	23	15.0

The final survey item in this section asked faculty and administrators if their institution provides faculty members with written resources to deal with issues arising from student use of electronically accessed data. This item was intended to solicit responses about written policies in the event of student violations or misuse of electronic resources and data such as plagiarism copyright violations, commercial use of college

computers, destruction or modification of computer files, or invasion of privacy. Table 4.42 illustrates that 41.2% (63) of the participants in this survey were not satisfied with the support their institutions provided faculty members in this area. An additional 27.5% (42) neither agreed nor disagreed. Of the administrators participating in the study, 35.0% (7) neither agreed nor disagreed.

Table 4.42

Summary of Responses for Written Resources (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	2	1.3	6	3.9	7	4.6	4	2.6	1	0.7
Full-time	10	6.5	23	15.0	29	19.0	22	14.4	27	17.6
Part-time	5	3.3	2	1.3	6	3.9	4	2.6	5	3.3
Total	17	11.1	31	20.3	42	27.5	30	19.6	33	21.6

Course Evaluation and Assessment

Section 7 of the survey instrument asked faculty and administrators to respond to statements regarding course evaluation and assessment. Table 4.43 shows that 54.9% (84) of survey participants responded favorably when asked if the educational effectiveness and teaching/learning process assessment of online courses is accomplished through an evaluation process that uses several methods and applies specific standards. Only 29.4% (45) indicated dissatisfaction with the evaluation process at their institutions.

Table 4.43

Summary of Responses for Evaluation Process (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	2	1.3	11	7.2	3	2.0	3	2.0	1	0.7
Full-time	21	13.7	42	27.5	15	9.8	17	11.1	16	10.5
Part-time	5	3.3	3	2.0	6	3.9	6	3.9	2	1.3
Total	28	18.3	56	36.6	24	15.7	26	17.0	19	12.4

Faculty and administrators were asked their perception of online course effectiveness in terms of evaluation based upon enrollment data, costs, and successful or innovative use of technology by the instructor. Of the survey participants, 39.9% (61) responded that they felt satisfied that policies and guidelines at their institutions supported the measurement of online course effectiveness based upon these evaluation criteria. However, 35.3% (54) of the participants indicated that they neither agreed nor disagreed with the survey statement. These results are summarized in Table 4.44.

Table 4.44

Summary of Responses for Effectiveness Evaluation (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	3	2.0	9	5.9	5	3.3	2	1.3	1	0.7
Full-time	12	7.8	33	21.6	39	25.5	18	11.8	9	5.9
Part-time	1	0.7	3	2.0	10	6.5	7	4.6	1	0.7
Total	16	10.5	45	29.4	54	35.3	27	17.6	11	7.2

Faculty and administrators were next asked if they were satisfied that intended learning outcomes were reviewed regularly to ensure clarity, utility, and appropriateness. Table 4.45 shows that 66.0% (101) of the survey participants responded that they were satisfied with policies regarding regular review of intended learning outcomes at their institutions. Only 15.7% (24) were dissatisfied to some degree.

Table 4.45

Summary of Responses for Review of Learning Outcomes (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	3	2.0	9	5.9	6	3.9	1	0.7	1	0.7
Full-time	28	18.3	48	31.4	16	10.5	9	5.9	10	6.5
Part-time	4	2.6	9	5.9	6	3.9	3	2.0	0	0.0
Total	35	22.9	66	43.1	28	18.3	13	8.5	11	7.2

Retention is a major concern for community colleges in all course areas. Faculty and administrators of Internet-based courses were asked if they felt that retention in online courses is higher than in the same courses offered in the traditional classroom manner. Table 4.46 illustrates that only 13.1% (20) of the survey participants felt that retention in Internet-based courses was higher than in traditional classroom settings, while 56.9% (87) felt that retention was lower than in the traditional setting. Of the survey participants who agreed with the statement that retention in online courses was lower than in the traditional classroom, 30.1% (46) felt that retention in online courses was considerably lower than in the traditional classroom setting. Only two administrators agreed that retention was higher for online courses, and 30.1% (46) of the survey

participants, including six administrators, chose to neither agree nor disagree with the statement.

Table 4.46

Summary of Responses for Retention in Online Courses (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	0	0.0	2	1.3	6	3.9	5	3.3	7	4.6
Full-time	6	3.9	9	5.9	31	20.3	31	20.3	34	22.2
Part-time	0	0.0	3	2.0	9	5.9	5	3.3	5	3.3
Total	6	3.9	14	9.2	46	30.1	41	26.8	46	30.1

The final survey item in this section asked faculty and administrators if they felt that Internet courses maintain the rigor and academic standards set in the traditional classroom. Summarized results are found in Table 4.47. These results show that 85.6% (131) of survey participants were satisfied that policies and guidelines at their institutions were instrumental in maintaining the rigor and academic standards set in the traditional classroom and in Internet-based courses. Only 7.2% (11) disagreed.

Table 4.47

Summary of Responses for Maintenance of Standards (N = 153)

	Agree Completely		Agree Somewhat		Neither Agree nor Disagree		Disagree Somewhat		Disagree Completely	
Role	n	%	n	%	n	%	n	%	n	%
Administrator	9	5.9	7	4.6	2	1.3	1	0.7	1	0.7
Full-time	57	37.3	39	25.5	8	5.2	5	3.3	2	1.3
Part-time	11	7.2	8	5.2	1	0.7	1	0.7	1	0.7
Total	77	50.3	54	35.3	11	7.2	7	4.6	4	2.6

Student Evaluation and Testing

In this section of the survey instrument, faculty and administrators were asked to respond to a series of seven statements regarding student evaluation and testing. These questions were designed to elicit responses in terms of the event "always" occurring, "almost always" occurring, "sometimes" occurring, "almost never" occurring, "never" occurring, or "don't know." The first statement asked faculty and administrators of Internet-based courses if students take exams online at their convenience with no checking of identity or monitoring. Only 43.7% (67) of the participants were satisfied that policies and procedures were in place at their institutions for the administering of exams online in the stated fashion at least sometimes, while 46.4% (71) expressed that this either never or almost never occurs at their institutions. The complete summarization of responses is shown in Table 4.48.

Table 4.48

Summary of Responses for Exam Convenience (N = 153)

	Always		Almost Always		Sometimes		Almost Never		Never		Don't Know	
Role	n	%	n	%	n	%	n	%	n	%	n	%
Administrator	0	0.0	1	0.7	8	5.2	4	2.6	4	2.6	3	2.0
Full-time	16	10.5	9	5.9	26	17.0	14	9.2	37	24.2	9	5.9
Part-time	3	2.0	2	1.3	2	1.3	2	1.3	10	6.5	3	2.0
Total	19	12.4	12	7.8	36	23.5	20	13.1	51	33.3	15	9.8

When asked if tests are individually mailed, e-mailed, or faxed to students who then mailed, e-mailed, or faxed them back, 54.9% (84) of the survey participants responded that testing in this fashion never or almost never occurred at their institutions.

Table 4.49 shows only 12.4% (19) of the survey participants were entirely satisfied that policies and guidelines were in place at their institutions permitting and regulating this method of testing.

Table 4.49

Summary of Responses for Exam Delivery (N = 153)

	Always		Almost Always		Sometimes		Almost Never		Never		Don't Know	
Role	n	%	n	%	n	%	n	%	n	%	n	%
Administrator	0	0.0	1	0.7	9	5.9	3	2.0	6	3.9	2	1.3
Full-time	11	7.2	5	3.3	21	13.7	14	9.2	49	32.0	11	7.2
Part-time	2	1.3	0	0.0	6	3.9	0	0.0	12	7.8	1	0.7
Total	13	8.5	6	3.9	36	23.5	17	11.1	67	43.8	14	9.2

Faculty and administrators were asked if tests are administered locally on-campus and if students must travel to the campus to take the exam. Only 41.2% (63) of the survey participants indicated that this type of testing is the normal means of testing for online courses at their institutions based upon current policies and guidelines, while 32.7% (50) responded that this type of testing occurs at least some of the time. The complete summary of responses to this item is shown in Table 4.50.

Table 4.50

Summary of Responses for Local Exam Administration (N = 153)

	Always		Almost Always		Sometimes		Almost Never		Never		Don't Know	
Role	n	%	n	%	n	%	n	%	n	%	n	%
Administrator	0	0.0	3	2.0	10	6.5	3	2.0	2	1.3	2	1.3
Full-time	17	11.1	35	22.9	33	21.6	8	5.2	15	9.8	3	2.0
Part-time	5	3.3	3	2.0	7	4.6	2	1.3	3	2.0	2	1.3
Total	22	14.4	41	26.8	50	32.7	13	8.5	20	13.1	7	4.6

More and more community colleges are offering testing at remote sites under proctored settings. The Virtual College of Texas encourages this through its program of remote enrollment and proctored testing (Joyner, 2000). Faculty and administrators were asked if students enrolled in online courses at their institutions could take tests at remote sites in a proctored setting interactively via computer. Table 4.51 shows that 40.5% (62) of the survey participants responded that this form of remote exam administration was not provided for by policies and guidelines at their institutions. Only 4.6% (7) of the survey participants were satisfied that this type of testing always or almost always occurs.

Table 4.51

Summary of Responses for Remote Exam Administration (N = 153)

	Always		Almost Always		Sometimes		Almost Never		Never		Don't Know	
Role	n	%	n	%	n	%	n	%	n	%	n	%
Administrator	0	0.0	2	1.3	13	8.5	2	1.3	1	0.7	2	1.3
Full-time	2	1.3	3	2.0	34	22.2	12	7.8	48	31.4	12	7.8
Part-time	0	0.0	0	0.0	1	0.7	2	1.3	13	8.5	6	3.9
Total	2	1.3	5	3.3	48	31.4	16	10.5	62	40.5	20	13.1

Faculty and administrators were next asked if tests are taken at remote sites in a proctored setting on paper and mailed or faxed to the instructor by the proctoring site. This is apparently more common at this point in time than the proctoring of tests interactively since only 13.7% (21) of the survey participants responded that this always or almost always occurs at their institution. Table 4.52 shows that 32.7% (50) of the participants responded that this never or almost never occurs, while 43.1% (66) indicated that policies and procedures for this type of testing are in place at their institutions.

Table 4.52

Summary of Responses for Proctored Exam Administration (N = 153)

	Always		Almost Always		Sometimes		Almost Never		Never		Don't Know	
Role	n	%	n	%	n	%	n	%	n	%	n	%
Administrator	1	0.7	2	1.3	12	7.8	1	0.7	1	0.7	3	2.0
Full-time	9	5.9	5	3.3	47	30.7	12	7.8	28	18.3	10	6.5
Part-time	2	1.3	2	1.3	7	4.6	1	0.7	7	4.6	3	2.0
Total	12	7.8	9	5.9	66	43.1	14	9.2	36	23.5	16	10.5

Faculty and administrators responded very positively to the statement that students are given the opportunity to provide feedback on the quality and content of the online course. Table 4.53 illustrates that 73.2% (112) of the survey participants responded that this is always or almost always done at their institutions, while only 2.0% (3) responded that it is almost never done. No participants responded that the opportunity to provide feedback by students is never given.

Table 4.53

Summary of Responses for Student Feedback (N = 153)

	Always		Almost Always		Sometimes		Almost Never		Never		Don't Know	
Role	n	%	n	%	n	%	n	%	n	%	n	%
Administrator	12	7.8	3	2.0	4	2.6	0	0.0	0	0.0	1	0.7
Full-time	58	37.9	25	16.3	20	13.1	3	2.0	0	0.0	5	3.3
Part-time	11	7.2	3	2.0	5	3.3	0	0.0	0	0.0	3	2.0
Total	81	52.9	31	20.3	29	19.0	3	2.0	0	0.0	9	5.9

The final statement in this section asked faculty and administrators if they were satisfied that students in Internet classes perform as well (academically speaking) as those in traditional classes. The summary of these responses is found in Table 4.54. These survey results indicate that 45.1% (69) of the survey participants responded that procedures and guidelines were in place at their institutions to effectively measure performance of students in all forms of classes and that students in Internet courses almost always performed as well as those in traditional classes. Of these, 25.5% (23) were more definite in responding that this is always the case at their institutions. Only one participant, a full-time faculty member, responded that students in Internet classes never perform as well as those in traditional classes.

Table 4.54

Summary of Responses for Student Performance (N = 153)

	Always		Almost Always		Sometimes		Almost Never		Never		Don't Know	
Role	n	%	n	%	n	%	n	%	n	%	n	%
Administrator	1	0.7	10	6.5	7	4.6	0	0.0	0	0.0	2	1.3
Full-time	18	11.8	49	32.0	27	17.6	4	2.6	1	0.7	12	7.8
Part-time	4	2.6	10	6.5	5	3.3	0	0.0	0	0.0	3	2.0
Total	23	15.0	69	45.1	39	25.5	4	2.6	1	0.7	17	11.1

Research Question 3

Research question 3 asks, "What do faculty and administrators in Texas two-year colleges perceive to be the benefits and barriers to the use of Internet-based courses in two-year colleges?" To understand more clearly how two-year college faculty and administrators in Texas perceive the benefits and barriers to the use of Internet-base courses, the final section of the survey instrument provided an opportunity to respond to four optional open-ended questions. The majority of survey respondents addressed the open-ended questions. A total of 691 responses to the open-ended questions were received.

Advantages to Teaching Internet Courses

Administrators and faculty were asked to comment on at least one advantage to teaching Internet courses that they had personally encountered. The 205 responses received to this question fell into four major groupings; offer courses at a distance, flexibility of time and schedule, increased participation, and new opportunities for learning.

Offer Courses at a Distance. Instructors and administrators responded that Internet-based courses provided the advantage of being able to reach students who could not take an on-campus course. One instructor said, "It enables me to offer my class nationally." Another said that Internet-based courses provided availability for students who live in isolated geographic areas. One instructor said that he had students from Peru, Australia, and Hawaii. Another had students from Canada and Germany enrolled in their Internet-based course.

Some students live close to campus but are unable to attend for other reasons, such as "pregnancy," "stay at home mom with small children at home," or "working full time." Not having to travel to class is important to many students. One instructor said, "Most students in my Internet classes work full time, many on night or swing shifts." Many of these students would never enroll in classes taught in the classroom at a fixed location and at a fixed time.

Being able to offer Internet-based courses at a distance provided instructors with the ability to be mobile also. Many instructors responded that they taught their courses from home rather than from their campus office, classroom, or lab. One instructor stated, "For example, I taught from libraries that had internet access all one summer all the way up the East Cost to Maine, while there, and then back down the coast for six weeks."

Another said:

> I live 45 minutes away from the campus where I teach, and teaching on the Internet allows me to access my "classroom" (and be available to my students) away from campus as well as on campus. I find, in fact, that most of my Internet teaching is done at home, as my time on campus is usually spent teaching and helping my traditional students.

An administrator summed up his institution's support of Internet-based courses with:

> We are able to deliver our product to a wider range of students. In some cases, the student would not enroll in the class here if it were not offered over the Internet. It allows us to provide our services to a broader geographical area without the burden of traveling to those locations to teach.

Flexibility of Time and Schedule. The greatest number of responses in this section involved flexibility of one type or another. "Time flexibility" and "convenience" were mentioned many times by both faculty and administrators. One respondent felt that,

"students could work at their own pace and acquire information on a 'just-in-time' or 'as needed' basis." An administrator stated, "The principle benefit is delivery to students whose schedules might preclude them from taking traditional courses."

Instructors responded that it was important to be able to give all students the exact same information at the same time, and course material and lecture notes are available in print to students for an extended period of time. Respondents felt that flexibility was important to both students and instructors. Two instructors responded, "Teaching duties can be completed at my leisure." Another stated that students "have the opportunity to do course work when they have the time." One instructor pointed out, "It's available to the student 24/7."

One faculty participant responded:

> Students have really taken advantage of the convenience of the Distance Education course. I had one student (F/T student, F/T single mom, F/T employee) comment that the only time she had to do her coursework and take exams was at 2 a.m. on a weekend. THAT you can't do in the regular classroom.

Increased Participation. Many instructors commented favorably on the increased level of participation of students in their Internet-based courses. Respondents felt that all students participate in online courses whereas in a traditional classroom some students never say a word. Several responses dealt with students not being "vocal" in a regular classroom. Students who were not likely to participate vocally in a traditional classroom often "blossomed" in an Internet-based course. One instructor responded, "All students may participate equally. In my classroom courses, I've had disabled students that were able, but did not/would not participate. The Internet-based courses eliminate any reservations that may be had."

Interaction and feedback are important aspects of all courses, not just Internet-based courses. One response indicated, "All students provide feedback and interaction, rather than the one or two students that usually dominate a traditional class." Another faculty member responded:

> Although it is extremely time intensive, I have found that students are more involved in online courses. Perhaps this is a direct consequence of the chat, email, and discussion forums that force responses from individuals who might otherwise sit silently in a traditional class.

Numerous responses talked about "one-on-one" interaction and the perspective that this was much better in Internet-based courses than in traditional courses. Interaction was "consistent" and "detailed" with students. Many instructors felt that they got to know their students better through focused classroom chat time and the "one-on-one" email interaction.

Respondents felt that having student communicate via email allows for quicker "evaluation and response" feedback. Students are not so shy about asking questions via email and in chat rooms. One instructor said, "This method of instruction encourages the learner to take responsibility for his own learning. It also engages him in a meaningful way. It facilitates active learning as opposed to passive learning."

Another said:

> Students tend to use lectures as a prop. If they understand the lecture, they assume that they are prepared to take the exam. Internet students do not have that prop, and they know that they must acquire knowledge themselves. They are forced to learn better study skills.

One experienced full-time faculty member responded:

> I enjoy having closer and more intimate contact with students than is possible in the traditional classroom. The Internet courses require more individual effort than a traditional classroom. Students can't go into the class and sit while someone

> else answers all the questions. All students are responsible for responding. Internet courses are superb preparation for the workforce—the course requires critical thinking and an integration of many literacy skills which are extremely important in the workforce.

New Opportunities for Learning. New technology almost always means new opportunities. This applies most appropriately in education. Use of the Internet as a resource tool and as a means of instruction has opened up a wide range of opportunities for teaching and for learning. One experienced full-time instructor responded, "Designing and teaching courses online has changed the way I teach in the classroom. I am very excited by the students and how when pushed to perform with greater independence they rise to the occasion."

Vast amounts of information are available to students and faculty through the Internet and the World Wide Web. One perception that was put forth in several responses to this question was that information on the Internet through the World Wide Web is usually much more current than the information found in most text books. One instructor responded that students were encouraged to "visit online sites that can provide help any time of day or night." A full-time faculty member said:

> I teach Intro to Humanities and the advantage is that I can take students into museums and sites around the world. With a textbook, you have to choose the book that has the greatest amount of useful material. But with the Internet course, if I know of a particular work that perfectly illustrates some concept, I simply find it out there in cyberspace and link the students directly to what it is I want them to see and have them apply the concept I want them to understand. It's really wonderful!

Disadvantages to Teaching Internet Courses

Faculty and administrators were asked to comment on at least one disadvantage to teaching Internet courses that they had personally encountered. Of the 187 responses received to this question, at least half contained the word "time" in one context or another. These responses frequently involved "preparation time," "time management," and "time spent online." Other responses tended to fall into groupings of student learning styles, technical problems, student-faculty interaction, retention, testing, and lack of administrative support.

Time. According to respondents to this survey questions, by far the greatest disadvantage to teaching an Internet course is the tremendous amount of time required to prepare and conduct the course. Instructors responded that they spent a lot of time in front of the computer screen, more time on Internet courses than on traditional courses, and more time answering technical rather than academic questions regarding their courses. One administrator said, "It's too darn much work. I am an administrator who has been teaching since 1966." Another said, "No one except the teacher of an online course could possibly understand the time that is required." One full-time faculty member said:

> Teaching on the Internet requires TIME. I spend hours at the beginning of the semester organizing links, lectures, assignments, calendars, and the like inside the online classroom, and I spend hours each week during the semester monitoring the students' discussions, progress, and participation.

Another summed up his frustration by stating:

> It feels like I never finish teaching!! New mail in my box every time I boot the PC. I feel guilty taking a PC-less day. In summer all I taught were online classes, and managed it easily. But combining two distance classes with four classroom classes is extremely difficult. There just aren't enough hours in the day.

Some instructors felt that they had to be available to the students "anytime, anywhere." Another responded that a tremendous amount of time was required to "adequately grade and evaluate student work." Too much time was spent in "clerical" types of tasks such as "answering e-mail" and "grading on-line."

Student Learning Styles. Several respondents felt that students did not have good concepts of "time management." Many students expect the work to be easier or take less time than a regular classroom course and either fail or drop out quickly. Other students think that online courses can be done "anytime" and procrastinate badly. Some students do not take the course seriously. Many Internet-based courses are not "self-paced." They require adherence to "definite deadlines" and schedules. One instructor stated, "Most students are not mature and self-disciplined enough to achieve success." Another said, "Students do not estimate accurately the amount of time needed to successfully complete the course."

Some faculty responded that many students did not have the "technical background" to participate successfully in an online course and must be shown the mechanics of working the computer and the Internet software. Some students do not read instructions and respondents felt that an inordinate amount of time had to be spent simply "getting the students up to speed" on the computer. This was especially true of students fresh out of high school. One faculty member stated, "My favorite email one week into the class – 'what computer should I buy?'" Too many students were "under-prepared technologically."

Technical Problems. Concern with Internet "downtime" was a common response to this question. Instructors felt that technology frequently "let them down." Hardware

and software problems were mentioned by several instructors as being ongoing problems. At the same time, lack of "support from instructional technology" was another area of frustration for many respondents. One instructor stated that the software at his institution was "constantly changing" and was not as "user friendly" as expected.

Technology problems are not always the responsibility of the institution. One administrator responded that students often have "inadequate hardware, software or unreliable Internet service providers." Students who do not know how to use the computer or who constantly have difficulty "logging on" become frustrated and quickly get behind in the course.

Student-Faculty Interaction. Respondents to this question felt that both faculty and students had concerns about student-faculty interaction in Internet-based courses. One instructor said that students miss the "face to face" interaction in classes. One concern voiced was that this "face-to-face" interaction often enabled the instructor to analyze student understanding of subject matter on an "as you go" basis. Internet courses, on the other hand, required the instructor to "wait on case studies and examination results" to determine whether or not a student is having problems.

A large number of responses indicated that instructors missed "the personal contact" with students and "interacting with students face to face." Interaction between faculty and students are often delayed. One instructor stated, "Interactions with students via e-mail/chat rooms (typing 20 wpm) is not efficient." Delay in interaction can result in "losing" a student who lets himself fall behind. Other concerns brought out by responses to this question include, "lack of human physical interaction," "lack of personal contact,"

"lack of social engagement crucial to any education," and "lack of spontaneity of the traditional classroom."

Retention. Student expectations that Internet-based courses will be less work or easier than a traditional course led one instructor to respond that this accounts for a "high dropout rate; as much as 45%." High attrition rates suggest "web classes favor certain types of learning styles and therefore certain types of students." Students without the "motivation and skills needed to succeed" normally drop or fail. One instructor said, "Since the instructor is not there to pat them on the back, they simply drop the course."

Testing. "Security of testing" was a concern for several survey participants. Two respondents felt that little security exists to ensure that "students complete the work themselves." One instructor responded:

> My main concern is the security of testing and verification of student work. I have designed my exams to be difficult enough to be done as open book exams that have a time limit. Also most of the points in my course are given for written assignments that have a comparable level of security to outside of class writing assignments in traditional courses.

Another said, "Testing is frustrating. I would like on-line testing but I realize it is difficult to proctor and would not meet department standards." Another felt that testing was "problematic," and that he would pursue a more "project-based" course in the future. Another concern was that some Internet or "online" courses were not written with "distance" in mind, and that students had to come to campus for testing.

Lack of Administrative Support. Several survey participants indicated frustration with support given them by their administrations. Some felt that their administrations have "no idea what we do or what we need." Non-Internet instructors and administrators

tend to "think teaching online requires less work" and think that the instructor "is not carrying a full load." One respondent said:

> Few administrators know what it is like to "teach" online. They view it as innovative and futuristic, but fail to recognize the limits of the media available to faculty. Furthermore, they often fail to provide support for keeping up with the technology, and there is little or no training available to faculty who would like to teach online. It is presumed that any faculty can offer a class online, and the skills to get the course online are presumed to be inherent in the faculty member. If the faculty member has limited web skills, then the class cannot be offered online for lack of available college-sponsored training. Despite this, faculty are pushed to put entire curricula online, with varying levels of quality.

One instructor said that he found it difficult to "communicate with administrators about pedagogies and needs" concerning online classes. Three full-time faculty respondents said that they received little or no compensation for the extra amount of work and time they put in developing and conducting Internet courses. One commented, "Tells you how they value faculty." One administrator stated, "Those teachers who teach on the Internet are overworked and underpaid, for the most part." Another administrator recognized the frustration of many instructors by responding:

> Personally, I would like to have a staff that could help my faculty develop multimedia components to their classes without having to learn the software. We need to support our Internet teachers more to help them make their classes more appealing in terms of organization and design.

Professional Benefits of Teaching Internet Courses

Faculty and administrators were asked to comment on at least one professional benefit of teaching Internet courses. Of the 144 responses received to this question, the majority fell into the category of creativity and personal development. Other responses were grouped into general categories of wider exposure, financial rewards, and improved recognition.

Creativity and Professional Development. Expanded opportunities to "explore new techniques to improve teaching strategies" were mentioned by several respondents. Instructors and administrators alike felt that teaching Internet courses provided numerous opportunities to be "creative." One respondent said that teaching Internet classes "broadened my horizons in curriculum, course delivery and class management." Instructors responded that they "expected more from their Internet students." More than one respondent described teaching Internet courses as "teaching out of the box." Many felt "rejuvenated" by their Internet teaching experiences and their opportunities to learn and implement "new theories of teaching." Many felt that their teaching was "dramatically improved" in both their Internet courses and their traditional classroom courses. One experienced full-time instructor said, "The challenge of learning to use the Internet to teach has given my career a new lease on life, so to speak." Another echoed this sentiment with, "The issues and complexities of this new instruction/collaboration tool are so interesting that they will probably keep me from retiring for a long time."

A large number of responses concerned technical expertise. One survey respondent said that he was "forced" to become "more comfortable with technology." Instructors of Internet courses felt that they often received "special consideration" from their departments in the form of up-to-date computer equipment and access to technology available at the institution. Several respondents commented on their "vastly improved computer skills." A computer instructor said about teaching Internet courses, "Since I'm a computer technology instructor, it continued to challenge me beyond computer hardware and software. I developed and continue to develop new and different instructional technology skills."

Wider Exposure. Many faculty and administrators felt that teaching Internet courses opened up to them contacts and resources outside their own institution. Responses included, "reach a wider base of students," "participate in state-wide consortiums," and, "connect to a larger academic world." An administrator with the Virtual College of Texas responded, "I've had the pleasure of getting to know Internet teachers from all disciplines and administers across Texas."

A key term surfacing in many of these responses was "networking." The ability to communicate with other professionals outside of an instructor's own geographic area was mentioned as an important benefit. One instructor responded, "I've met more instructors from different divisions though online teaching." Another said, "I have come in contact with some really great people, both other instructors and students."

Some responses indicated a feeling that "networking" meant "opportunities to reach more students in more remote areas of the state". One respondent said that teaching Internet courses allowed him to be "on the cutting edge" of educational offerings to a "diverse pool of students." An instructor in a Safety program said:

> I can have students from all over the world. We have thousands of Safety people all over the world who have had no formal education in Safety and very few colleges offer a safety degree. This will give the safety people of the world a chance to become Safety professionals. After spending 25 years in the field as a Safety Professional I feel this is a very necessary thing to do before I retire.

Improved Recognition. At least ten responses to this section of the survey indicated that just being associated with a community college as an Internet instructor has improved the respondents' professional status. Many are identified by their institutions as being "innovative instructors" and "leaders in the innovative use of technology." One instructor responded, "Everyone is calling me to know how I developed a whole new

course and put it on the web with just a few weeks prep. I'm now the department Webber."

Recognition is not limited to the instructor's own institution. Internet instructors often receive invitations to give presentations around the state on teaching online. Such "wide-range" recognition often results in being "invited to conferences that afford some notoriety because of the cutting edge work we are doing." A part-time instructor said, "It also looks good on your resume."

Barriers to Teaching Internet Courses

Faculty and administrators of Internet-based courses were asked to comment on at least one barrier to teaching Internet courses that they had personally encountered at their institutions. One hundred fifty-five responses were received to this survey item. These responses were grouped into five general categories; time constraints, administrative support, student knowledge and capabilities, testing and evaluation, and faculty attitudes.

Time Constraints. It is significant that "time" was listed by a large number of survey participants as both a barrier to teaching Internet courses and a disadvantage to teaching that they had personally encountered. Many instructors and administrators responded that "time to prepare" Internet courses was a barrier to teaching and that many instructors avoided Internet courses because of the amount of time necessary to prepare and conduct an Internet course. Several also felt that administrators "had no clue" as to the amount of time necessary to prepare for and to teach an Internet course. Some instructors avoided teaching Internet courses because they were concerned that they would "not have enough time" to interact with their students. Two instructors expressed

concerns about unreasonable "timelines" to have courses ready for online delivery. Lack of "preparation time" was another concern expressed by two instructors and one administrator.

Administrative Support. More than half (86) of the responses to this survey item contained comments regarding support. While comments were generally positive, "lack of administrative support" was mentioned by a large number of respondents in one form or another. Lack of support reported by respondents included "lack of a master plan," "lack of financial support," and "lack of training and development support." At one institution, an instructor commented, "Administration does not encourage online course development." While this may be a rather general statement, one administrator with Internet teaching experience was more specific:

> I feel that, as an institution, we taught Internet classes before we had the technology, the training support and the administrative policies in place. Most of what I know about teaching Internet classes has come from "mistakes" made while teaching Internet courses. There was no standard course delivery software requiring the instructor to "make do" with no real support. There was no method of communicating the requirements of the course to students at registration and no idea of how to apply course load. There has not been nor is there now any administrative commitment by the institution to assist instructors teaching Internet courses nor is there any incentive given to develop Internet courses.

One instructor responded that he was forced to take "the overflow from another teacher's course," and teach the course without ever having taught the Internet version of the course before. Another faculty member concurred with the previous instructor by commenting, "I may set up the course, but administration may arbitrarily assign the course, and all of my work, to another instructor." Two faculty members voiced concerns over lack of an "intellectual property policy" that protects faculty rights.

A full-time faculty member expressed concern about administrative attitudes toward instructors who teach Internet courses. He said:

> The administration seems convinced that faculty teach Internet courses are somehow getting away with something, working less or somehow not carrying their fair share of the academic load, a prejudice shared by many colleagues as well. This results in proposals to limit the number of Internet classes one may teach or the number of semesters one is allowed to teach Internet classes. This latter recommendation in turn has a negative impact on one's willingness to revise or amplify one's course materials.

A barrier to teaching Internet courses mentioned by a large number of survey participants dealt with lack of funding and support for the technical aspects of online course delivery. This issue brought out the largest number of responses by part-time faculty members. Adjunct faculty often do not have direct access to a computer at their institution. Most do their work at home on their own computers. Working from home, "interacting with the host computer via the Internet," is often a problem. When the host computer is down or inactive, efforts to work at home are "stymied or slowed." One non-tenured full-time teacher expressed her frustration with "antiquated computers." She said, "The fancy ones are in the lab and for the tenured teachers, and it is very inconvenient for me to go down and work on them. I am teaching six other courses and this one is lost in the shuffle."

Two instructors reported having to purchase their own equipment in order to develop their Internet courses. One felt that he had "better technology at home than in my office." Another instructor responded that he had to have most of his course developed before he had a computer in his office that would access his institution's Internet service.

A major barrier to the development of Internet courses is seen by faculty and administrators when institutions are not committed to providing technology and staff to properly run distance learning programs. Several reasons mentioned for this included "lack of funding for support staff," "lack of updated equipment for Internet courses," "lack of technical support for faculty and students," and, "limited availability of support staff." One instructor stated that support staff was "usually only available 8-5 M-F, but are often on special projects or out of the office." A shortage of support personnel knowledgeable in "HTML coding, servers, etc.," was also listed as a barrier.

Equipment overloading was another factor mentioned by several instructors. "No backup for the server," and, "No priority for dedicated servers for Distance Education," were mentioned as major drawbacks at two different institutions. One instructor commented:

> Our server has gone down without notice on several occasions (due to both internal and external causes) and the students have not been able to access the materials and assignments because they could not log on. And when our server is down our email is also down so we don't have an alternative method of contact with the student.

Technology is changing faster than most institutions can keep up. This places a considerable financial burden on community colleges. One instructor commented:

> The school cannot make the mental/economic shift from budgeting for physical needs (parking lots and new classroom buildings) to technology needs (fault tolerance in the Internet structure). The administration will pay for bricks and mortar because they can see and understand these needs, but the balk at realistically budgeting for technology.

An administrator commented, "Some of the most important barriers to delivering Internet courses are the provision of an efficient and effective course management

system, good and comprehensive technical support, and a 24-7 support source for both faculty and students."

Student Knowledge and Capabilities. Some faculty and administrators commented that a barrier to teaching Internet courses involves the students themselves. They expressed concerns that many students enroll in Internet courses lacking either "basic technical knowledge" or "minimum computer capability requirements." Student attitudes towards Internet courses often appear to be unrealistic. One faculty member commented that "undisciplined students" often end up in these courses thinking it will be easier than a classroom course. Administrators in particular expressed that this often seems to occur in spite of "substantial efforts to inform students" of the true nature of Internet courses.

Some concepts are difficult to get across via the Internet. One math instructor responded, "In math I believe students can more easily understand a concept or formula when they see it develop, when written on a blackboard, etc. With Internet the problem must be laid out in its entirety and the step by step process may not be easily perceived by the student."

Another commented, "It is sometimes difficult to explain a process to the student through e-mail. It is very easy to walk up to the computer and show (demonstrate) the steps to doing a Mail Merge in Word. That same process requires careful explanation and a great deal of time to explain through e-mail. It is more difficult for the student also."

The availability of students having the correct computer configuration and software to successfully complete the course is often a barrier to teaching Internet

courses. Students need a computer in order to take an Internet course. Some students do not have computers at home or in their dorm rooms and have to rely on school computers in computer labs. Since these computers are not available twenty-four hours a day, they miss out on unrestricted e-mail interaction with the instructor and with fellow students. Faculty felt that this interfered with their ability to send and receive timely feedback to students and to react to potential problem situations. One survey participant's comment stated, "More 'upfront' advising needs to occur to make sure students have computer skills." That applies to computer equipment as well. Students often do not possess the "best" software to complete a course and end up having to "make do" with a patchwork of computer programs.

Testing and Evaluation. Several survey participants consider lack of effective and convenient testing and evaluation procedures for Internet courses a barrier. One respondent stated that "student identification" was required for testing, and that students had to "come to a centralized point" in order to take an exam. Although most instructors like Internet courses because of the flexibility of scheduling available, most institutions require that final exams be "given in person" and "on-campus."

Faculty Attitudes. Some faculty and administrators felt that faculty attitudes towards Internet courses were themselves a barrier to teaching Internet courses. One instructor voiced the comment, "Many faculty members disapprove of Internet courses. They feel that the courses do not measure up to on-campus classes." Another faculty member mentioned prejudice about the "superiority" of traditional classroom instruction. Some instructors ventured comments that not only is the traditional classroom lecture the "best way to deliver the course content," but it should be "the only way that courses are

delivered." One instructor said, "Some members of my department were extremely hostile about the prospect of online courses when these courses were first offered several years ago. In fact, I even had a colleague tell me that I was committing a "great evil" by placing my composition course online!"

Many pressures exist on faculty members that discourage the teaching of Internet classes. One faculty member said that he felt "alone" with few people to "bounce ideas off of" because I am "a front runner" in online presentations. Other faculty members responded that they were concerned about the "time and effort" involved in learning the different software packages and developing professional presentations. Concerns about retention prompted one instructor to comment, "Our campus is placing a great deal of emphasis on retention at this time. While there are not any specific problems at this time, it makes me uncomfortable teaching a class with a typically lower retention ratio associated with it."

Summary of Findings

Summarization of the findings of this study are organized according to the three research questions posed at the beginning of the study.

Are administrators and faculty in two-year colleges in Texas aware of procedures and policies dealing with the administration of Internet-based courses in their institutions?

Based upon the results of this study, faculty and administrators in two-year colleges in Texas are aware of institutional policies and procedures dealing with administration of Internet-based courses in place at their institutions. Faculty and administrator perceptions of Institutional Support are, for the most, part, favorable. Administrators tend to be more aware of institutional policies and procedures and were slightly more in agreement with the survey items in these sections than full-time faculty. Part-time faculty participating in the survey, possibly since most were first-time Internet instructors and had limited experience with their institution's policies, responded slightly less in agreement with the statements in this section than did full-time faculty or administrators.

Faculty and administrators perceived that their institutions had documented technology plans in place and that a centralized system of support for building and maintaining the distance education infrastructure existed at their institutions. Faculty and administrators perceive their institutions as being supportive of higher education by making educational opportunities more convenient and more affordable to students.

Two-year college faculty and administrators perceive that their institutions support learning through maintaining guidelines regarding minimum standards use for

course development, design, and delivery. Faculty and administrators agreed that timely and constructive feedback to student assignments and questions is an essential part of their institutions' policies and practices.

Are faculty and administrators satisfied with procedures and policies currently in place to deal with the administration of Internet-based courses in two-year colleges in Texas?

Faculty and administrators of two-year colleges in this study were satisfied with almost all of the procedures and policies currently in place dealing with the administration of Internet-based courses. The results of this study indicate respondents believe that they and their students are supported by the administrative policies currently in place and those that are being implemented at their institutions.

Faculty and administrators were less agreeable regarding support of faculty by administration. While most agreed that their institutions encouraged used of technology in course development and that their institutions provided adequate technical support, many felt that institutions did not provide adequate assistance in the transition from classroom teaching to online teaching. Faculty and administrators were also less than agreeable with the effectiveness of course evaluation and assessment at their institutions, and they were greatly concerned about retention.

What do faculty and administrators in Texas two-year colleges perceive to be the benefits and barriers to the use of Internet-based courses in two-year colleges?

Faculty and administrators perceive a major benefit to the use of Internet-based courses is the ability to be able to reach students who could not or would not normally take an on-campus course. Flexibility of time and schedule afforded through teaching

Internet-based courses was perceived as an important advantage by a large number of instructors and administrators. New opportunities for learning was reported as another advantage to Internet-based courses.

The greatest disadvantage reported in this study had to do with the increased amount of time required to prepare and conduct an Internet course. Many instructors felt that Internet-based courses required a good deal more time than a traditional classroom course. Unrealistic expectations by students was another reported disadvantage. Often students did not take the course seriously, expected it to be easy, and failed to have adequate technical skills to participate effectively in the class. A major concern voiced by faculty and administrators was the lack of "face-to-face" interaction between instructors and students.

The greatest professional benefit reported in this study was the feeling by administrators and faculty for the opportunities to explore new techniques and to improve teaching strategies. Faculty and administrators reported being able to branch out and reach new contacts and new resources outside their own institution, and many felt that they were able to reach more students through the Internet course.

The largest single barrier to professional development reported in this study was the issue of time constraints placed on instructors by administrators and institutions. Extensive preparation time for Internet courses was reported by many to be a barrier to teaching. Lack of administrative support in the form of lack of administrative guidelines, lack of financial support, and lack of training and developmental support was felt to be a barrier to professional development of Internet-based courses by a small number of faculty and administrators.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter represents the researcher's attempt to take a broad view of the literature reviewed, data analysis, findings, and discussions in the previous four chapters in order to identify conclusions, recommendations, and areas of possible further study.

Summary

Little is known about how faculty in two-year colleges use the Internet as a primary means of instructional delivery, the levels of institutional support they receive, and how faculty and administrators perceive usage of the Internet to be affecting teaching performance. The problem of this study was to examine: (a) the perceptions faculty and administrators in public two-year institutions in Texas have towards the administration of Internet-based academic courses and (b) the satisfaction levels these same administrators and faculty members had towards policies and support mechanisms in place at their institutions. The purpose of this investigation was to profile the perceptions of faculty and administrators regarding the delivery of Internet-based courses at two-year colleges in Texas and to highlight benefits and barriers faculty and administrators perceived from the use of Internet-based courses.

Chapter I provided a framework for the study by describing the problem within the context of the emergence of Internet-based courses in two-year colleges. From this framework, three research questions were set out to guide the development of this study:

1. Are administrators and faculty in two-year colleges in Texas aware of procedures and policies dealing with the administration of Internet-based courses at their institutions?

2. Are faculty and administrators satisfied with procedures and policies currently in place to deal with the administration of Internet-based courses in two-year colleges in Texas?

3. What do faculty and administrators in Texas two-year colleges perceive to be the benefits and barriers to the use of Internet-based courses in two-year colleges?

Chapter II reviewed the literature relating to the emergence of the information age and the technological innovations, especially the Internet and computer networks, that today permeate work, everyday life, and especially education. Areas reviewed included those of Internet potential, college faculty and faculty attitudes towards technology, and technical innovation in two-year colleges. Research and theory on diffusion of innovation were also discussed. These areas provided an overview of the major and theoretical findings that made up the groundwork for the research questions and subsequent research approach and survey development.

Chapter III outlined the study's methodology including rationale, population and sample, survey instrument, data collection and procedures.

Chapter IV included a demographic profile of respondents and results of the data analysis in terms of the three research questions. Findings of the study were discussed and organized around the three research questions.

The first research question asked, "Are administrators and faculty in two-year colleges in Texas aware of procedures and policies dealing with the administration of Internet-based courses at their institutions?

Faculty and administrators generally agreed that institutional policies and practices dealing with the administration of Internet-based courses were adequate at their institutions. Based upon the results of the study, administrators tended to be more aware of institutional policies and procedures than full-time faculty or part-time faculty by having a higher percentage of agreement to most of the questions in this area, while a majority of all three groups felt strongly that their institutions had documented technology plans in place and that a centralized system of support existed for building and maintenance of their institution's distance education infrastructure. Faculty and administrators perceived that the technology delivery systems at their institutions were sound and secure and that their institutions supported affordable and readily available education for all students. Institutional policies and procedures were felt to emphasize learning outcomes to be more important than technology, and interaction between instructor and student was felt to be an essential ingredient in online course delivery.

The second research question asked, "Are faculty and administrators satisfied with procedures and policies currently in place to deal with the administration of Internet-based courses in two-year colleges in Texas?"

Faculty and administrators expressed satisfaction with policies and procedures in place at two-year colleges in Texas dealing with the administration of Internet-based courses. Satisfaction with support for students by administration was generally favorable. They felt strongly that policies and procedures were in place to enable

students to be well informed about traditional student support services, but those same support mechanisms were not in place to assist students to receive adequate hands-on training and information to aid them in securing information through electronic resources. Perceptions of how well administrations supported faculty varied considerably. Faculty and administrators agreed that their institutions encouraged use of technology in course development and that their institutions provided adequate technical support in the form of trained personnel on duty a sufficient amount of time each day. However, many faculty expressed less satisfaction with institutional assistance in the transition from classroom teaching to online teaching and in the level of continued support once the course was past the developmental stage. Faculty and administrators also expressed strong satisfaction with their institutions' efforts to maintain the rigor and academic standards of the traditional classroom. In spite of this, a majority felt that retention in Internet-based courses was lower than in the same courses offered in traditional classrooms.

The final research question asked, "What do faculty and administrators in Texas two-year colleges perceive to be the benefits and barriers to the use of Internet-based courses in two-year colleges?"

The major advantages expressed by faculty and administrators included the ability to be able to reach students who would not or could not normally take an on-campus course. Flexibility of time and schedule for faculty and for students was another major benefit mentioned by a large number of respondents. Increased participation by students and the availability of new opportunities for learning were among the benefits listed. The disadvantage listed most often had to do with the increased amount of time required to prepare for and to conduct an Internet course. Other disadvantages included unrealistic

expectations by students, technical problems with software and hardware, lack of "face-to-face" interaction with students, high dropout rates, lack of security for testing and evaluation, and frustration with lack of administrative support. Faculty and administrators listed the opportunities available to explore new techniques and to improve teaching strategies as the greatest professional benefit of teaching Internet-based courses. The greatest professional barriers involved with teaching Internet-based courses involved time constraints placed on instructors by administrators and institutions and the general lack of understanding and support by administrations.

Conclusions

The conclusions in this study will be discussed under the following headings: awareness, satisfaction, and benefits and barriers.

Awareness

This study resulted in a number of conclusions about the awareness of faculty and administrators of policies and guidelines at their institutions concerned with the development and implementation of Internet-based courses. Faculty and administrators generally feel comfortable that policies and procedures dealing with the administration of Internet-based courses are in place at their institutions in the form of published institution-wide policies and master plans.

Based upon the results of the study, documented technology plans are in place at a majority of two-year colleges and centralized support systems for distance education are also reasonably well established. Institutions appear to be keeping up with current trends

in technology since most faculty and administrators expressed confidence in the technology delivery systems at their institutions.

The results of the study also indicate that two-year public colleges in Texas support the expansion of higher education through the use of well-designed Internet-based courses. Learning outcomes are more important than using technology for technology's sake, and two-year colleges have procedures in place for regular review of program and instructional materials to ensure standards are met and maintained.

Interaction with students continues to be an essential characteristic of effective course delivery. This is supported by policies and procedures in place at most institutions participating in this study. Internet-based courses are no exception. Timely and constructive feedback to student assignments and questions is an essential part of the policies and guidelines for the design and delivery of Internet-based courses.

Satisfaction

Faculty and administrators are basically satisfied with policies and procedures in place concerning the administration of Internet-based courses. Based on the results of this study, administrative policies currently in place and those in the process of being implemented support faculty and student use of Internet-based courses. Institutional commitment to development of Internet-based courses to expand educational and instructional opportunities through this relatively new form of distance education appears strong.

Results of the survey indicate that faculty and administrators are satisfied with the information and support mechanisms in place to enable students to successfully

participate in Internet-based courses. Two-year colleges in Texas appear to have well-implemented plans for providing students and faculty with current technology and ready access to various forms of electronic resources.

A major area of dissatisfaction exists over faculty support by administration during the developmental and instructional phases of Internet course delivery. Faculty and administrators feel that administrations especially lack understanding and fail to provide support during the instructional phase of Internet-course delivery. The researcher feels that most administrators achieved their current positions without having had actual experience with online course delivery and lack understanding of the time demands and processes involved. As administrators gain experience working with faculty and students of Internet-based courses, this attitude may diminish.

Effective course evaluation and assessment of Internet-based courses is in the developmental stages at many institutions involved in this study. Although survey participants agreed that Internet courses maintained the rigor and academic standards of the traditional classroom, well-defined, appropriate course evaluation processes appear to be less established at many institutions.

Results of this survey indicate that retention in online courses is a major concern to faculty and administrators. In spite of efforts by two-year colleges to provide pre-enrollment information regarding Internet courses to students, faculty and administrators feel that, unlike most traditional classroom courses, many students enroll in Internet-based courses without a clear understanding of what is expected of them and often without the appropriate technical background to successfully participate.

Based upon the results of the study, student evaluation and testing procedures for Internet-based courses vary widely from institution to institution. A large number of institutions require students enrolled in Internet-based courses to travel to the home campus to take exams, while few offer alternatives such as off-site proctored examinations to students who would otherwise have to travel considerable distances to meet institutional requirements. Based upon the perceptions of faculty and administrators participating in this study, students in Internet classes almost always perform as well as students in traditional classroom settings.

Benefits and Barriers

The greatest advantage to the use of Internet-courses is the improved ability of two-year colleges to reach students who would not normally enroll in an on-campus course. The flexibility of time and schedule afforded to both students and instructors makes Internet courses an effective means to extend higher education to those would not normally be able to participate.

Faculty involved with Internet courses appear to be enthusiastic and welcome the opportunity to expand their professional teaching and learning capabilities through the use of new technology and techniques. Possibly because of the sense of anonymity or lack of "face-to-face" confrontation with the instructor or other students, more students involved in Internet courses through chat rooms and e-mail participate regularly and are more outgoing than students in the traditional classroom setting.

The greatest single disadvantage to the development and teaching of Internet-based courses is the increased amount of time required to prepare, interact with students,

and conduct the online course. Some courses are more easily developed as Internet-courses than others, just as some instructors are more comfortable in an online setting than others. The loss of the traditional "face-to-face" interaction between instructor and student undermines the effect of the personal contact of the traditional classroom.

Recommendations

This study has shown that the Internet has assumed an ever-increasing role in the academic life of many two-year colleges in Texas. Implications for these colleges occur at both the faculty and administrative levels. The findings and conclusions of this study lead to recommendations for institutional policy and practices, faculty and student support, and evaluation and assessment at public two-year colleges in Texas. A further recommendation is made regarding the conduct of web-based surveys.

Institutional Policy and Practices

The findings of this study indicate that faculty and administrators feel strongly that institutional policies and practices provide the foundation for development and implementation of online courses. Recommendations for the promotion and encouragement of the development of online courses include:

1. Develop and implement a documented technology plan including electronic security measures at every public two-year college in Texas.

2. Develop and implement a reliable technology delivery system at each institution.

3. Develop and implement a centralized system of support for building and maintaining the distance education infrastructure.

4. Establish explicit guidelines and standards for course development, design, and delivery.

5. Develop and implement policies stressing learning outcomes as the prime factor in determining the technology to be used for course delivery.

6. Establish standards for periodic review of programs and instructional materials.

Faculty and Student Support

The results of this study indicate the faculty and administrators strongly agree that students and faculty should be provided with support mechanisms encouraging adequate preparation for and completion of online courses. Recommendations in this area include:

1. Develop and implement a policy confirming student interaction with faculty and other students as an essential characteristic of Internet course delivery.

2. Establish a formal advisement program informing students that self-motivation and commitment is required of Internet courses.

3. Ensure students have access to sufficient library resources including electronic resources such as the World Wide Web.

4. Establish a program for technical and financial assistance to faculty involved in the development and implementation of Internet courses.

5. Develop and implement a training program for faculty that carries through the entire scope of the Internet course from development through the instructional phase of the course.

Evaluation and Assessment

The results of this study indicate that faculty and administrators are concerned with evaluation and assessment of online courses. Recommendations in this area include:

1. Develop and implement policies and guidelines for continually evaluating the effectiveness of each course in terms of the appropriateness of the course to the teaching/learning process.

2. Establish a standard program to evaluate educational effectiveness using a variety of methods and data.

3. Develop and implement specific standards to be applied to each aspect of the evaluation process.

Web-Based Surveys

Problems encountered in the administration of the web-based survey for this study indicate several steps that should be taken to ensure adequate timing and receipt of web-based surveys.

1. Software problems delayed the initial notification for the survey. When using vendor-developed software, allow sufficient time for testing and de-bugging of the software itself.

2. Clearly state to potential participants whether their responses will be anonymous or not. This may impact the response rate.

3. Follow up at well-defined and timely intervals.

4. Be sure to state what the deadline for responding to the survey will be.

Further Study

The results of this study reveal many insights into the perceptions of faculty and administrators towards their institutions' policies and guidelines concerning Internet-based courses and their satisfaction with the support mechanisms in place for instructors and students involved with these courses. Use of the Internet by itself will not generate long-term benefits to education. Appropriate, well-defined, and well-supported programs for Internet course development and for faculty and student support will continue to redefine many aspects of higher education, especially at two-year colleges.

Three areas emerged from this study as being area of opportunity for further research and study. Further research is needed to evaluate whether or not different forms of online delivery are as effective in establishing a positive and productive learning environment as the more traditional classroom concept of "face-to-face" interaction. In addition, further research could be done on the high rate of Internet students failing to complete online courses compared to traditional classroom courses or other types of distance education. Finally, additional research could be done to discover the most effective means of evaluation and assessment of Internet-based courses.

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APPENDIX A

THE SURVEY INSTRUMENT

Internet Course Survey

Instructions

Please respond to the questions in this survey as they relate to you. Check or click on the box(es) most applicable to you or your situation. Please do not omit any questions even if you do not feel qualified to respond. It is your "perception" of the situation that is important to the survey, not necessarily your factual knowledge. Thank you for taking the time to complete this questionnaire.

To avoid receiving duplicate messages or reminders concerning this survey, enter your email id now

Email: _____

Institutional Support

1. My institution has a documented technology plan that includes electronic security measures to ensure both quality standards and the integrity and validity of information.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

2. The reliability of the technology delivery system at my institution is as failsafe as possible.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

3. My institution has a centralized system of support for building and maintaining the distance education infrastructure.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

4. Making educational opportunities more convenient and more affordable to students is important to my institution.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

5. Increasing student access by making courses available at convenient locations and at convenient times is important at my institution.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

6. Reducing per-student costs are important at my institution.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

7. Students enrolling in Internet classes pay the same fees as in-district students enrolling for traditional classes.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

Course Development

8. My institution has guidelines regarding minimum standards to be used for course development, design, and delivery.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

9. Learning outcomes - not the availability of existing technology - determine the technology being used to deliver course content.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

10. Instructional materials at my institution are reviewed periodically to ensure that they meet program standards.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

11. At my institution, courses are designed to require students to engage themselves in analysis, synthesis, and evaluation as part of their course and program requirements.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

Teaching / Learning

12. Student interaction with faculty and other students is an essential characteristic of online course delivery and is facilitated through voice-mail, electronic mail, chat rooms, and a variety of other means.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

13. Feedback to student assignments and questions is constructive and is provided in a timely manner.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

14. Students in online courses receive instruction in the proper methods of effective research, including assessment of the validity of resources.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

Course Structure

15. Prior to enrolling in an online course, students are advised about the program to determine if they possess the self-motivation and commitment to learn at a distance.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

16. Prior to enrolling in an online course, students are advised about the minimal technology requirements necessary to participate in the course.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

17. Students are provided with supplemental course information outlining course objectives, concepts, and ideas.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

18. Students are provided with summarized learning outcomes for each course in a clearly written, straightforward statement.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

19. Students have access to sufficient library resources including "virtual libraries" accessible throught the World Wide Web.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

20. Faculty and students agree upon expectations regarding times for student assignment completion and faculty response.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

Student Support

21. Students are informed about programs, including admission requirements, tuition and fees, books and supplies, technical and proctoring requirements, and student support services.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

22. Students receive hands-on training and information to aid them in securing material through electronic databases, inter-library loans, government archives, news services, and other sources.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

23. Throughout the duration of an online course, students have access to technical assistance, including instructions regarding the electronic media being used, practice sessions prior to the beginning of the course, and convenient access to technical support staff.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

Faculty Support

24. Technical assistance in course development is available to faculty.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

25. Faculty are encouraged to use available technical assistance with course development.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

26. Faculty members receive assistance in the transition from classroom teaching to online instruction and are assessed in the process.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

27. Instructor training and assistance continues through the progression of the online course.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

28. The institution provides faculty members with written resources to deal with issues arising from student use of electronically-accessed data.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

Course Evaluation and Assessment

29. The educational effectiveness and teaching/learning process assessment of online courses is accomplished through an evaluation process that uses several methods and applies specific standards.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

30. Online course effectiveness is evaluated based upon enrollment data, costs, and successful / innovative use of technology by the instructor..

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

31. Intended learning outcomes are reviewed regularly to ensure clarity, utility, and appropriateness.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

32. Retention in online courses at my institution is higher than in the same courses offered in the traditional classroom manner.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

33. Internet courses maintain the rigor and academic standards set in the traditional classroom.

(Select only one.)

- ☐ I agree completely
- ☐ I agree somewhat
- ☐ I neither agree nor disagree
- ☐ I disagree somewhat
- ☐ I disagree completely

Student Evaluation and Testing

The next section contains questions in which a few respondents (possible some administrators) may have little or no experience. The wording of the responses is slightly different and the option "Don't know" is available as an appropriate response. Please do not omit any questions.

34. Students take exams online at their convenience. No checking of identity or monitoring takes place.

(Select only one.)

- ☐ Always
- ☐ Almost always
- ☐ Sometimes
- ☐ Almost never
- ☐ Never
- ☐ Don't know

35. Tests are individually mailed, e-mailed, or faxed to students, who mail, e-mail, or fax them back.

(Select only one.)

- ☐ Always
- ☐ Almost always
- ☐ Sometimes
- ☐ Almost never
- ☐ Never
- ☐ Don't know

36. Tests are administered locally on-campus (students must travel to the campus).

(Select only one.)

- ☐ Always
- ☐ Almost always
- ☐ Sometimes
- ☐ Almost never
- ☐ Never
- ☐ Don't know

37. Tests are taken at remote sites in a proctored setting interactively via computer.

(Select only one.)

- ☐ Always
- ☐ Almost always
- ☐ Sometimes
- ☐ Almost never
- ☐ Never
- ☐ Don't know

38. Tests are taken at remote sites in a proctored setting on paper and mailed or faxed to the instructor by the proctoring site.

(Select only one.)

- ☐ Always
- ☐ Almost always
- ☐ Sometimes
- ☐ Almost never
- ☐ Never
- ☐ Don't know

39. Students are given the opportunity to provide feedback on the quality and content of the online course.

(Select only one.)

- ☐ Always
- ☐ Almost always
- ☐ Sometimes
- ☐ Almost never
- ☐ Never
- ☐ Don't know

40. Students in Internet classes perform as well (academically speaking) as those in traditional classes.

(Select only one.)

- ☐ Always
- ☐ Almost always
- ☐ Sometimes
- ☐ Almost never
- ☐ Never
- ☐ Don't know

Personal Information

This section asks for specific demographic information. Please respond by checking or clicking on the box next to the appropriate response. A few of the questions deal specifically with teaching experience. If you are an administrator but have not actually taught an Internet-based course, you may select the "Administrator" response box.

41. Gender?

(Select only one.)

- ☐ Male
- ☐ Female

42. What is your age?

(Select only one.)

- ☐ 21-30
- ☐ 31-40
- ☐ 41-50
- ☐ 51-60
- ☐ 60+

43. What is the highest level of education you have completed?

(Select only one.)

- ☐ High School
- ☐ Associate's Degree
- ☐ Bachelor's Degree
- ☐ Master's Degree
- ☐ Doctorate
- ☐ Other

44. What is your role?

(Select only one.)

- ☐ Full-time faculty
- ☐ Part-time faculty
- ☐ Administrator
- ☐ Other

45. How long have you been an instructor or administrator at the community college or two-year college level?

(Select only one.)

- ☐ 0-3 years
- ☐ 4-7 years
- ☐ 8-11 years
- ☐ 12-15 years
- ☐ 16-19 years
- ☐ 19+ years

46. What experience have you had teaching Internet-based online courses? If you have taught the same course more than once, count it once for each time taught.

(Select only one.)

- ☐ None
- ☐ This is my first
- ☐ 2-4
- ☐ More than 4

47. Which selection below best describes your level of technical expertise on the computer before teaching your first online course?

(Select only one.)

- ☐ Had never used a computer before teaching my first online course.
- ☐ Had limited experience with word processing software.
- ☐ Had a medium level of proficiency in word processing, spread sheets, Internet browsers, and other similar software packages.
- ☐ Had a high level of proficiency in the DOS environment, Windows 95/98, HTML for the Internet, and a wide range of other software.
- ☐ Generally consider myself an expert in most areas, including computer programming.
- ☐ Administrator

48. What is the average enrollment of the Internet-based courses you have taught or are currently teaching?

(Select only one.)

- ☐ less than 10
- ☐ 10-15
- ☐ 16-20
- ☐ 21-30
- ☐ more than 30
- ☐ Administrator

49. Are class sizes capped for Internet courses?

(Select only one.)

- ☐ Yes
- ☐ No
- ☐ Don't know

50. Is your course (or the most recent course you have developed):

(Select only one.)

- ☐ text-based with lecture notes or other curricula included for the students.
- ☐ a stand alone course that is not dependent on a text.
- ☐ a combination of the first two options.
- ☐ other
- ☐ Administrator

51. Relative to teaching in the traditional classroom, how much interaction do you have, generally, with students?

(Select only one.)

- ☐ Much more interaction
- ☐ Somewhat more interaction
- ☐ About the same
- ☐ Somewhat less interaction
- ☐ Much less interaction
- ☐ Administrator

52. Relative to teaching in the traditional classroom, how much time do you spend teaching an Internet class?

(Select only one.)

- ☐ Much more time
- ☐ Somewhat more time
- ☐ About the same
- ☐ Somewhat less time
- ☐ Much less time
- ☐ Administrator

53. In approximately what portion of your course(s) is a significant amount of writing required?

(Select only one.)

- ☐ More than 90%
- ☐ 75-90%
- ☐ 50-75%
- ☐ 25-50%
- ☐ Less than 25%
- ☐ Administrator

54. Relative to your experience in the traditional classroom, how would you guage your level of satisfaction gained from teaching courses via the Internet?

(Select only one.)

- ☐ Extremely satisfying
- ☐ Very satisfying
- ☐ Somewhat satisfying
- ☐ Not very satisfying
- ☐ Frustrating
- ☐ Administrator

55. What is the likelihood that you will continue to teach Internet courses in the future?

(Select only one.)

- ☐ Very likely
- ☐ Somewhat likely
- ☐ Not very likely
- ☐ I will never teach an Internet course again
- ☐ Administrator

Comments

The next questions are open-ended questions providing you with an opportunity to comment on areas that the survey may not have covered. While your response to these questions is optional, your comments are welcome and greatly appreciated.

56. Please comment on at least one advantage to teaching Internet courses that you have personally encountered.

57. Please comment on at least one disadvantage to teaching Internet courses that you have personally encountered.

58. Please comment on at least one professional benefit of teaching Internet courses at your institution.

59. Please comment on at least one barrier to teaching Internet courses that you have personally encountered at your institution.

APPENDIX B

INITIAL E-MAIL INVITATION TO PARTICIPATE

SENT TO FACULTY AND ADMINISTRATORS

To: <insert e-mail address>
From: mbcrouch@spc.cc.tx.us

Subject: Internet Course Survey

Dear <insert name>,

Please allow me to take just a moment of your time to ask for your help in completing my doctoral dissertation.

My name is Mark Crouch and I am a Doctoral candidate in Higher Education at Texas Tech University. I am also an administrator at South Plains College and a former Computer Information Systems instructor. As a fellow college administrator with experience in administering Internet-based courses, I am sure that you have had many rewarding, and sometimes frustrating, experiences as you administered the online courses for your institution. My dissertation addresses these experiences from both the instructional and administrative points of view.

The experiences and perceptions of community college instructors of Internet-based courses in Texas are critical to the success of this study. Would you please participate in a brief survey I have developed? The amount of time required to respond to this questionnaire is approximately ten minutes. The survey can be reached by clicking on the URL below or by copying the URL into the location box in your Internet browser:

http://www.spc.cc.tx.us/InternetCourseSurvey.html

Your time is extremely valuable and I sincerely appreciate your assistance with this project.

Please feel free to contact me by telephone or email if you have any concerns or comments or if you encounter any difficulties with your browser while attempting to respond the survey. I would also appreciate the names and email ids of any others at your institution who deal with Internet-based courses from an administrative point of view.

Thank you again for your time and effort.

Sincerely,

Mark Crouch, Director
South Plains College - Reese Center
806-894-9611 ext. 2901
mcrouch@spc.cc.tx.us

APPENDIX C

FOLLOW-UP E-MAIL INVITATION TO PARTICIPATE

SENT TO FACULTY AND ADMINISTRATORS

To: <insert e-mail address>
From: mbcrouch@spc.cc.tx.us

Subject: Dissertation Help!

Dear <insert name>,

A couple of weeks ago I asked to take just a few moments of your time for your help in completing my doctoral dissertation at Texas Tech.

The experiences and perceptions of community college instructors and administrators of Internet-based courses in Texas are critical to the success of this study. The amount of time required to respond to this questionnaire is approximately ten minutes. The survey can be reached by clicking on the URL below or by copying the URL into the location box in your Internet browser:

http://www.spc.cc.tx.us/InternetCourseSurvey.html

I realize that your time is extremely valuable and I sincerely appreciate your assistance with this project.

Please feel free to contact me by telephone or email if you have any concerns or comments or if you encounter any difficulties with your browser while attempting to respond the survey. The deadline for responding to the survey is Friday, December 10.

Thank you again for your time and effort.

Sincerely,

Mark Crouch, Director
South Plains College - Reese Center
806-894-9611 ext. 2901
mcrouch@spc.cc.tx.us

APPENDIX D

SURVEY RESPONDENTS BY INSTITUTION

Table D.1: Survey Respondents By Institution

Institution Name	n
Alamo Community College District	
Palo Alto College	1
St. Philip's College	12
Amarillo College	3
Angelina College	1
Austin Community College District	11
Blinn College	7
Brazosport College	2
Central Texas College	12
Collin County Community College District	4
Dallas County Community College District	15
Del Mar College	2
Galveston College	1
Houston Community College	5
Laredo Community College	6
Lee College	1
McLennan Community College	7
North Harris Montgomery Community College District	
Kingwood College	2
Odessa College	8
Panola College	4
South Plains College	15
Tarrant County College District	5
Trinity Valley Community College	6
Tyler Junior College	13
The Victoria College	4
Weatherford College	5
Western Texas College	1
n =	153